The Growth and Volatility of French Exporters*

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Abstract

This paper is interested in the microeconomics of exports growth and volatility. Using a census of French exports, reporting firm-destinations-product information over the period 1994-2008, we investigate the relationship between exporters' experience and size on foreign markets and their growth performance. We then decompose foreign sales' growth into the contribution of growth on continuing markets (intensive margin), and the contribution of entry and exit on product-markets (churning). Controlling for size, our results show that exporters' growth declines progressively with their age, conditional on survival. This pattern hides a rich variety of microeconomic adjustments: the gross contributions of entry and exit on product-markets is declining with age, but remains sizeable for mature exporters. Conditional on age, churning also decreases sharply with size and the relationship between size and net growth is non-monotonic.

JEL classification: F02, F10, F14.

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1 Introduction

The literature in international trade has emphasized the importance of firms' heterogeneity in explaining the cross-sectional distribution of firms' size on domestic and foreign markets. Sales and exports are extremely concentrated among a limited number of very large firms, whereas a large number of small exporters ship one or few goods to a neighboring destination (Eaton et al., 2004). The dynamics of firms' exports is also very heterogenous across firms: many of them start exporting in a given year but not survive more than one or a few years, and the growth of exports by these firms differs from the one of established exporters (Eaton et al., 2007; Freund and Pierola, 2010).

Empirical studies in the industrial organization literature have emphasized that, together, the age and the size of firms explain well the heterogeneity of growth patterns between firms, regardless of the export status: both the age and size are negatively associated with firms' growth and volatility (Dunne et al., 1989; Davis and Haltiwanger, 1992; Davis et al., 1996; Haltiwanger et al., 2010). For exporters Eaton et al. (2007) show that new Colombian exporters that survive grow more rapidly than established ones, and contribute to a high proportion of countries' exports growth. Their findings also point that initially small firms tend to grow faster in terms of export sales, which represents a departure from the Gibrat's law.

The objective of this paper is to provide a new set of stylized facts regarding the growth and within-firm volatility of exporters in relation to their age, and to their size. In particular, we are especially interested by one empirical pattern that emerges in recent empirical firm-level studies: firms tend to change very frequently their portfolio of products (Bernard et al., 2010; Iacovone and Javorcik, 2010) and destinations (Lawless, 2009), and this churning of products and destinations by exporters has an important contribution to the aggregate growth of exports in the long run (Bernard et al., 2009). One contribution of this paper is to quantify the contribution of churning to the growth of firms' exports, in relation to their age and size. Our results show a significant and distinct role for age and size of exporters for net growth and churning on foreign markets.

Our empirical analysis makes use of a transaction level dataset of French exporters, that provides information on firm exports by product and destination over the period 1994-2008. Using detailed export data allows to explore the relation between markets' turnover and firms' performance, which is usually not possible with firms' data for domestic sales. The analysis requires dealing with several important statistical issues. First, we provide evidence that growth rate between the first and second year of export is considerably upwardly biased, because its construction relies on calendar years. Ne-

glecting the month of entry on the export market (birth date) may therefore lead to draw wrong conclusions. A symmetric downward bias arises for exit, because firms export only a few months before the year of exit. Second, "new" exporters are also "small" exporters, which implies that we have to disentangle the effect of age on exports growth from the effect of size (Davis et al., 1996). Haltiwanger et al. (2010) shows that the choice of the measurement of the size class of a firm is important.[1] Third, our methodology allows to compute the gross contributions of market (destination/HS6-product) entry and exit (churning) to the growth of a firm's foreign sales along all dimensions of the extensive margin.

Conditional on the size of the exporter, we confirm that net growth and age are inversely related for surviving firms; the decline in average growth is however progressive over time. This decline comes from a progressive decline of exporters' performance on continuing product-markets (intensive margin) and of the net contribution of markets entry/exit (net extensive margin). Most importantly, we provide strong evidence that churning (the gross contributions of market entry and exit) decreases with the age of exporters. This is mainly due to the fact that firms introduce and drop fewer products on foreign markets. Churning remains however significant for most experienced exporters in our analysis. Finally, conditional on age, churning decreases sharply with size and the relationship between size and net growth is not monotonic with small and large firms performing better than firms of intermediate size. Overall, young and small firms contribute disproportionably to export volatility through both firm turnover on export market and within-firm volatility of portfolio of product and destination markets.

Our empirical analysis is related to the industrial organization literature documenting the effects of firms' age and size on their growth performance. Dunne et al. (1989) show that the rate of failure of US manufacturing plants is decreasing with plant size and age. Conditional on survival, the growth rate of employment by plants is also decreasing with age and size. Haltiwanger et al. (2010) however find no clear patterns between size and growth of employment for US firms, once their age is controlled for. They confirm that young firms grow faster and are also more volatile. Our empirical methodology relies to a large extent on empirical tools provided by these papers. The recent literature on exporters' dynamics has provided new evidence regarding the patterns of domestic firms' entry on foreign markets. Most of new exporters do not survive after a few years,

[1]The choice of the base year or current year as a reference can bias estimates of the effect of size on growth, due to the regression to the mean effect. In particular, a transitory negative shock is likely to be followed by a positive growth rate. The choice of the base year for the classification of firms into size classes can therefore generate artificially an inverse relation between size and growth.

they typically start small, and surviving exporters export much larger volumes by the second year, expand to additional markets or export new products (Eaton et al., 2007; Freund and Pierola, 2010; Albornoz-Crespo et al., 2010; Iacovone and Javorcik, 2010).

Existing models in industrial organization explain these patterns of firm dynamics by learning (Jovanovic, 1982) or persistent productivity shocks (Hopenhayn, 1992). The former class of models emphasizes the importance of heterogeneity of performance by age while the latter's main prediction relates to the size of the firm. Cooley and Quadrini (2001) introduces financial frictions in a permanent productivity shock model to account for the simultaneous age and size dependence of firms growth. A more recent literature has emphasized the importance of demand side determinants of firms growth. Klepper and Thompson (2006) argue that the number of markets on which the firm is active is positively correlated with net growth and volatility. Recently, Foster et al. (2010) show using US plant level data that demand accumulation (building a customer base) is an important determinant of plants dynamics. Ruhl and Willis (2008)'s dynamic model of exporting emphasizes the importance of demand accumulation over time to account the slow and gradual growth of new exporters. Eaton et al. (2011) develop a search and learning model of exporters' dynamics that is consistent with the large turnover of firms and trading relationships on export markets and the rapid growth of surviving matches.

2 Methodology and data

2.1 Data

All the empirical analysis presented in this paper is based on the individual firm-level exports data provided by the French customs. The dataset reports trade flows for individual French exporters at a *monthly* frequency, over the period 1994-2008. Each individual trade flows are reported with firm-product-country dimensions, with products defined at the 8-digits in the Combined Nomenclature. All trade flows are then converted into Harmonized System (HS) 6-digits product codes to allow comparability over time.[2]

Details regarding the data are provided in Appendix A.

[2]Revisions of the Combined Nomenclature occur every year, which makes it difficult to follow products over time. As CN 8-digits codes are aggregated into HS 6-digits codes (the first 6 digits are common to both nomenclatures). Because of the HS revisions in 2002 and 2007, we use concordance tables provided by the United Nations Statistical Division to translate product codes into a single nomenclature for computing growth rate over 2001/02 and 2006/07. Each firm can be identified every year using its SIREN number.

