The Growth and Failure of French Exporters*

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Preliminary version

Abstract

This paper is interested in the microeconomics of export 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' characteristics such as age and size, and all components of exporters' growth: the net growth of foreign sales, and the gross contribution of entry and exit of markets (churning). Controlling for size, our results show that new exporters contributes disproportionably to the volatility of export flows: most of them exit the export market during the first years and those who survive grow faster and exhibit more churning of destination and products than mature exporters. Accounting for the age of the exporter, we find that the 10% largest exporters experience the largest growth of exports. Churning is larger for small exporters, especially at the product level, but remains sizeable for large exporters.

JEL classification: F02, F10, F14.

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1 Introduction

The literature in international trade has devoted considerable effort to provide a high definition picture of countries' exports. Countries' exports are extremely concentrated among a limited number of very large exporters, whereas the universe of individual trade flows is mostly composed of small exporters shipping one or few goods to a neighboring destination (Eaton et al. 2004). The export status is also volatile from one year to the other. Among the group of small exporters, many started selling goods abroad during the previous year and will not survive more than one or a few years (Eaton et al. 2007; Freund and Pierola, 2009). Most exporters also change each year their portfolio of products (Iacovone and Javorcik, 2010; Lawless, 2008). Bernard et al. (2010) show that the extensive margin is predominant in the dynamics of aggregate exports over the medium run.

Empirical research on export dynamics has mainly focused the analysis on the growth pattern, with respect to the size and age of exporters. Smaller and younger exporters are found to grow faster, through the growth of trade relationships, or by adding products and destinations over time (Eaton et al., 2007 Ornelas et al., 2009; Freund and Pierola, 2009; Iacovone and Javorcik, 2010). The effect of size however remains ambiguous, since it is closely related to the age of the exporter (Haltiwanger et al., 2009). Most importantly, the relation between the age and size of an exporter and its volatility on foreign markets (entry and exit) has remained mostly unexplored.

This paper investigates the empirical relation between exporters' characteristics such as age and size, and all components of exporters' growth: the net growth of foreign sales, and the gross contribution of entry and exit (churning). Entries and exits at the firm as well as market (product and destination) level contribute to exporters' volatility. We ask the question of which firms contribute to the volatility of aggregate exports. This is an important issue regarding macroeconomic volatility, since idiosynchratic firm-level shocks may have large effects in the aggregate when the distribution of firms is sufficiently fat tailed (Gabaix, 2010), as it is the case for exporters. Our empirical analysis is performed on a census of French exports, reporting firm-destinations-product information over the period 1994-2008. . Controlling for size, our results show that new exporters contributes disproportionably to the volatility of export flows: most of them exit the export market during the first years and those who survive grow faster and

exhibit more churning of destination and products than mature exporters. Accounting for the age of the exporter, we find that the 10% largest exporters experience the largest growth of exports. Churning is also more important among small exporters, especially at product level, but remains sizeable for large exporters.

The analysis requires dealing with a series of important statistical issues, some of them have been highlighted in the literature in industrial organization. First, the growth of exports between the first and second year are typically biased because exports are generally reported on the base of calendar years. 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 (Haltiwanger et al., 2009). Third, the identification of the size class of a firm is highly controversial.[1]

We carefully address these statistical issues to provide new evidence on firms' development on foreign markets. First, we provide descriptive evidence that most of the high growth rate between the first and second years is due to the fact that growth rates have been computed previously on the basis of calendar years, neglecting the time of entry during the year. Second, we show that considering simultaneously age and size is important to explain the growth of exports. Econometric estimates show that, conditional on survival, exports growth decreases with the age of the exporter, independently of size, while most exporters are outperformed in terms of growth by the 10% largest ones. Third, our results highlight the importance of exports churning on foreign markets. The net extensive margin explains a larger share of the growth premium of young exporters than the intensive margin. Moreover, we show that exports of young (and also small) exporters are more volatile on foreign markets: the gross contributions of the entries and exists decrease with age and size. This volatility is primarily due to firms adding or dropping products, or simultaneously products and destinations. An important finding is that the gross contribution of entry and exit on foreign markets remains important among mature exporters.

Our empirical analysis is guided by previous works in the industrial organization literature, that have investigated the effects of firms' age and size on their growth performance. One major contribution in this literature was provided by Dunne, Roberts

[1]Davis, Haltiwanger and Schuh (1996) show that 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.

and Samuelson (1989). They 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. The net effect on employment growth is therefore conditioned by the relative importance of selection effects. More recently, Haltiwanger et al. (2009) confirm that there is no clear relationship between size and the growth of employment by US firms, once the age is controlled for in the estimation. Their findings indicate that young firms tend to create more jobs, and are also more volatile. Our empirical methodology relies to a large extent on empirical tools provided by these papers. We pay a particular attention to see how taking into account firm exit in the analysis influences our results.

In the trade literature, empirical studies have confirmed the importance of all dimensions of the extensive margin to explain the growth of foreign sales by domestic firms, bringing useful evidence to the trade theory. Roberts and Tybout (1997), Bernard and Jensen (1995, 2004) highlight the persistence of the export status over time, consistent with the existence of large sunk entry costs. More recent studies have improved our understanding of the dynamics of new exporters. Among those who started exporting in a year, most start small and do not survive during the second year, while surviving ones tend to expand quickly on markets they have reached in the first year, before eventually switching to new markets or exporting additional products (Eaton et al. 2007; Freund and Pierola, 2009; Corcos et al.). These new surviving exporters have a large contribution to the growth of aggregate exports over their first years of existence (Eaton et al. 2007) Eaton et al. (2007) also find evidence that small exporters report a higher growth rate in terms of foreign sales, as compared to large exporters. Finally, an important feature is that firms tend to enter or exit product and destinations simultaneously (Iacovone and Javorcik, Bernard et al., 2010).

2 Data and methodology

2.1 Data

Individual exports data are from the French customs. Our dataset reports monthly trade flows of individual French exporters over the period 1994-2008. Each individual trade flow in the database x_{ijkt} has four dimensions: firm i, destination country j,

product category k and month/year t. Firms are identified by their Siren number, with some 100,000 firms export each year in the dataset. Products are defined by the European Union Combined Nomenclature at 8 digits (CN8), covering about 8,000 product categories. This nomenclature replicates the Harmonized System (HS) at 6 digits, and adds two European digits that improves the definition of the product.

However, several changes in NC8 product classifications occurred during the period covered by the data. For this reason, tracking a single variety over time (a firm-destination-product combination) can be difficult because of changes in the product code. We tackle this issue in two steps. First, products are aggregates at the HS-6 digits level; this allows to eliminate problems do to changes in the European classification of products. Second, changes in the HS nomenclature occur in 1996, 2002 and 2007. In this case, concordance tables provided by the United Nations Statistical Division are used to translate product codes into a single nomenclature for computing growth rate over 2001/02 and 2006/07.