2.2 Measurement of the growth of new exporters

Our analysis of the dynamics of firms' exports relies on growth rates of individual export flows, x_{ijkt}, from firm i to destination country j in product category k and year t. Due to the large number of entries and exits at the firm, destination or product level, we follow Davis and Haltiwanger (1992)[3] and compute the growth rate of each individual export flow x_{ijkt} as:

$$g_{ijkt} = \frac{x_{ijkt} - x_{ijkt-1}}{\frac{1}{2}(x_{ijkt} + x_{ijkt-1})}. \tag{1}$$

g_{ijkt} corresponds to the growth rate of an individual export flow x_{ijkt} between year t and $t-1$. The denominator is defined as the mean of x_{ijk} in t and $t-1$, and ensures that the growth rate can be computed as soon as there exists a positive trade x_{ijk} in t or $t-1$. This growth rate has several properties that makes it very useful in our analysis. First, new export flows and trade flow disruptions are assigned respectively the values 2 and -2. This pattern enables to take into account the contributions of entry and exit to the growth of firms' exports. Second, it is a good approximation of the log first difference around zero and shares its properties of symmetry. In addition, this growth rate is bounded between the values of entry and exit, 2 and -2.

The contribution of each individual export flow x_{ijk} can be aggregated to compute the net growth of exports of any firm i as follows:

$$G_{it} = \sum_{jkt} \omega_{ijkt} \times g_{ijkt} \quad \text{where} \quad \omega_{ijkt} = \frac{x_{ijkt} + x_{ijkt-1}}{\sum_{jkt} x_{ijkt} + \sum_{jkt-1} x_{ijkt-1}}, \tag{2}$$

ω_{ijkt} is the share of trade flow x_{ijkt} in firm i's value of foreign sales. For any firm i, we can distinguish the contribution of continuing trade relationships (the net intensive margin), and the contribution of the creation (positive extensive margin) and disruption (negative extensive margin) of trade relationships. The growth of the firms' exports can be expressed as the sum of the net contributions of the intensive and extensive margins:

$$G_{it} = G_{it}^{I} + G_{it}^{E+} + G_{it}^{E-} \quad \text{where} \quad \begin{cases} G_{it}^{E+} = \sum_{jk} \omega_{ijkt} \times g_{ijkt} & \text{if } g_{ijkt} = 2 \\ G_{it}^{E-} = \sum_{jk} \omega_{ijkt} \times g_{ijkt} & \text{if } g_{ijkt} = -2 \\ G_{it}^{I} = \sum_{jk} \omega_{ijkt} \times g_{ijkt} & \text{otherwise,} \end{cases} \tag{3}$$

[3]This growth rate has become standard in the analysis of firm and labor market dynamics.

where G_{it} is the net growth of exports of firm i between t and $t-1$, G_{it}^{I} is the net contribution of the intensive margin, G_{it}^{E+} is the gross contribution of the positive extensive margin, and G_{it}^{E-} is the gross contribution of the negative extensive margin. Given the three dimensions of the French Customs trade data, firm (i), destination (j) and product (k), we are able to further decompose the extensive margin into several components listed below:

- Entry or exit of exporters (firm-level extensive margin);
- Add or drop of product and destination, continuing firm (DP);
- Add or drop of products, continuing firm and destination (P);
- Add or drop of destinations, continuing firm and product (D);
- Add or drop of trade relationship, continuing firm, product and destination (Other).

The empirical analysis that is presented in the paper mainly explains the net growth rate of a firm (G_{it}) by the age of the exporter, the size of the exporter, and additional controls. The analysis is then refined to show the effect of these two variables on the different margins of firms exports.

2.3 Decomposition of the growth of aggregate exports

The methodology presented in the previous subsection can be modified to measure the contribution of each trade flow to the growth of French exports. The aggregate the variations of French exports is computed as the weighted sum of the growth of individual trade flows, where each weight reflects the contribution of each individual flow to the value of aggregate exports in t and t-1. The aggregate growth can then be decomposed into the contributions of the intensive and net/gross extensive margin (and its components).

The contributions are reported in Table 1. Annual French exports increased at an average rate of 4.2% over the period 1998-2008. About 60% of the yearly growth is due to a net expansion in the value of continuing trade relationships (the intensive margin), while new firms contribute to less than 30% of this growth. About 10% of the yearly expansion of aggregate French exports is due to the net introduction of new products and destinations. The gross contribution of entry and exit in different markets (destination and/or products) is however larger.

Table 1: Contribution of the intensive and extensive margin to the growth of French exports (1998-08)

	Yearly variations (Mean 1998-08)	**Long run growth (1998 to 2008)**
Intensive positive	21.7%	28.5%
Intensive negative	-19.3%	-14.3%
Net intensive	**2.5%**	**14.2%**
Firm entry	2.4%	34.2%
Firm exit	-1.2%	-17.7%
Net firm	**1.2%**	**16.5%**
Add destination-product	0.9%	6.2%
Drop destination-product	-0.9%	-6.8%
Net destination-product	**0.1%**	**-0.5%**
Add destination	2.5%	9.7%
Drop destination	-2.4%	-5.3%
Net destination	**0.1%**	**4.3%**
Add product	2.2%	12.9%
Drop product	-2.0%	-9.8%
Net product	**0.2%**	**3.1%**
Add other	3.8%	9.7%
Drop other	-3.6%	-5.8%
Net other	**0.2%**	**3.9%**
Net extensive	**1.8%**	**27.3%**
Total	**4.2%**	**41.5%**

The second column of Table 1 reports the contributions of each margin to the growth of French export, considering a 10 year period (1998-2008). In doing so, the contribution of the intensive margin is computed on the basis of continuing trade relationships (i.e. those with a positive value of exports in 1998 and 2008). The net contribution of the extensive margin is based on trade relationships that were not observed in 1998, and for which we can register a positive trade value in 2008.

As compared to the previous column, the relative contributions of the intensive and net extensive margin are modified. During the period 1998-2008, French exports increased by 41.5%. Less than 35% of this growth is due to continuing trade relationships, whereas 40% can be attributed to firms that were not exporting in 1998 and entered at some point over a period of 10 years. The gross contributions of the extensive margin of incumbent exporters are also predominant in the medium run. The larger contribution of the net extensive margin over a period of 10 years can be explained by the fact that most trade relations are short lived (we present below the rate of survival of new exporters). Besides, we also show below that the growth of new exporters is negatively related to their size. This increases as well the relative contribution of the net extensive

margin when considering a longer time period.

2.4 Age and growth of surviving exporters

We define the age of each exporter according to its year of entry into export. Each firm is allocated to a cohort. For instance, a firm is considered as a new exporter in 2001 if it exports that year at least one product to one destination, but does not appear in the database between 1994 and 2000. A firm is considered as being part of the cohort of year t if no trade was registered in the preceding years. Firms can then survive as an exporter in each of the following years, or exit. Switchers are removed from the sample in order to focus the analysis on new exporters: as soon as a firm stops exporting. We identify each firm's cohort of entry on the export market and allocate them into 6 groups of new exporters and 1 group of experienced exporters (with more than 6 consecutive years of export experience) over the 2001-2007 period.

One important issue regarding the age of exporters is the bias related to calendar year in the first two years of export. For example, a firm may start exporting in December of the first year, and then export the same amount each month of the second year. Using export reported on a calendar year would therefore bias downward the level of export the first year relative to the second. In this case, the growth rate of exports between the first and the second year would be artificially high.[4]

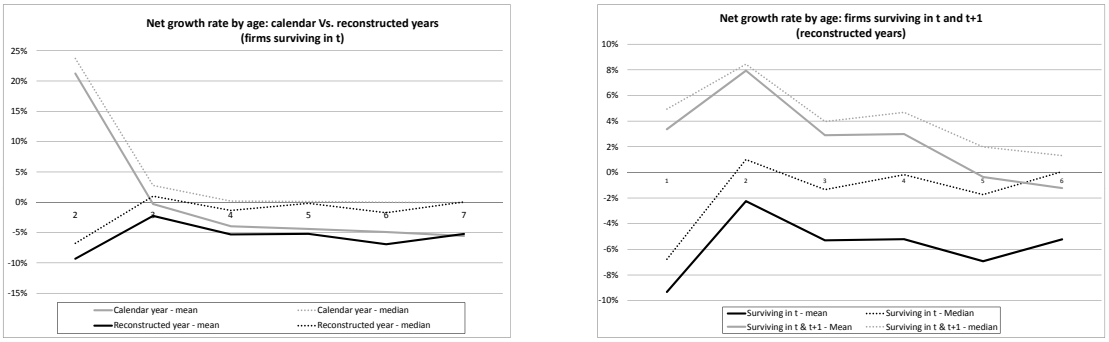
We address this statistical issue by computing the growth rate of new exporters by considering the exact month of entry rather than calendar years. So, the monthly frequency in the data is used only to compute properly the yearly growth rate of new exporters.