One last issue relates to the evolution of the reporting thresholds over the period. 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 the other 26 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.

For our analysis, exports data are aggregated by year, since we are interested by the patterns of the expansion of new exporters in the long run, rather than by short run fluctuations. However, we make use of the monthly information that is available to compute the growth rate of exports based on the "birth date" of the exporter rather than on calendar years. This allows to eliminate the bias in the construction of the growth rate of exports in the first year of presence on the export market. We discuss this issue later in the paper.

2.2 Methodology

Our analysis of the dynamics of firms' exports relies on growth rates of individual export flows. Due to the large number of entries and exits at the firm, destination or product

level, we follow Davis and Haltiwanger (1992)[2] 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 to the mean of x_{ijk} in t and $t-1$, and ensures that the mid-point 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 at different levels of aggregation as follows:

$$G_{st} = \sum_{ijkt, i \in s} \omega^s_{ijkt} \times g_{ijkt} \quad \text{where} \quad \omega^s_{ijkt} = \frac{x_{ijkt} + x_{ijkt-1}}{\sum_{ijkt, i \in s} x_{ijkt} + \sum_{ijkt-1, i \in s} x_{ijkt-1}}, \tag{2}$$

where s is a firm or a grouping of firms at any level of aggregation (industry, cohort, all French exporters). In the empirical exercise of the next sections, we use the contribution of individual export flows to both the growth of the French exports and the growth of the firm-level exports.

At any level of aggregation s, we can distinguish the contribution of continuing trade relationships (the net intensive margin), and the contribution due to the creation (positive extensive margin) and disruption (negative extensive margin) of trade relationships. The growth of French exports between two years is simply the sum of the net contribution of the intensive and extensive margins:

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

$$G_{st} = G_t^I + G_{st}^{E+} + G_{st}^{E-} \text{ where } \begin{cases} G_{st}^{E+} = \sum_{ijk,i\in s} \omega_{ijkt}^s \times g_{ijkt} & \text{if } g_{ijkt} = 2 \\ G_{st}^{E-} = \sum_{ijk,i\in s} \omega_{ijkt}^s \times g_{ijkt} & \text{if } g_{ijkt} = -2 \\ G_{st}^{I} = \sum_{ijk,i\in s} \omega_{ijkt}^s \times g_{ijkt} & \text{otherwise,} \end{cases} \quad (3)$$

where G_{st} is the net growth of exports of group s between t and $t-1$, G_{st}^I is the net contribution of the intensive margin, G_{st}^{E+} is the gross contribution of the extensive margin, and G_{st}^{E-} is the gross contribution of the intensive 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;
- add or drop of product and destination, continuing firm;
- add or drop of products, continuing firm and destination;
- Add or drop of destinations, continuing firm and product;
- add or drop of trade relationship, continuing firm, product and destination.

2.3 Decomposition of the growth of aggregate exports

We compute the contribution of the intensive margin and all components of the extensive margin to the yearly growth of French exports. Table 1 reports the average yoy growth of exports and the average contribution of its components over the period 1998-2008 and the total growth between 1998 and 2008.

The numbers reported in Table 1 show that French exports increased at an average rate of 4.2% over the period 1998-2008. About 60% of the yoy 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 of markets (destination and products) is however significant.

The relative contributions hwoever change dramatically when considering the growth of aggregate French exports over a 10 year period. The last column of Table 1 indeed

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%**

shows that 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.

2.4 Age and size

The literature on firm or establishment size and growth has emphasized the significance of regression to the mean effects. Indeed, a firm that has experienced a positive transitory shock is likely to experience a negative growth rate the following year, 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 size criteria. To mitigate these potential biases, Davis and Haltiwanger (1992) proposes to measure firm size using the current size of firms, i.e.

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

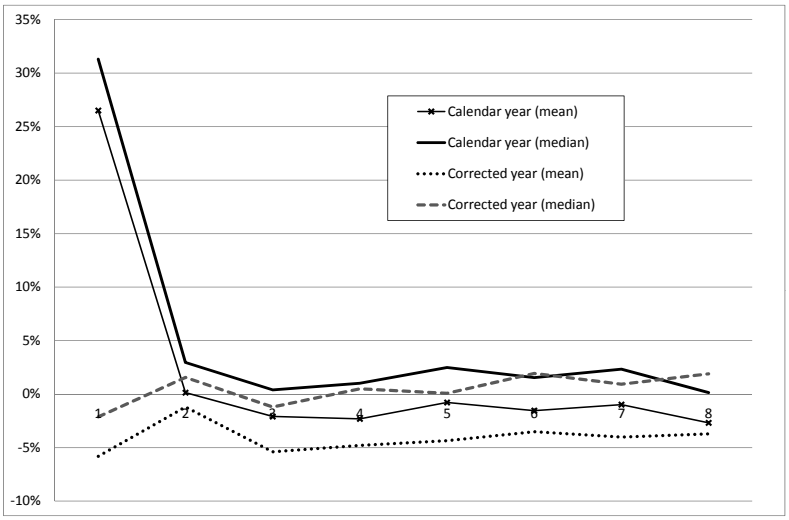
We define the age of each exporter according to its year of entry into export. Each firm is allocated to a cohort. For instance, a firm is considered as a new exporter in 1999 if it exports that year at least one product to one destination, but does not appear in the database between 1994 and 1998. A 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 die. Firms however cannot switch more than one time their export status. As soon as a firm stops exporting, it cannot re-enter in the export statistics of its cohort of origin in any of the following years. Each cohort of new exporter is constituted of an average of 20000 firms between 1999 and 2008...

One important issue regarding firm age 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 decrease 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. Eaton et al. (2007) or Albornoz et al. (2009) indeed report that firms typically start small, before they considerably increase their exports in the second year. Accordingly, we do not measure the annual growth rate of exports using calendar years, but rather the birth date of entry. The monthly frequency of our database enables us to reconstruct years according to the month of first entry into the export market of each new exporter. Figure 1 shows that the bias related to an uncomplete reporting of the first year of export is large. The average growth rate of export between the first and second year of export activity (conditional on survival) is 27% using calendar year against -6% when year are corrected for the month of entry. On average, the growth rate of new exporters conditional on survival is negative beginning the second year.

3 Survival and net growth of exporters

This section focuses on the net growth of exporters, and details some important econometric issues related to the computation of growth rates and the probability of survival

Figure 1: Mean and median growth rates: calendar vs. corrected years



and the measurement of exporters' size and regression to the mean effects.