Figure 1 illustrates this statistical bias in the computation of growth rates of firms' exports between years $t-1$ and t, for exporters that survive between the two years. We then relate the growth rate to the age of the exporter. When calendar years are considered, the average growth rate of new exporters between the year of entry and the second year is above +20%; the growth rate then plummets by the third year and turns negative by the fourth year (black curves). Using the birth month of exporters yields a completely different pattern (left panel of Figure 1). The average growth rate of new exporters, conditional on survival, is negative in the second year. The average firm's performance then becomes less negative in the third year, and decreases by the fourth year. The median growth rate of new exporters has a similar shape but is closer to zero.

[4] Albornoz-Crespo et al. (2010) indeed report that firms typically start small, before they expand their foreign sales in the second year.

This negative growth by the average exporter is explained by the fact that many exporters will exit in the following years, and decline before exit. There is also a second statistical bias due to the fact that firms may actually export only a few months during their year of exit. Given that more firms exit during the first years of export activity, we can expect that this bias is more important when we compute the growth rate for young exporters. Restricting the sample to exporters surviving between $t-1$ and $t+1$ modifies the empirical pattern that comes out from the data (right panel of Figure 1): the average growth rate becomes positive in most years, and the relation between age and exports growth becomes more negative (especially due to the larger correction for the exit year among young exporters). In the econometric analysis, we consider this possibility by keeping in-sample only those firms that survive between t-1 and t, or alternatively those surviving between t-1 and t+1.

Figure 1: Net growth rates of exports by age: calendar vs. corrected years



2.5 The Size and growth of surviving exporters

The relation between firms' size and growth is also very controversial. The Gibrat's law, for instance, predicts that firms' size is not related to its growth rate.

The literature in IO has provided empirical evidence of the relation between the size and growth of firms or establishments, and emphasized the issue of regression to the mean effects. A firm experiencing a positive transitory shock is likely to report a negative growth rate the following period, leading to a spurious correlation between firm size and growth rate (Davis et al., 1996; Haltiwanger et al., 2010). An important issue here relates to the measurement of size. Using base year $t-1$ as size criteria is likely to create a negative bias while the opposite is true regarding the use of end year t as a size criteria. To mitigate these potential biases, Davis and Haltiwanger (1992) suggest to

measure firm size using the average of firm size over $t-1$ and t. Haltiwanger et al. (2010) reports that using this size methodology or a more complex dynamic size classification methodology developed by the US Bureau of Labor Statistics yields similar results.

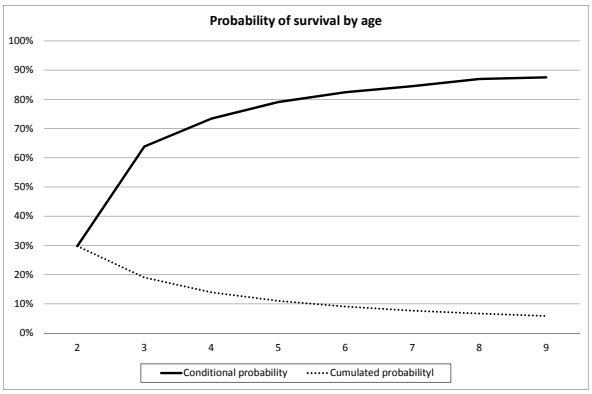
Our empirical investigation therefore follows the suggestion by Davis and Haltiwanger (1992) in the case of exporters. In our analysis, the size of exporters is measured by taking the average value of firms' exports in years t and t-1.

2.5.1 Prima facie evidence on survival and diversification

2.5.2 Survival of new exporters

The expected growth of new exporters on foreign markets depends on their growth of foreign sales conditional on survival and on their probability to remain exporters after entry. Figure 2 computes the probability of survival in t, conditional on being an exporter in $t-1$. New exporters have a low rate of survival between the first year of exports and the second year. About 30% continue exporting in the second year, and less than 10% after 6 year. These numbers are in line with results obtained for different firm-level trade datasets (Eaton et al., 2007; Freund and Pierola, 2010), and emphasizes the volatility of the export status.[5]

Figure 2: Survival of exporters by age

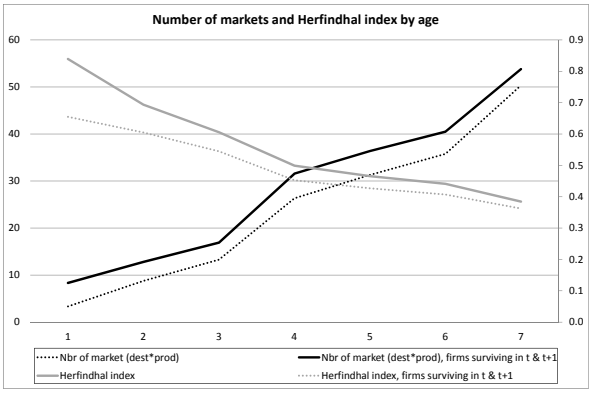


[5]In many cases, firms that stop exporting are switchers and can be identified in the exports data several years after exit. These switchers are dropped from the analysis in order to focus on new exporters that can be identified as true starters.

2.6 Market diversification of exporters

How is the diversification of firms' influenced by their age? We provide below in Figure 3 the average number of markets (products × destination) in firms' exports by category of age. We also complete the analysis by computing the Herfindhal index of firms diversification in terms of markets. The Figure shows that as exporters get older, the number of markets that they target is clearly increasing. The average exporter starts with less than 10 markets (the median is lower suggesting that some firms are starting with a very large number of markets). After 7 years of experience on export markets or more, surviving exporters export on average to more than 50 markets. This is confirmed by the Herfindhal index, which is negatively related to the age of exporters. As exporters get more experience, they also diversify the portfolio of markets that they explore.

Figure 3: Market diversification by category of age



3 Econometric analysis of the effects of age and size on exports' growth

While the previous section provided prima facie evidence on the relation between the age, size and growth of the exporter, we still have to disentangle the net effect of age and size in the econometric analysis, as many "small" exporters are also "new" exporters, though many firms about to exit are also among the "small" exporters. The literature in Industrial Organization has already shown that these two variables interact when considering domestic firms (Dunne et al., 1989). Haltiwanger et al. (2010) find no clear relationship between firms' size and employment growth when the estimation controls

for the age of the firm. In the econometric analysis, we provide a similar analysis in the case of exporters.

We use a non-parametric regression methodology by regressing the net growth rate of firm-level exports, as defined by equation (1), on firm size classes and age classes. Retrieving the information on age for incumbent exporters requires to have as many years backward and forward; we therefore restrict our sample on years 2001-2007 in order to be able to allocate all firms, new as well as incumbent exporters, to an age category. Since firm size and age are likely to vary by industry, we include HS2 sector fixed effects in our regressions.[6] We also include year fixed effects to account for cycles or aggregate shocks likely to hit a particular cohort of exporters.

We estimate Equation 4 below, where the growth rate of exporters is explained by 6 age and 9 size categories (categories age=7 and size=10 are excluded and serve as reference categories in the estimations). γ_k and γ_t are respectively the industry and year dummies; ϵ_{ijkt} is the error term. Given that the growth rate $G_{it} = 2$ in the year of entry (i.e. when Age = 1); the coefficient on the Age = 1 variable has to be interpreted with caution. In particular, the coefficient α_1 gives an indication of the average growth of the reference category. The relation between the age and growth of exporters can therefore be only interpreted by the second year on the export market.

$$G_{it} = \sum_{m=1}^{6} \alpha_m age_{mit} + \sum_{n=1}^{9} \beta_n size_{nit} + \gamma_k + \gamma_t + \epsilon_{ijkt}. \tag{4}$$

Estimation results are reported in Table 2. Different samples of firms are used: columns (1) and (2) report estimations where all firms (surviving or not) are considered; columns (3) and (4) only keep those firms that survive between t-1 and t; column (5) focuses on firms surviving between t-1 and t+1 (this allows to tackle the issue of the growth rate of exports that is potentially biased in the year preceding exit). All these estimations use a measure of firm's size computed as the average exports in years t and t-1.

3.1 Net growth by age

In column (1), the estimation only controls for the 6 age categories of exporters. Coefficients on Age 2 and 6 have a negative sign: new exporters have a more negative growth rate than experienced ones, when we consider all exporters. The size of the effect, however, is decreasing over time. Controlling for size classes of exporters (column

[6]Each firm is allocated into its main HS2 sector according to its export in t and $t-1$.

(2)) reduces the effect of the age on exporters' growth. This confirms that the effect of age and size interact with each other: given that new exporters are also small, they have more chances to exit the foreign market. This introduces a negative bias in the estimation of the relation between the age and growth of exporters. The estimation confirms the effect of size on exporters' growth. Coefficients on size class dummies 1 to 9 are negative, but less so for large size class categories: independently of the age of the exporter, larger firms grow more rapidly in foreign markets.

As many firms tend to exit after only one year, and given that firms that exit are allocated a negative growth rate (with $G_{it} = -2$), these first findings may simply reflect the high rate of exit in the first few years. In order to verify this assumption, estimations are reproduced by considering only those firms that survive between t-1 and t. Results in columns (3) and (4) confirm that selection is important: conditional on survival, and independently of size, new exporters grow faster than experienced one (with the exception of exporters with age = 2 where the dummy is not significant). Net growth is the largest on the third year, then decreasing.

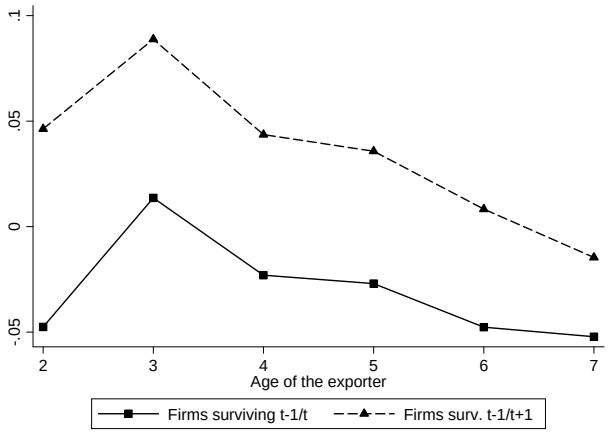
The non-significant coefficient for the dummy variable that identifies exporters with age=2 is partly due to the negative bias introduced by exporters that exit in year t+1. As discussed in the previous section, the year of exit bias is related to the fact that exporters tend to export only a few months before they exit. To emphasize the importance of this bias in our estimations, we focus on exporters surviving between t-1 and t+1. In that case, there is no bias neither for the year of entry nor for the year of exit. Estimation results are reported in column 5. The coefficient on age 2 is now positive and significant and the growth premium of young exporters is reinforced in this case, with coefficients on age dummies being more positive.

Predicted growth rate for the surviving average exporter, for each age group, is reported in Figure 4.[7] The solid curve corresponds to exporters surviving between t-1 and t. It illustrates results presented in Table 2. The growth of the average exporter is, on average, negative. It becomes less negative between the second and third years, before firm performance progressively decreases in the following years. The dashed line corresponds to exporters surviving between t-1 and t+1. This truncation in the sample allows to tackle the statistical bias in the year of exit, and influences both the average growth rate of the reference category and the coefficients on the dummy variables. For

[7] The expected growth rate of each group of surviving exporters is computed from the average growth rate of the reference category (Age = 7 or more), and the estimated coefficients from the previous estimations. For instance, the predicted growth of a firm of category Age = m is computed using the following strategy: $\overline{G}(Age = m) = \overline{G}(Age = 7+) + \hat{\alpha_m}$

this sample of exporters, the growth rate is mostly positive at each stage of experience, but declines by year 3. Overall, these results confirm that new exporters, surviving at least one year, tend to grow faster than experienced exporters. Our results highlight that the growth of foreign sales by new exporters progressively converges to the average growth rate by experienced exporters.

Figure 4: Predicted relation between age and growth of exports



3.2 Net growth by size

Controlling for the age of exporters, the relation between the size and net growth is not linear: large exporters are found to grow more rapidly, but small ones also outperform medium-size exporters. The correction for survival (columns (4) and (5)) does not modifies much the relation between exporter's size and growth. Predicted growth rates for the different size categories (controlling for the age of the exporter) are reported in Figure 5. It illustrates the non-linear shape of the relation between size and growth: firms with an intermediate size are predicted to grow less rapidly than small and large firms. Overall, large firms exporters are found to grow more rapidly in foreign markets, when we consider exporters that survive two years (t/t-1) or three years (t+1/t-1). This finding contradicts the Gibrat's law for our sample of French exporters.

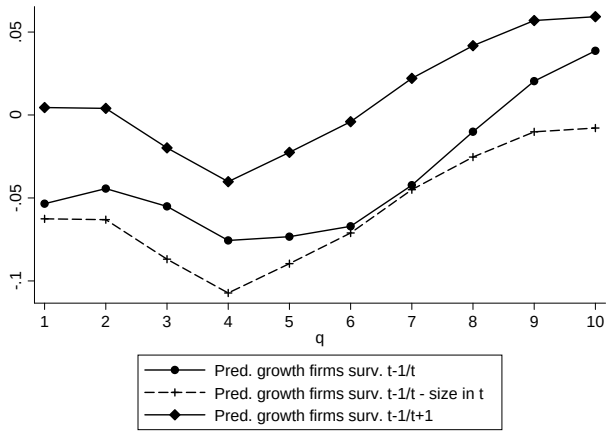
Columns (6) and (7) introduce for comparison purposes the estimation results where the size of exporters is computed by considering only the size of exporters in $t-1$. As emphasized by (Dunne et al., 1989) and Haltiwanger et al. (2010), in that case, estimation results are subject to a bias due to regressions to the mean effects (mean reversal process). They show that using the lagged firm size rather than the average between the current and lagged size strongly modifies estimation results and introduces