3.1 Survival of new exporters

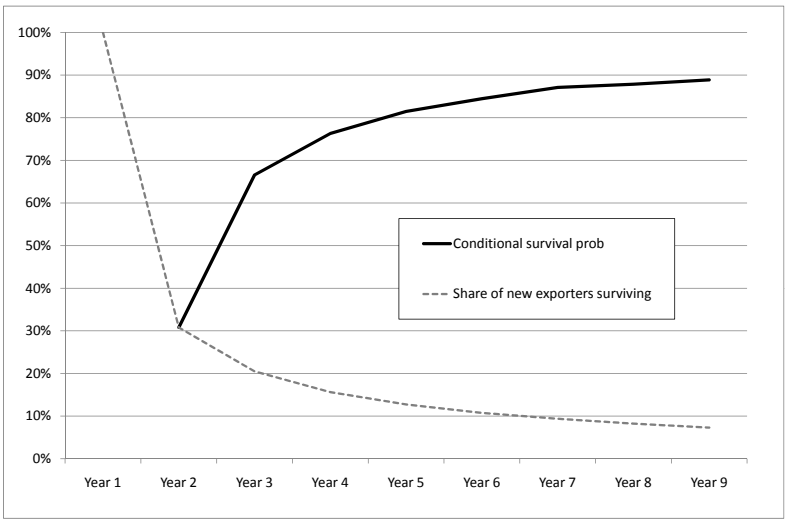
Two factors can explain the evolution of the aggregate contribution of cohorts of new exporters: the survival of firms within new cohorts over time, and the size and growth rate of surviving firms. We start by computing, for each year from 1999 to 2008, the number of new exporters. We therefore have potentially 10 cohorts for which the number of exporters can be computed the year of entry (year 1), and each subsequent years. During the years following the entry on the export market, the number of exporters is expected to decrease, since no entry is possible. However, the horizon that can be used to compute the number of exporters, and the survival rate, differs across cohorts. For the cohort 2008, we can only compute the number of exporters the year of entry, for the cohort 2007, two years can be used, and so on. For the cohort 1999, we have a horizon of 10 years that we use to track the failure and survival of new exporters. For each cohort, we are able to identify the evolution of the number of exporters and survival rate by ownership status.

We summarize this information by taking the sum of all new exporters (year 1) for which we have a minimum horizon of 5 years. For year 1, we therefore take the number

of firms that started exporting over the period 1999-2003. We then do the same for year 2 to year 5. This approach enables to compute the number of firms that started exporting in the period 1999-2003, and that survived at least x years on export market.

In Figure 5 we compute the probability of survival in t, conditional on being an exporter in $t-1$. Both independent and affiliated firms have a low rate of survival between the first year of exports and the second year. However, the survival rate for affiliated firms is higher. About half of them continue exporting in the second year, against less than 30% for the independent firms. The conditional probability of surviving then increases in time and is higher than 80% in

Figure 2: Survival of exporters



The numbers are also reported in Table 9 in Appendix, for those firms that started exporting during the period 1999-2003, and also for the cohort 1999, for which we have a wider window. The results for this cohort confirms the previous findings, with the conditional survival probability converging for independent firms and firms affiliated to a group, in year 9. These results confirm previous results in the IO literature, that the rate of failure of firms (in our case on the export market), is decreasing with the age of the cohort.

3.2 The growth of new exporters

We compute the growth rate of exports for individual firms, by summing the contributions of individual trade flows to the exports growth of firm i G^i_{ijkt}, over products and destinations:

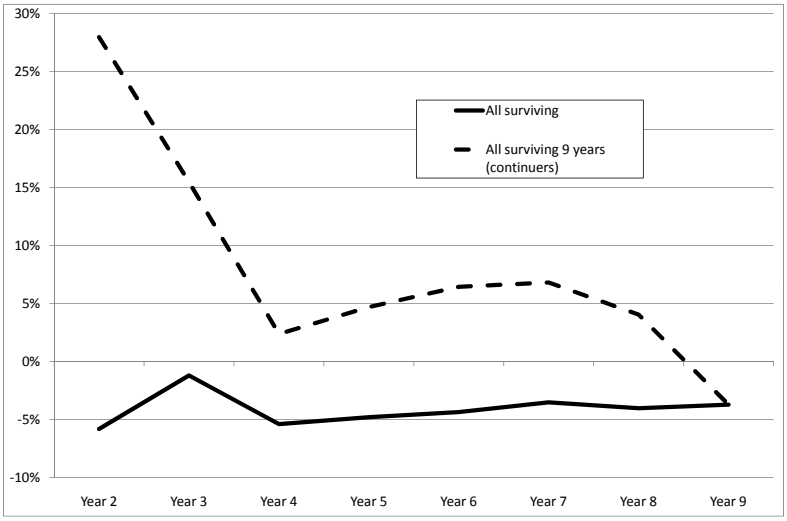
$$G_{it} = G_{it} = \sum_{jk} G^i_{ijkt} \tag{4}$$

We summarize the information contained in all cohorts and take the mean growth of exports over all new exporters that export a positive value in t, i.e. "surviving" exporters, for each year consecutive to the entry. The mean growth rate is computed by considering, first, all new exporters until their year of exit. In a second step, we keep for the analysis only those firms that continuously export over the whole period ("continuers", surviving 9 consecutive years). The difference between the two measures of the mean growth of the cohort enables to identify the contribution of firm selection.

Figure 6 shows the mean growth rate of new exporters. The solid line corresponds to the average growth rate when all new exporters that survive between year t-1 and year t are considered. The dashed line corresponds to the "continuers", i.e. those continuously exporting 9 years in our typology. One important result is that the mean growth rate of exports is negative on average when all surviving exporters are considered. This pattern is mostly due to exporters that keep exporting in t, but decrease their volume of exports before they exit in the next years. Between the first and the second year, the average growth rate of exports by independent firms is -5.8%. This result contrasts with previous studies, where new exporters are found to experience a very positive growth rate between the first and the second years **(References)**. One important source of difference is that our growth rate of exports takes into account the exact birth date of the exporter, and not calendar years, and includes all new exporters, small and large. This methodology enables to eliminate the bias in the construction of the first growth rate, as discussed in previous Sections.

For the successful new exporters that survive continuously over the whole period, we do observe a very positive growth rate of exports in the first years. For these firms, the growth of exports between the first and the second year is +28% on average, and then decreases quickly. On average, those continuing new exporters grow at an average rate of 8%. Importantly, the growth performance is decreasing with the age of these exporters,

Figure 3: Growth of exports after entry, by ownership type and survival



whereas this is not the case when all firms are taken into account. This empirical pattern helps to explain the apparent absence of relation between the age of the cohort and the mean growth rate when all exporters are considered. Whereas one would expect that the selection of firms towards the most performing ones, in the first years, would increase the mean growth rate by composition, the decrease in the individual performance of continuing exporters tends to compensate the selection of new exporters. Overall, the growth of exports by new cohorts of exporters tends to be stable over time.