Table 2: Net growth, size and age

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent var.	Growth of firm-level exports (G_{it})							
Size	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t-1	t-1	t/t-1
Sample	All		Surviving t/t-1		Surviving t+1/t-1	Surviving t/t-1	Surviving t+1/t-1	Indep t/t-1
Age exporter=1	2.319^a	2.908^a	2.057^a	2.106^a	2.063^a	1.888^a	1.867^a	2.110^a
	(0.002)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)
Age exporter=2	-1.176^a	-0.616^a	-0.037^a	0.005	0.061^a	-0.126^a	-0.064^a	-0.004
	(0.004)	(0.005)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)
Age exporter=3	-0.476^a	-0.132^a	0.033^a	0.066^a	0.103^a	-0.026^a	0.014^b	0.067^a
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.007)
Age exporter=4	-0.318^a	-0.065^a	0.002	0.029^a	0.058^a	-0.038^a	-0.006	0.034^a
	(0.007)	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)	(0.008)
Age exporter=5	-0.204^a	-0.011	0.002	0.025^a	0.050^a	-0.026^a	-0.001	0.028^a
	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Age exporter=6	-0.164^a	-0.009	-0.015^b	0.005	0.023^a	-0.036^a	-0.017^b	0.004
	(0.008)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Size exporter=1		-1.216^a		-0.092^a	-0.055^a	0.397^a	0.613^a	-0.094^a
		(0.005)		(0.004)	(0.004)	(0.005)	(0.008)	(0.004)
Size exporter=2		-1.137^a		-0.083^a	-0.055^a	0.340^a	0.481^a	-0.084^a
		(0.005)		(0.004)	(0.005)	(0.005)	(0.007)	(0.004)
Size exporter=3		-1.016^a		-0.094^a	-0.079^a	0.265^a	0.343^a	-0.094^a
		(0.005)		(0.005)	(0.006)	(0.005)	(0.007)	(0.005)
Size exporter=4		-0.860^a		-0.114^a	-0.099^a	0.176^a	0.213^a	-0.115^a
		(0.006)		(0.005)	(0.007)	(0.005)	(0.006)	(0.006)
Size exporter=5		-0.676^a		-0.112^a	-0.082^a	0.067^a	0.086^a	-0.113^a
		(0.006)		(0.005)	(0.006)	(0.005)	(0.006)	(0.006)
Size exporter=6		-0.487^a		-0.106^a	-0.063^a	-0.022^a	-0.011^b	-0.104^a
		(0.006)		(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Size exporter=7		-0.566^a		-0.081^a	-0.037^a	-0.023^a	0.001	-0.082^a
		(0.006)		(0.005)	(0.006)	(0.004)	(0.005)	(0.006)
Size exporter=8		-0.201^a		-0.049^a	-0.017^a	0.011^a	0.034^a	-0.051^a
		(0.004)		(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
Size exporter=9		-0.061^a		-0.018^a	-0.002	-0.006^b	0.009^a	-0.020^a
		(0.004)		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Observations	528,416	528,416	381,557	381,557	264,019	381,557	264,019	337,331
R-squared	0.681	0.723	0.707	0.708	0.584	0.718	0.603	0.715
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Robust standard errors in parentheses. ^{c}significant at 10%; ^{b}significant at 5%; ^{a}significant at 1%. Given that the growth rate $G_{it} = 2$ in the year of entry (i.e. when Age = 1); the coefficient on the Age = 1 variable has to be interpreted with caution. In particular, the coefficient α_1 gives an indication of the average growth of the reference category. The relation between the age and growth of exporters can therefore be only interpreted by the second year on the export market.

Figure 5: Predicted relation between size and growth of exports



a negative relation between size and growth. We find that, indeed, the estimation results are strongly modified when the size of exporters is measured using the lagged size rather than the average size between t and t-1. The relation between size and exports growth becomes negative, and the relation between age and growth becomes positive. Given that this measurement of firm size has been much criticized by the recent literature in IO, our preferred results remain those presented in columns (4) and (5) where firm's age is negatively related to exports growth, and exporter's size positively related to growth, when the size is properly measured.

In column (8), results confirm that this result holds for independent exporters that survive between t-1 and t. The relationship between size and net growth is non monotonic: conditional on age, small firms perform worse than large firms but better than firms of intermediate size. The relation between age and growth remains negative.

4 Econometric analysis of the effects of age and size on the margins of firms' exports

The net growth of exports of new cohorts hides important information about the way exporters expand their foreign sales along destinations and products. We now focus the analysis on the contribution of the intensive and (net and gross) extensive margin to the growth of firms' exports, according to size and age. In doing so, we use all the available information that can be extracted from the French customs database, with HS6 product and destinations detail. Hence, one cell in a firm's exports universe corresponds to a firm targeting a market, identified by a product and a destination. The firm may enter

and exit markets according to its success (this is what we call "churning"), or continue exporting in markets already targeted.

4.1 Churning and age

We start by considering the decomposition of firms' exports growth into the contribution of the intensive margin (growth on continuing markets), the contribution of the positive extensive margin (new markets), and the contribution of the negative extensive margin (market exit). As for the previous estimations, the Age variable can be interpreted only by Age=2.

Table 3 reports estimation coefficients of the equation where trade margins are explained by the age and size of the exporter. The size variable is always computed using the average export value of the firm in the current and the past year, as recommended by Davis and Haltiwanger (1992). Columns (1) and (2) correspond to the estimations where the dependent variable is the growth of exports along the intensive margin (G^I_{it}), for firms surviving between t/t-1 then t+1/t-1. When we control for the size of the exporter, the contribution of the intensive margin is found to be decreasing with age. This confirms our previous result regarding the effect of age on firms total exports. This result holds when we keep only the firms that survive between t-1 and t+1 for the estimation. In columns (3), the dependent variable is the gross contribution of the extensive margin to the growth of the firms' exports, computed as the sum of the contributions of the positive and negative extensive margins. The gross contribution of the extensive margin is found to be decreasing with the age of the exporter, as it is the case for the intensive margin. Columns (4) to (7) detail the results for the positive and negative extensive margins, with firms surviving between t-1 and t or t-1 and t+1. The estimation results support that firms volatility in foreign markets - i.e. the contribution of entry and exit by incumbent exporters - is decreasing with the age of the exporter. Younger firms grow more rapidly in foreign markets, but are also more volatile, once we control for size.

Figure 6 summarize our findings regarding the the predicted contributions of the intensive and *net* extensive margins to surviving exporters' growth by age groups, conditional on firms' size. The top left hand-side figure considers the net extensive margin, whereas the bottom left hand-side figure considers separately the positive and negative extensive margins. The first Figure on the left confirms that both the contribution of the intensive margin and the net contribution of the extensive margin tend to decline with the experience of the exporter. The net contribution of the extensive margin though increases between the second and third year. This is mostly explained by a huge decline