3.3 Firm-level estimations

The literature in IO has shown that the survival of firms is closely related to their age and size (see in particular Dunne et al. (1989)). The analysis has therefore to take into account this relation to identify an unconditional effect of age, and size, on the growth rate of firms. The econometric analysis that is presented in this section relies on the whole sample of exporting firms. This enables to compare the growth patterns of new exporters with those of mature exporters, which are used as a "control group" in this analysis. Given that new exporters are also typically smaller in size, the identification of the effects of the size on exports growth has to rely on the whole distribution of sizes among exporters. Thanks to the definition of our growth rate, which takes the value

2 in case of entry or -2 in case of exit, we are able to take keep new entrants in their first year and exiters in their last year. Alternative estimations rely on the subsample of firms that survive between t-1 and t.

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-class and age classes. Our size classes are defined as deciles of all French exporters on a yearly basis.[3] We follow Haltiwanger et al. (2009) and allocate firms to a size class by considering the average value of exports in t-1 and t.[4] Regarding age, we define 7 age classes according to the number of years since first export; the last category includes firms continuously present on the export market for 7 years or more ("mature" exporters). 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.[5] 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 first regress net growth rate on age-class dummies and size-class dummies separately (columns (1) and (2) in table 2). In column 1, the coefficient on the Age=1 dummy is very positive, meaning that new exporters have a more positive growth rate than mature exporters in their first year of existence. This result is due to the value of the growth rate during the year of entry ($G_{it} = 2$). The dummies Age=2 to Age=6 however report a negative coefficient, which is decreasing in absolute value when age increases. When all exporters are considered, young exporters have on average a lower growth of exports than mature exporters. This negative premium decreases with export experience. Similarly, without controlling for firm age, we find a positive relationship between size and net growth rate in column 2. In column (3), we include simultaneously age and size. The negative relationship between size and net growth is reinforced while controlling for size, the negative impact of age on firm growth is lower and disappears the 6th year of activity on the export market.

[3]Defining time invariant size classes does not alter the results.

[4]According to Haltiwanger et al. (2009), using the size in t-1 creates a negative relation between size and growth, since firms experiencing a negative shock in t-1 can be ranked in a lower size class, and will grow at a higher rate between t-1 and t due to recovery.

[5]Firms that exit the export market and then re-enter in subsequent years are excluded.

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

Table 2: Net growth, size and age

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent var.	G_{it}	G_{it}	G_{it}	G_{it}	G_{it}	G_{it}
Size	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1	t/t-1
Sample of firms	All	All	All	Surviving	Surviving	Surviving
Size d1		-0.227^a	-1.161^a		1.925^a	-0.090^a
		(0.008)	(0.004)		(0.003)	(0.003)
Size d2		-0.181^a	-1.051^a		1.587^a	-0.086^a
		(0.008)	(0.005)		(0.005)	(0.004)
Size d3		-0.156^a	-0.886^a		1.142^a	-0.100^a
		(0.008)	(0.005)		(0.006)	(0.004)
Size d4		-0.118^a	-0.682^a		0.729^a	-0.113^a
		(0.007)	(0.005)		(0.006)	(0.005)
Size d5		-0.102^a	-0.479^a		0.412^a	-0.109^a
		(0.006)	(0.005)		(0.006)	(0.004)
Size d6		-0.098^a	-0.340^a		0.228^a	-0.095^a
		(0.006)	(0.005)		(0.005)	(0.004)
Size d7		-0.088^a	-0.295^a		0.178^a	-0.081^a
		(0.006)	(0.005)		(0.005)	(0.004)
Size d8		-0.039^a	-0.103^a		0.048^a	-0.045^a
		(0.004)	(0.004)		(0.004)	(0.003)
Size d9		-0.013^a	-0.033^a		0.019^a	-0.013^a
		(0.004)	(0.003)		(0.004)	(0.003)
Age=1	2.252^a		2.792^a	2.070^a		2.112^a
	(0.002)		(0.003)	(0.002)		(0.003)
Age=2	-1.155^a		-0.653^a	0.002		0.035^a
	(0.003)		(0.004)	(0.005)		(0.005)
Age=3	-0.436^a		-0.156^a	0.057^a		0.083^a
	(0.006)		(0.006)	(0.005)		(0.006)
Age=4	-0.276^a		-0.085^a	0.016^a		0.036^a
	(0.007)		(0.006)	(0.006)		(0.006)
Age=5	-0.174^a		-0.036^a	0.016^a		0.033^a
	(0.007)		(0.006)	(0.006)		(0.006)
Age=6	-0.129^a		-0.027^a	0.002		0.016^b
	(0.007)		(0.007)	(0.006)		(0.006)
Constant	-0.179^a	2.153^a	-0.073^a	-0.039^a	0.176^a	-0.007
	(0.012)	(0.019)	(0.012)	(0.009)	(0.015)	(0.009)
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	652323	652323	652323	503617	503617	503617
R-squared	0.63	0.00	0.68	0.64	0.27	0.64

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

Previous results are obtained for the full sample of exporters, and can be influenced by two dimensions of firms exports: the probability of surviving and the expected growth rate conditional on survival. In columns (4) to (6), we replicate estimations by focusing on the sample of firms that survive between t-1 and t. When the effects of age and size are considered separately in columns (4) and (5), we find that younger firms and smaller firms tend to grow faster than large and mature firms. When both age and size are included in the estimated equation (column 6), we find a different result for the effect of size: large firms grow faster than small and medium-size firms. The previous result for size, however, is reinforced: young exporters do grow faster than mature ones, conditional on their survival.

The comparison of estimation results using the whole sample of firms and the sample of surviving exporters (columns 3 and 6) shows that the probability of exit is related to both the size and age of the firm: small and new exporters exhibit a lower probability of survival. These results emphasizes the need to account for size, age, and survival probability when investigating the dynamics of firm-level exports. The comparison of estimations combining age and size, with the estimations taking these two variables separately, shows that both variables are closely related.

3.4 Robustness: independent vs. affiliated new exporters

An important issue is the ownership structure of the firm. The fact that the firm belongs to a multinational is likely to influence the firm's export performance, at least in the first few years. The industrial strategy of firms affiliated to a group is more complex than the strategy of independent firms; a group may decide to change the firm through which it sources its exports from France, or integrate directly a new affiliates into its international production network. In these case, the age of a new exporter affiliated to a group should be considered with caution. To test the robustness of our result to this potential source of bias, we distinguish new independent exporters from new exporters affiliated to a group. We identify firms affiliated to a group using the LIFI database, that links for each year firms to groups by their SIREN identifier**(Details about lifi data)**. We consider new exporters as independent if they are not reported as being part of a group in the first two years of entry.[7]

[7]We do not consider firms integrated to a group afterwards since we are interested in the potential impact of group membership on the measurement of age.

Figure 5 presents the probability of survival in t, conditional on being an exporter in $t-1$. Both independent and affiliated firms have a low rate of survival between the first year of exports and the second year. However, the survival rate for affiliated firms is higher. About half of them continue exporting in the second year, against less than 30% for the independent firms. The conditional probability of surviving then increases over time and is higher than 80% in year 5.

Figure 4: Survival of exporters, by ownership type

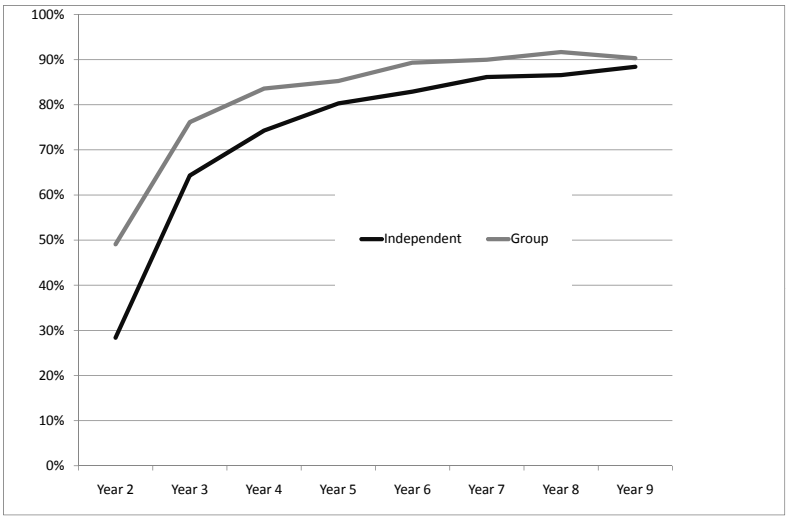


Figure 6 report the mean growth rate of exports of new independent or affiliated exporters, for firms that survive between t-1 and t, and for firms that survive all years (continuers). The empirical pattern is comparable for affiliated and independent firms: firms that continue exporting all consecutive years during the period are those who experience the highest growth rate between the first and second year of exports. However, the average growth rate reduces rapidly between the second and the fourth year. The most sensible difference between affiliated and independent can be observed for the average growth rate by all surviving firms, where the growth of affiliated firms is found to be less negative. Overall, the difference between independent and affiliated firms is mostly affecting the probability of survival on the export market. One interpretation of this pattern is that within-group trade relations are less risky and therefore less volatile.

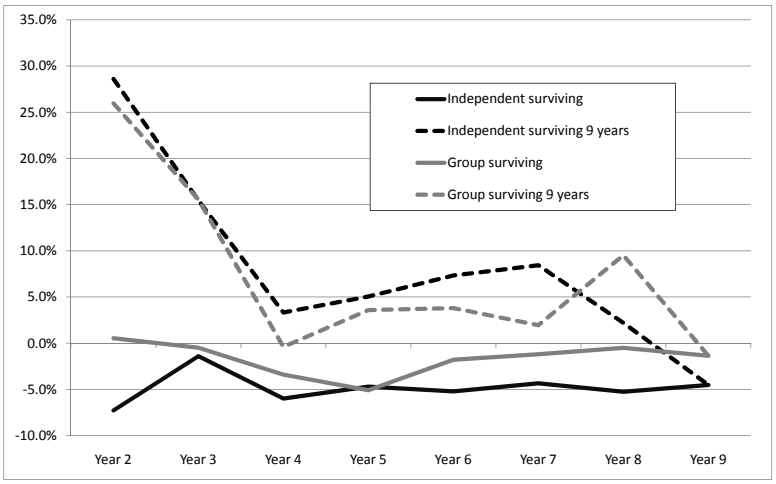
Table 3 reports the estimation of the effect of size and age on the firm-level growth of exports. Estimations are provided for the years after 2000 due to the coverage of the

Table 3: Net growth, size and age for independent firms only

	(1)	(2)	(3)	(4)
Dependent var.	G_{it}	G_{it}	G_{it}	G_{it}
Size	t/t-1	t/t-1	t/t-1	t/t-1
Sample	All > 2000	All indep > 2000	Surviving > 2000	Surviving indep > 2000
	Benchmark	Independent	Benchmark	Independent
Size d1	-1.157^a	-1.124^a	-0.092^a	-0.099^a
	(0.010)	(0.015)	(0.007)	(0.011)
Size d2	-1.069^a	-1.039^a	-0.092^a	-0.098^a
	(0.010)	(0.016)	(0.007)	(0.011)
Size d3	-0.953^a	-0.925^a	-0.105^a	-0.110^a
	(0.010)	(0.016)	(0.007)	(0.011)
Size d4	-0.805^a	-0.774^a	-0.118^a	-0.123^a
	(0.010)	(0.016)	(0.008)	(0.012)
Size d5	-0.640^a	-0.611^a	-0.116^a	-0.122^a
	(0.011)	(0.016)	(0.008)	(0.012)
Size d6	-0.502^a	-0.472^a	-0.093^a	-0.095^a
	(0.011)	(0.017)	(0.009)	(0.012)
Size d7	-0.421^a	-0.384^a	-0.066^a	-0.067^a
	(0.011)	(0.017)	(0.009)	(0.013)
Size d8	-0.140^a	-0.103^a	-0.023^a	-0.022^c
	(0.012)	(0.018)	(0.009)	(0.013)
Size d9	-0.054^a	-0.028	-0.001	-0.004
	(0.012)	(0.019)	(0.009)	(0.014)
Age=1	2.787^a	2.793^a	2.087^a	2.104^a
	(0.020)	(0.024)	(0.018)	(0.021)
Age=2	-0.653^a	-0.697^a	0.009	0.01
	(0.020)	(0.024)	(0.018)	(0.021)
Age=3	-0.139^a	-0.160^a	0.057^a	0.075^a
	(0.021)	(0.024)	(0.019)	(0.022)
Age=4	-0.050^b	-0.062^b	0.022	0.036
	(0.021)	(0.025)	(0.019)	(0.023)
Age=5	-0.017	-0.002	0.016	0.041^c
	(0.022)	(0.026)	(0.020)	(0.023)
Age=6	0.000	-0.008	0.005	0.008
	(0.024)	(0.028)	(0.021)	(0.025)
Constant	-0.041	-0.056^c	-0.015	-0.028
	(0.026)	(0.031)	(0.022)	(0.026)
Sector f.e.	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes
Observations	311,909	268,551	214,859	181,115
R-squared	0.82	0.83	0.76	0.77

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

Figure 5: Growth of exports after entry, by ownership type and survival



LIFI database. Columns (1) and (2) report the estimations by considering respectively all new exporters, and all new exporters that do not belong to a group (independent). As in previous estimations, mature exporters are also included in the estimation as a reference group. Columns (3) and (4) report estimation results for surviving firms only.