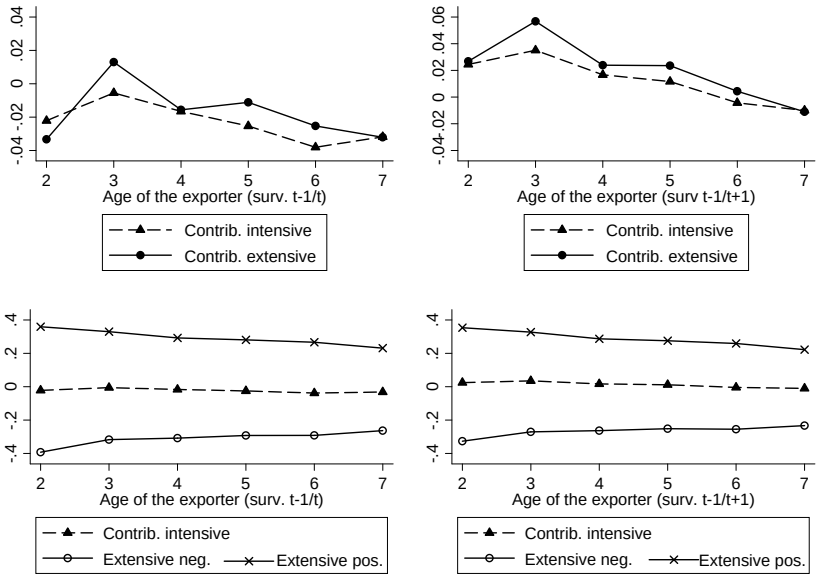
Table 3: Growth of exports by margin

Dependent var.	(1) Intensive margin G^I_{it}	(2) Intensive margin G^I_{it}	(3) Extensive margin G^E_{it} (gross)	(4) Extensive positive G^{E+}_{it}	(5) Extensive negative G^{E-}_{it}	(6) Extensive positive G^{E+}_{it}	(7) Extensive negative G^{E-}_{it}
Size	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1
Surviving	t/t-1	t+1/t-1	t/t-1	t/t-1	t/t-1	t+1/t-1	t+1/t-1
Age exporter=1	0.044^a	0.032^a	0.994^a	1.533^a	0.539^a	1.557^a	0.481^a
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Age exporter=2	0.010^b	0.034^a	0.258^a	0.129^a	-0.130^a	0.131^a	-0.094^a
	(0.004)	(0.005)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Age exporter=3	0.026^a	0.045^a	0.153^a	0.099^a	-0.054^a	0.105^a	-0.037^a
	(0.005)	(0.005)	(0.005)	(0.003)	(0.004)	(0.004)	(0.004)
Age exporter=4	0.015^a	0.027^a	0.106^a	0.061^a	-0.045^a	0.065^a	-0.030^a
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Age exporter=5	0.006	0.022^a	0.079^a	0.050^a	-0.029^a	0.053^a	-0.019^a
	(0.005)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Age exporter=6	-0.006	0.006	0.065^a	0.036^a	-0.029^a	0.037^a	-0.021^a
	(0.005)	(0.006)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Size exporter=1	-0.028^a	-0.022^a	0.764^a	0.351^a	-0.413^a	0.336^a	-0.364^a
	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)
Size exporter=2	-0.023^a	-0.022^a	0.805^a	0.375^a	-0.431^a	0.378^a	-0.407^a
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Size exporter=3	-0.027^a	-0.032^a	0.838^a	0.388^a	-0.450^a	0.398^a	-0.441^a
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Size exporter=4	-0.030^a	-0.039^a	0.845^a	0.382^a	-0.462^a	0.394^a	-0.453^a
	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Size exporter=5	-0.031^a	-0.031^a	0.824^a	0.373^a	-0.451^a	0.384^a	-0.433^a
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Size exporter=6	-0.039^a	-0.032^a	0.768^a	0.350^a	-0.418^a	0.361^a	-0.390^a
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Size exporter=7	-0.035^a	-0.020^a	0.612^a	0.283^a	-0.330^a	0.289^a	-0.303^a
	(0.004)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Size exporter=8	-0.032^a	-0.016^a	0.267^a	0.124^a	-0.143^a	0.130^a	-0.130^a
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Size exporter=9	-0.012^a	-0.002	0.137^a	0.065^a	-0.072^a	0.067^a	-0.066^a
	(0.003)	(0.003)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	381,557	264,019	381,557	381,557	381,557	264,019	264,019
R-squared	0.003	0.003	0.675	0.848	0.323	0.773	0.273

Standard errors in parentheses. ^{c}significant at 10%; ^{b}significant at 5%; ^{a}significant at 1%.

in market failure between the second and third years, as illustrated in the bottom left hand-side figure. Both the positive and negative contributions of the extensive margin decline with the age experience, but the negative contribution due to product-market failures declines sharply in the first years. The two figures on the right simply illustrate those findings by considering firms that survive in export markets between t-1 and t+1.

Figure 6: Age and the intensive and extensive margins



Overall, these results show that both the growth and churning of exporters decline as they get more experience on foreign markets. We complete this picture by proceeding to the same exercise and considering separately the various dimensions of the extensive margin: add and drop of product-and-destination (DP), destinations only (D), products only (P), and none of them. The predicted contributions are reported in Table 7.

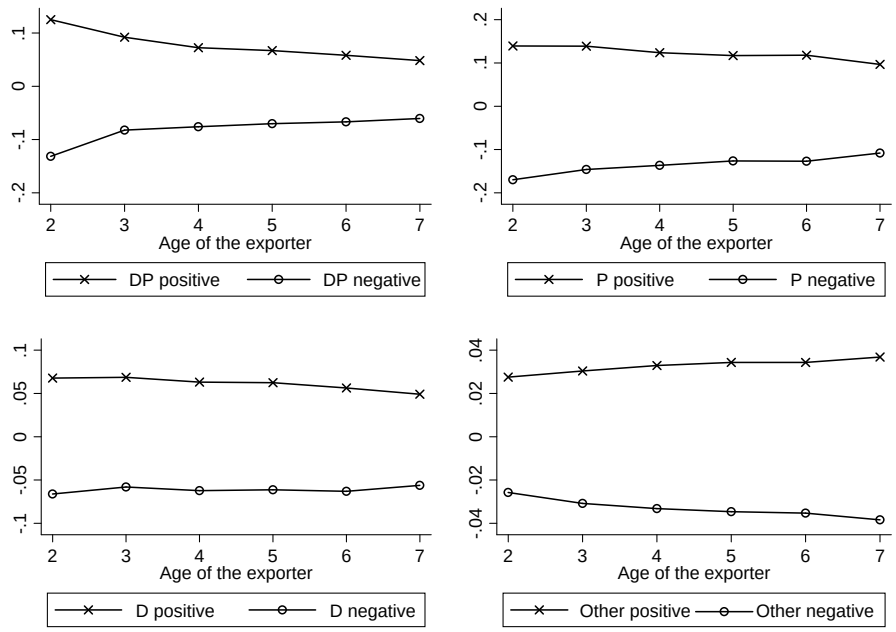
Results clearly indicate that the churning in foreign markets markets is decreasing with the age of the exporter. This is mainly due to experienced exporters adding and dropping fewer products and destinations simultaneously (top left graph). Importantly, this pattern is not compensated by a significant increase of the churning where the product is continuously exported, and the destination continuously targeted (bottom right graph). Churning due to the entry and exit of products on destinations already served also declines progressively over time (top right graph): as firms get more experience on a specific foreign market, they tend to introduce and drop fewer products over time. However, when the product is continuously exported but the destination changes (D), the churning does not evolves over time.

Hence, as firms survive and get experience on foreign markets, the contribution of

entry and exit to the growth of foreign sales decreases progressively. This is mainly due to firms adding and dropping less products and markets together, or adding and dropping fewer products on markets already explored.

The contribution of churning to the growth of exporters remains sizeable, though, even for experienced exporters. This churning remains important when both product and destination are new or fail, when the firms start or stop exporting a product to a continuing destination, or when firms start or stop exporting to a destination a product already exported elsewhere. This suggests that experienced exporters continue testing new products and/or new destinations in order to continue exporting.

Figure 7: Age and the gross contribution of the extensive margin



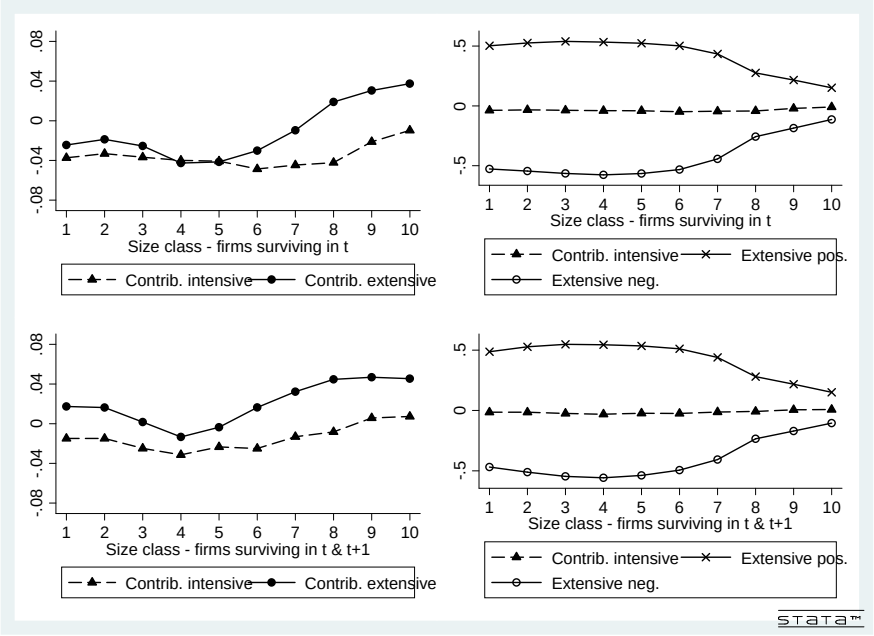
4.2 Churning and size

Results regarding the relation between exporters' size and growth performance along the different margins are also striking. Larger exporters have a more positive contribution of the intensive margin to their growth (columns 1 and 2), but they have a significantly smaller gross contribution of entry and exit (column 3). This finding is confirmed by the estimation results for the positive and negative contributions of the extensive margins. Overall, when age is controlled for, larger exporters are found to grow more rapidly, and are also less volatile on foreign markets.