The results are similar between independent firms and the benchmark estimations with all firms. When firms that exit in t are included in the sample, we find that young firms and small firms grow at a lower rate, as compared to large and mature ones. Results are modified when only those firms that survive from t-1 to t are included in the sample for the estimation: small and medium-size firms do report a lower growth rate as compared to large firms, whereas young firms tend to grow faster than mature firms.

4 Destinations, products and churning

4.1 Growth of exports along destinations and products

The net growth of exports of new cohorts hides important information about the way new exporters expand their foreign sales along destinations and products. In the section dedicated to the contribution of new cohorts to the growth of aggregate French exports, we provided a decomposition of this contribution into individual trade flows that are

continuing between $t-1$ and t (the intensive margin), and the net contribution of entry and exit (the extensive margin). The extensive margin was further decomposed into its components.

We now focus the analysis on the contribution of the intensive and extensive margin to the growth of exports of new exporters. For each individual firm i we proceed as follows:

$$G_{it} = G_{it}^E + G_{it}^I \text{ where } \begin{cases} G_{it}^I = \sum_{jk} G_{ijkt}^i & \text{if } x_{ijkt} > 0 \text{ and } x_{ijkt-1} > 0 \\ G_{it}^E = \sum_{jk} G_{ijkt}^i & \text{otherwise.} \end{cases} \quad (5)$$

Where G_{it}^I is the contribution of the intensive margin to the growth of exports by firm i between $t-1$ and t, and G_{it}^E is the net contribution of the extensive margin. The contribution of the extensive margin can be further decomposed into the contribution of its various components:

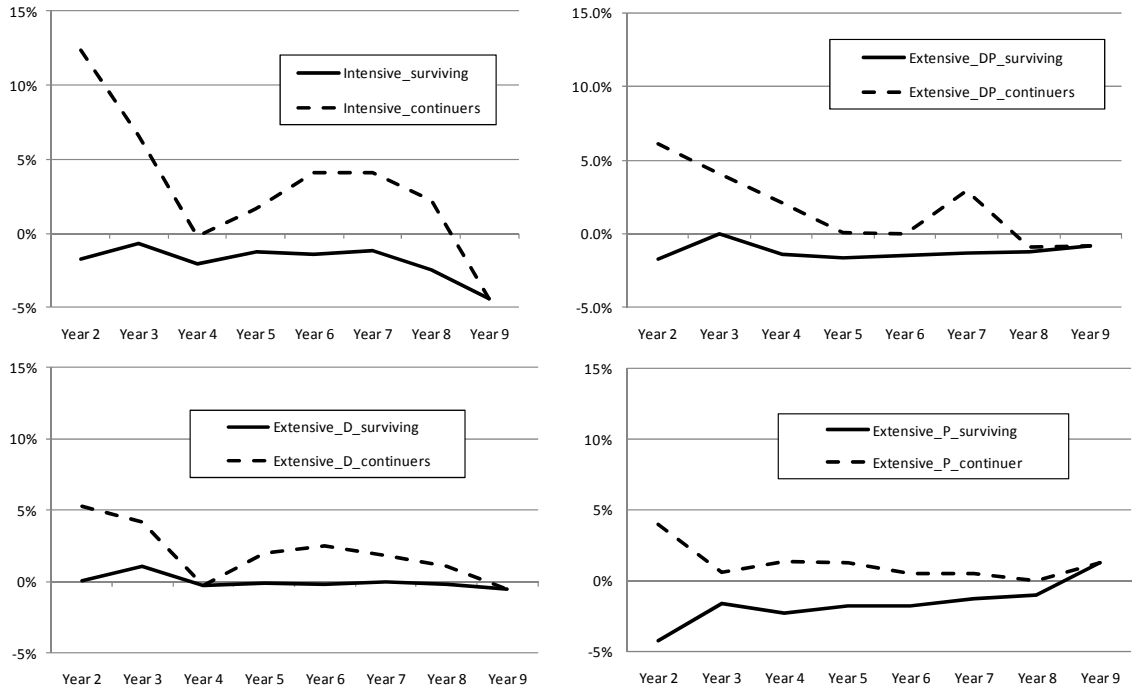
- Add or drop of products, continuing destination (P) $(x_{jt-1} \neq 0; x_{kt-1} = 0)$
- Add or drop of destinations, continuing product (D) $(x_{jt-1} = 0; x_{kt-1} \neq 0)$
- Add or drop of destination and product (DP) $(x_{jt-1} = 0; x_{kt-1} = 0)$
- Add or drop of trade relationship, continuing product and destination $(\overline{DP})$ $(x_{jt-1} \neq 0; x_{kt-1} \neq 0)$

The mean growth rate for each margin is computed over all firms, using information for independent firms only. We summarize the contribution of each component in Figure 7. All numbers, together with period averages, are provided in Table 10 in the Appendix Section. [8]

When new surviving exporters are considered (solid line), the contribution of each component to the growth of new exporters appears stable over time. The exception is the contribution of new products that becomes less negative in the last years. This empirical pattern can be explained by the exit of small firms exporting only few products in the first years consecutive to the entry. For all the other components, results are consistent with the flat mean growth rate of exports in Figure 6 above.

[8] In Figure 7, we exclude the last category listed above (add or drop of trade relationship, for continuing product and destination), which corresponds to the smallest contribution to the growth of new exporters.

Figure 6: Contribution of the intensive and extensive margins to the growth of new independent exporters



The empirical pattern for continuing new exporters (the dashed line) is also consistent with the previous findings. The intensive margin dominates in the second year, and explains 43% of the expansion of foreign sales by new exporters between the first and the second year. Other components of the extensive margin have a similar contribution (around 5% each) in year 2, before this contribution decreases over time. Between the first. The extensive margin between the first and second years is slightly dominated by the growth of exports due to new products and destinations (DP, 6.1%), followed by destinations (D, 5.3%) and products (P, 4%). Over the whole period, continuing new exporters expand their exports within existing trade relationships by 3.3% a year, while an additional 4.9% a year is due to the net creation of new trade relationships.

Overall, these results show that successful new exporters expand their sales abroad by increasing their sales within existing relationships. They also add simultaneously new

markets and new products, which contribute to more than half of the yearly expansion of foreign sales. However, the net contribution of each margin decreases with the age of the cohort.