The net contributions of the intensive and extensive margins, and the gross contribu-

tion of the extensive margin, are summarized in Figure 8 below. Both the contributions of the intensive and net extensive margins are increasing with the size of exporters, although this relation is non linear. Controlling for the age of the exporter, larger exporters increase more their sales in continuing markets, and also add more markets than small exporters. The results regarding the gross contribution of the extensive margin, summarized in Figure 8, also confirm that larger exporters are much less volatile than small ones when controls for the age are included in the estimation.

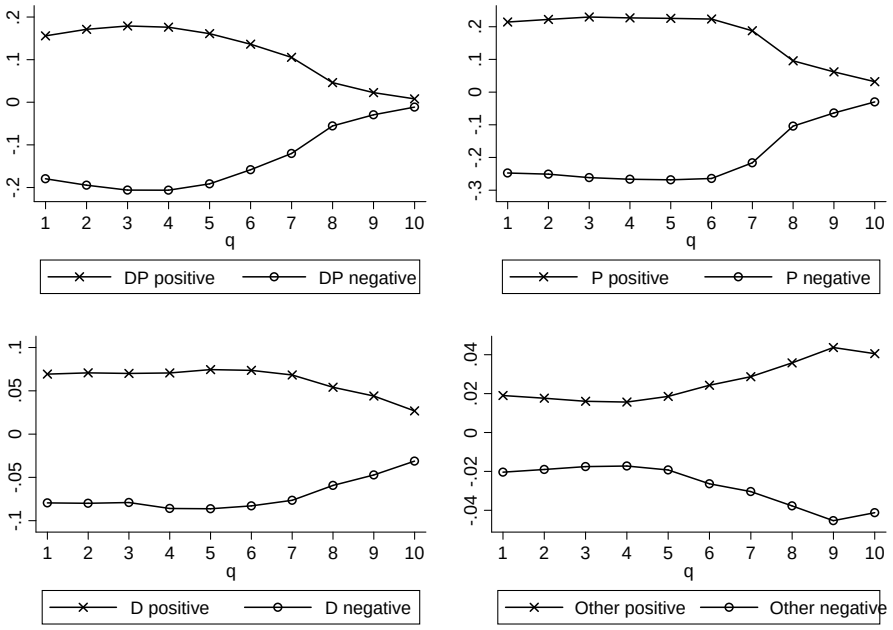
Figure 8: Size and the intensive and extensive margins



These findings are confirmed in Figure 9 where the relation between exporters' volatility and size is detailed for the different components of the extensive margin. Larger exporters are found to add and drop fewer products and destinations, fewer products in destinations already targeted, and fewer destinations for products already exported.

All together, these results provide new evidence that, controlling for the age of the exporter, larger exporters grow more rapidly in foreign markets and are also less volatile in their foreign markets.

Figure 9: Size and the gross contribution of the extensive margin



5 Export diversification

The fact that experienced exporters are less volatile in foreign markets than young exporters may be related to the degree of diversification of their exports along different markets. In particular, if more experienced exporters are more diversified in terms of markets, this may reduce their exposure to a shock affecting one of their markets. Conversely, a shock affecting a particular market is going to affect more the exports growth of a given firm if this firm is less diversified. Similar reasoning applies for the relation between exporters' size and volatility in foreign markets.

The objective of this section is to simply bring additional evidence regarding the relation between the export diversification of firms in terms of markets, and their and and size as exporter. We start with an estimation where the number of markets in which the exporter is selling its products is regressed on the age and size categories defined at the beginning of this empirical exercise, controlling for industry and year fixed effects.

Estimation results are provided in table 4 below. These estimations confirm that young and small exporters are exporting to fewer markets, as compared to experienced and large exporters.

In order to assess the economic significance of these differences, we compute the predicted number of markets for each exporter by using the coefficients of the table above, and the average number of markets by exporter in the reference category. The

Table 4: Number of markets

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent var.	Number of markets by exporter (M_{it})					
Size	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1
Sample	Surviving t/t-1		Surviving t+1/t-1	Surviving t/t-1		Surviving t+1/t-1
Age exporter=1	-2.130^a	-0.330^a	-2.130^a	-0.330^a	-0.174^a	-0.374^a
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Age exporter=2	-1.624^a	-0.432^a	-1.624^a	-0.432^a	-0.382^a	-0.466^a
	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.006)
Age exporter=3	-1.255^a	-0.330^a	-1.255^a	-0.330^a	-0.302^a	-0.367^a
	(0.009)	(0.007)	(0.009)	(0.007)	(0.008)	(0.007)
Age exporter=4	-1.043^a	-0.285^a	-1.043^a	-0.285^a	-0.267^a	-0.324^a
	(0.010)	(0.007)	(0.010)	(0.007)	(0.008)	(0.008)
Age exporter=5	-0.885^a	-0.257^a	-0.885^a	-0.257^a	-0.246^a	-0.294^a
	(0.012)	(0.008)	(0.012)	(0.008)	(0.009)	(0.009)
Age exporter=6	-0.764^a	-0.230^a	-0.764^a	-0.230^a	-0.219^a	-0.265^a
	(0.012)	(0.009)	(0.012)	(0.009)	(0.009)	(0.009)
Size exporter=1		-3.651^a		-3.651^a	-3.805^a	-3.596^a
		(0.007)		(0.007)	(0.010)	(0.008)
Size exporter=2		-3.585^a		-3.585^a	-3.692^a	-3.532^a
		(0.007)		(0.007)	(0.009)	(0.008)
Size exporter=3		-3.475^a		-3.475^a	-3.538^a	-3.427^a
		(0.007)		(0.007)	(0.008)	(0.008)
Size exporter=4		-3.345^a		-3.345^a	-3.352^a	-3.302^a
		(0.007)		(0.007)	(0.008)	(0.008)
Size exporter=5		-3.148^a		-3.148^a	-3.114^a	-3.105^a
		(0.007)		(0.007)	(0.008)	(0.008)
Size exporter=6		-2.835^a		-2.835^a	-2.781^a	-2.798^a
		(0.007)		(0.007)	(0.007)	(0.008)
Size exporter=7		-2.374^a		-2.374^a	-2.333^a	-2.355^a
		(0.008)		(0.008)	(0.008)	(0.008)
Size exporter=8		-1.625^a		-1.625^a	-1.588^a	-1.612^a
		(0.007)		(0.007)	(0.008)	(0.008)
Size exporter=9		-0.963^a		-0.963^a	-0.944^a	-0.944^a
		(0.007)		(0.007)	(0.007)	(0.008)
Observations	381,557	381,557	381,557	381,557	264,019	337,331
R-squared	0.388	0.710	0.388	0.710	0.664	0.718
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes

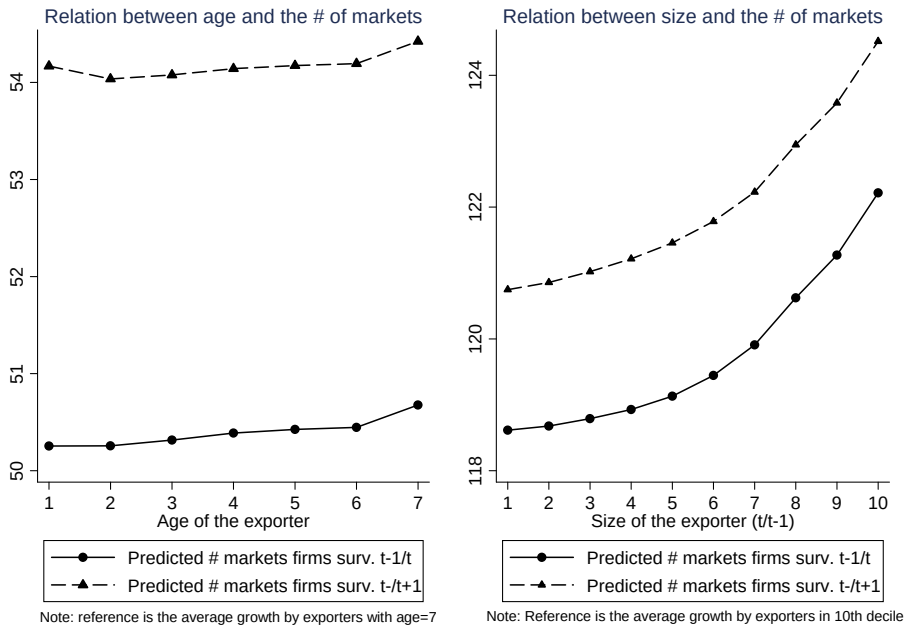
Standard errors in parentheses. ^{c}significant at 10%; ^{b}significant at 5%; ^{a}significant at 1%

results are illustrated in Figure 10 below.