4.2 Churning on foreign markets

The net growth of exports, and the net contribution of the intensive and extensive margins, hides an important information related to the strategy of expansion by new exporters. Recent papers exploiting firm-level datasets have shown that a number of exporters tend to enter and exit simultaneously foreign markets **(references churning export)**. In our dataset, new exporters can simultaneously increase their sales on existing destinations, and decrease their sales on others. They can also add and drop destinations (D), add and drop products (P), add and drop destinations-and-products (DP) and finally add and drop trade relationships corresponding to products that remain exported and destinations that are still targeted ($\overline{DP}$). Simultaneous entry and exit is usually referred as "churning".

We construct a measure of churning, defined as the weight of export flows corresponding to entry and exit, as a proportion of exporters total exports. Churning due to entry and exit can be further decomposed into the contributions of destinations (D), products (P) and destinations-and-products (DP).[9] Equation **??** below summarizes how churning is computed for the intensive and extensive margins.

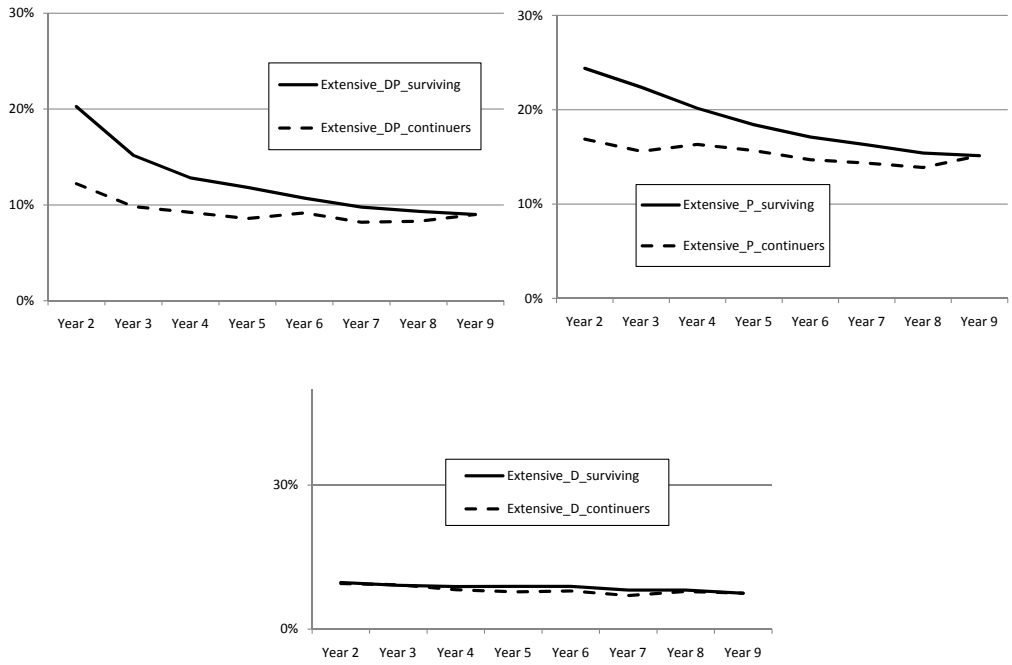
$$Churning_{it} = \sum_{jk} G_{ijkt}^{i,positive} + \sum_{jk} \left| G_{ijkt}^{i,negative} \right| /2 \tag{6}$$

Given that entry flows are allocated a growth rate $g_{ijkt} = 2$ and exit flows a growth rate $g_{ijkt} = -2$, this formula is equivalent to the sum of the weights ω_{ijkt}^{s} associated with the creation or destruction of trade relations. This detail in the rate of churning along the different margins provides information about the source of the volatility of firms' exports. We can also identify how this volatility along the different margins changes with the age of the cohort. In this perspective, we compute the mean rate of churning, for each margin and each year, over the whole sample of exporters in the cohort. We do so also for the sample of new exporters that continuously export over the period 1999-

[9] We elude the case of entry and exit for products still exported, and destinations that remain targeted by the firm ($\overline{DP}$), as they correspond to a minor proportion of the firms' export flows.

2008 for surviving and continuing exporters. Results are reported in Figure 8. Table 11 in Appendix reports the net positive and negative contributions for each margin, and for surviving exporters or continuers only.

Figure 7: Absolute weight of entry and exit flows (churning), independent exporters



When surviving exporters are considered (solid line), the rate of churning for all components of the extensive margin declines with the age of the cohort, except for the entry or exit on destinations (D). When continuers only are considered (dashed line), the rate of churning is declining for destination-product flows (DP) or product flows (P), but to a lower extent. The gross weight of the destination-specific extensive margin is stable over time.

The empirical regularity that is observed for surviving exporters, and continuers, enables to identify the evolution of churning that is due to the selection of firms, and the evolution that is due to the evolution of churning within firms. According to the charts for DP flows and D flows, a large share of the evolution of churning is related to the selection of firms over time. Table 11 indeed shows that those exporters that will

die in their first years of existence tend to experiment more by adding and dropping products, or product-destination flows, as compared to continuers. Continuers though also report a larger rate of churning in their first years of existence, as compared to the end of period pattern, suggesting that these "successful" new exporters do experiment as well - although to a lower degree - in their first years of existence. Finally, one of the most striking facts is that churning remains important in proportion of total exports, even for mature exporters. For firms that survive 9 years or more, churning still represents 35% of their total value of exports, the 65% remaining corresponding to an "intensive" variation of their exports.

4.3 Firm-level estimations

Table 4 reports estimation coefficients of the equation where trade margins are explained by the age and size of the exporter. The first column of the table corresponds to then benchmark estimation where the dependent variable is the Growth of individual exporters surviving between t and t-1 (G_{it}). Columns (2), (3) and (4) respectively correspond to the intensive growth of exports (G_{it}^{I}), the growth of exports that can be attributed to entry(G_{it}^{E+}), and the growth that is related to exit (G_{it}^{E-}). Coefficients in columns (2), (3) and (4) add-up to the coefficient in column (1). This particular feature enables to compute the relative contribution of each margin to the growth of firms' exports.

The results in column (1) confirm that small and medium firms have a smaller growth rate than large firms, whereas new exporters tend to grow faster. These results are confirmed when the growth of exports along the intensive margin is taken as the dependent variable in column (2).

Columns (3) and (4) consider separately the positive contribution of the extensive margin, and the negative contribution of the extensive margin. Taking into account separately the positive and negative extensive margin allows to identify the gross contribution of the extensive margin to the expansion of exporters. Results in column (3) unambiguously show that small exporters are more volatile, in that the contribution of entry and exit is larger than for the larger exporters. Similar pattern can also be identified for the effect of age on entry and exit: younger exporters tend to be more volatile than mature ones, at least in the first years of their existence.