The left panel reproduces the relation between the age of exporters and the number of markets by exporter, taking as a reference the number of markets for firms with age = 7 or more. Firms surviving between t-1/t or t-1/t+1 are considered. The number of markets by firm is increasing with the age of the exporter, but the overall number is not changing much. There is, on average, less than one market of difference between young and experienced exporters, once we control for the size of exporters.

The right-hand side panel of Figure 10 illustrates the estimation results of Table 4 by considering the relation between the size of the exporter and the average number of markets. Firms in the 10th decile of exporters according to size are considered as the reference category. The figure clearly shows that this time, the number of markets significantly increases with the size of exporters, with large exporters having, on average, a portfolio markets much than small exporters, when controlling for the age of the exporter. Other determinants than age and size however matter for explaining the number of markets served by firms.

Figure 10: Predicted relation between age, size, and the average number of markets



6 Conclusion

We use a use a detailed transaction level dataset of French exporters to provide a new set of stylized facts regarding the growth and within-firm volatility of exporters in relation

to their age and to their size. We find a significant and distinct role for age and size of exporters for net growth and churning on foreign markets.

Conditional on the size of the exporter, we confirm that net growth and age are inversely related for surviving firms; the decline in average growth is however progressive over time. Churning (the gross contributions of market entry and exit) also decreases with the age of exporters. This is mainly due to the fact that firms introduce and drop fewer products on foreign markets. Churning remains however significant for experienced exporters. Conditional on age, churning decreases sharply with size and the relationship between size and net growth is not monotonic with small and large firms performing better than firms of intermediate size. Overall, young and small firms contribute disproportionably to export volatility through both firm turnover on export market and within-firm volatility of portfolio of product and destination markets.

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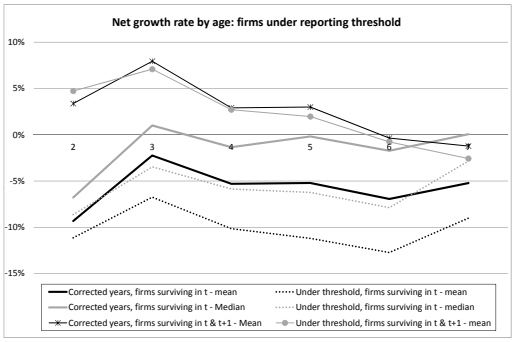
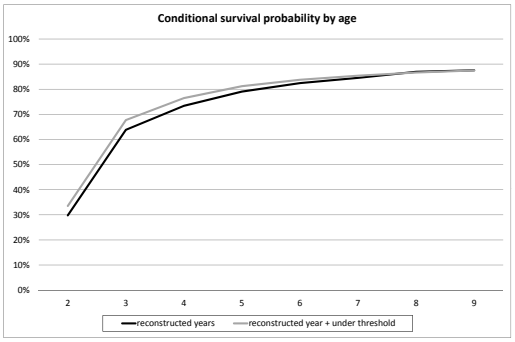
Appendix A: reporting thresholds in the French customs data

Two different thresholds apply for individual firms when declaring their exports. When exporting to a non-EU country, the threshold is 1,000 euros. When exporting to a Member state, the declaration is compulsory if the yearly cumulated value of exports to all other EU Member states is larger than 150,000 euros. This threshold has however changed since 1995, as well as the composition of the EU: we thus reapply this threshold to individual firms' exports to the 26 EU Member states over the full period. Exporters under the EU threshold however fill a simplified declaration without product or destination details. We use this information to compute individual firms' age on the export market.

Some 91396 firms export on average each year in our dataset, of which on average 35046 are under the EU threshold of declaration. Figure 11 show that excluding firms under the threshold biases slightly downwards the conditional survival probability of new exporters. Regarding net growth rate (left panel of Figure 11), excluding exporters under the EU threshold biases upwards the level of growth rates, but does not affect the profile of mean or median growth over time. This bias is smoothed out when restricting the sample to firms that survive between $t-1$ and $t+1$.

Figure 11: Net growth rates and survival of exporters by age: threshold effects





Appendix B: regression results

Table 5: Decomposing the extensive margin

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Destination/product		Destination		Product		Other	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Size	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1
Sample	Surviving	Surviving	Surviving	Surviving	Surviving	Surviving	Surviving	Surviving
Age exporter=1	-0.155^a	0.181^a	-0.074^a	0.085^a	-0.213^a	0.247^a	-0.024^a	0.026^a
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.000)	(0.000)
Age exporter=2	0.077^a	-0.071^a	0.019^a	-0.010^a	0.043^a	-0.061^a	-0.009^a	0.013^a
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)
Age exporter=3	0.044^a	-0.022^a	0.020^a	-0.002	0.042^a	-0.038^a	-0.006^a	0.008^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)
Age exporter=4	0.024^a	-0.016^a	0.014^a	-0.006^a	0.027^a	-0.028^a	-0.004^a	0.005^a
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)
Age exporter=5	0.019^a	-0.010^a	0.013^a	-0.005^a	0.021^a	-0.018^a	-0.002^a	0.004^a
	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)
Age exporter=6	0.010^a	-0.006^b	0.007^a	-0.007^a	0.021^a	-0.019^a	-0.003^a	0.003^a
	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)
Size exporter=1	0.148^a	-0.168^a	0.043^a	-0.048^a	0.182^a	-0.217^a	-0.022^a	0.021^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=2	0.163^a	-0.183^a	0.044^a	-0.049^a	0.190^a	-0.221^a	-0.023^a	0.022^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=3	0.171^a	-0.195^a	0.043^a	-0.048^a	0.198^a	-0.231^a	-0.025^a	0.024^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=4	0.168^a	-0.195^a	0.044^a	-0.055^a	0.195^a	-0.237^a	-0.025^a	0.024^a
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=5	0.153^a	-0.180^a	0.048^a	-0.055^a	0.194^a	-0.238^a	-0.022^a	0.022^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=6	0.128^a	-0.147^a	0.047^a	-0.052^a	0.192^a	-0.234^a	-0.016^a	0.015^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=7	0.097^a	-0.109^a	0.042^a	-0.045^a	0.156^a	-0.186^a	-0.012^a	0.011^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size exporter=8	0.038^a	-0.044^a	0.027^a	-0.028^a	0.064^a	-0.074^a	-0.005^a	0.004^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size exporter=9	0.015^a	-0.018^a	0.017^a	-0.016^a	0.030^a	-0.034^a	0.003^a	-0.004^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.026^a	0.029^a	0.012^a	-0.017^a	-0.021^a	0.026^a	0.019^a	-0.019^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.001)	(0.001)
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	381,557	381,557	381,557	381,557	381,557	381,557	381,557	381,557
R-squared	0.112	0.117	0.053	0.049	0.170	0.191	0.061	0.062

Notes: a, b, c denotes significance at the 1, 5 and 10% level. Heteroscedasticity-robust standard errors are in parentheses.