Table 4: Growth of exports by margin

Dependent var.	(1) Benchmark G_{it}	(2) Intensive margin G_{it}^{I}	(3) Extensive positive G_{it}^{E+}	(4) Extensive negative G_{it}^{E-}
Size d1	-0.090^{a}	-0.022^{a}	0.375^{a}	-0.439^{a}
	0.003	0.002	0.002	0.002
Size d2	-0.086^{a}	-0.019^{a}	0.402^{a}	-0.463^{a}
	0.004	0.003	0.002	0.003
Size d3	-0.100^{a}	-0.022^{a}	0.412^{a}	-0.484^{a}
	0.004	0.003	0.003	0.003
Size d4	-0.113^{a}	-0.025^{a}	0.406^{a}	-0.488^{a}
	0.005	0.003	0.003	0.003
Size d5	-0.109^{a}	-0.032^{a}	0.387^{a}	-0.463^{a}
	0.004	0.003	0.002	0.003
Size d6	-0.095^{a}	-0.031^{a}	0.355^{a}	-0.418^{a}
	0.004	0.003	0.002	0.003
Size d7	-0.081^{a}	-0.023^{a}	0.311^{a}	-0.367^{a}
	0.004	0.003	0.002	0.003
Size d8	-0.045^{a}	-0.021^{a}	0.164^{a}	-0.189^{a}
	0.003	0.003	0.002	0.002
Size d9	-0.013^{a}	-0.007^{b}	0.087^{a}	-0.091^{a}
	0.003	0.003	0.002	0.002
Age=1	2.112^{a}	0.043^{a}	1.488^{a}	0.593^{a}
	0.003	0.002	0.002	0.002
Age=2	0.035^{a}	0.024^{a}	0.082^{a}	-0.062^{a}
	0.005	0.003	0.003	0.003
Age=3	0.083^{a}	0.030^{a}	0.060^{a}	0.002
	0.006	0.004	0.003	0.003
Age=4	0.036^{a}	0.012^{a}	0.025^{a}	0.003
	0.006	0.004	0.003	0.003
Age=5	0.033^{a}	0.011^{b}	0.015^{a}	0.012^{a}
	0.006	0.005	0.003	0.003
Age=6	0.016^{b}	0.000	0.005	0.011^{a}
	0.006	0.005	0.003	0.004
Constant	-0.007	-0.015^{c}	-0.002	0.003
	0.009	0.008	0.005	0.005
Size	t/t-1	t/t-1	t/t-1	t/t-1
Sample	Surviving	Surviving	Surviving	Surviving
Sector f.e.	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes
Observations	503,617	503,617	503,617	503,617
R-squared	0.64	0.00	0.80	0.30

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

Table 5 reports estimation results where the estimated equation takes individual components of the extensive margin separately. Columns (1) and (2) decompose the destination-product (DP) extensive margin, columns (3) and (4) the destination extensive margin (D), columns (5) and (6) the product extensive margin (P), and column (7) and (8) the other forms of extensive margin.

5 Conclusion

To be added

Table 5: Decomposing the extensive margin

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Destination/product		Destination		Product		None	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
Size d1	0.167^a	-0.192^a	0.054^a	-0.062^a	0.174^a	-0.204^a	-0.020^a	0.019^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Size d2	0.186^a	-0.212^a	0.054^a	-0.061^a	0.184^a	-0.212^a	-0.022^a	0.022^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.000)	(0.000)
Size d3	0.193^a	-0.223^a	0.054^a	-0.062^a	0.189^a	-0.223^a	-0.024^a	0.024^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size d4	0.184^a	-0.217^a	0.057^a	-0.069^a	0.188^a	-0.225^a	-0.023^a	0.023^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size d5	0.162^a	-0.192^a	0.062^a	-0.068^a	0.181^a	-0.221^a	-0.018^a	0.017^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Size d6	0.133^a	-0.153^a	0.059^a	-0.064^a	0.172^a	-0.208^a	-0.009^a	0.008^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Size d7	0.117^a	-0.142^a	0.079^a	-0.087^a	0.119^a	-0.142^a	-0.004^a	0.004^a
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size d8	0.052^a	-0.063^a	0.047^a	-0.049^a	0.064^a	-0.074^a	0.001^c	-0.003^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size d9	0.021^a	-0.024^a	0.026^a	-0.023^a	0.035^a	-0.039^a	0.006^a	-0.006^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age=1	-0.177^a	0.211^a	-0.097^a	0.112^a	-0.207^a	0.237^a	-0.031^a	0.033^a
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Age=2	0.056^a	-0.041^a	0.004^a	0.013^a	0.036^a	-0.052^a	-0.014^a	0.018^a
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Age=3	0.027^a	0.003	0.004^b	0.019^a	0.040^a	-0.033^a	-0.012^a	0.013^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Age=4	0.010^a	0.005^b	-0.002	0.014^a	0.026^a	-0.025^a	-0.009^a	0.009^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Age=5	0.004^c	0.007^a	-0.002	0.012^a	0.020^a	-0.015^a	-0.007^a	0.007^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Age=6	0.001	0.006^b	-0.004^b	0.009^a	0.014^a	-0.011^a	-0.007^a	0.007^a
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)
Constant	-0.024^a	0.026^a	0.018^a	-0.023^a	-0.017^a	0.022^a	0.021^a	-0.021^a
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
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
Sector f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time f.e.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	503617	503617	503617	503617	503617	503617	503617	503617
R-squared	0.10	0.11	0.06	0.05	0.15	0.17	0.06	0.06

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

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Table 6: Rate of survival of new multi-products and multi-destinations exporters depending on the number of initial products

	2 or 3 products	4 to 9 products	more than 9 products
year 2	57	82	93
year 3	41	67	84
year 4	31	56	75
year 5	26	48	68
year 6	22	42	61
year 7	18	36	56
year 8	16	33	52
year 9	14	29	48

Table 7: Rate of survival of new multi-products and multi-destinations exporters depending on the number of initial destinations

	% of new exporters surviving		
	2 or 3 destinations	4 to 9 destinations	more than 9 destinations
year 2	61	88	98
year 3	45	76	91
year 4	35	66	84
year 5	28	58	78
year 6	24	52	72
year 7	20	46	68
year 8	17	42	65
year 9	15	39	61

Appendix

Table 8: Contribution of new cohorts to the value of Aggregate French exports - all years

					Independent firms					
	Cohort 1999	Cohort 2000	Cohort 2001	Cohort 2002	Cohort 2003	Cohort 2004	Cohort 2005	Cohort 2006	Cohort 2007	Cohort 2008
1999	1.1%									
2000	1.4%	0.7%								
2001	1.5%	1.2%	0.9%							
2002	1.4%	1.4%	1.3%	0.7%						
2003	1.5%	1.3%	1.5%	1.0%	0.7%					
2004	1.4%	1.2%	1.4%	1.0%	0.9%	0.6%				
2005	1.3%	1.2%	1.2%	0.9%	0.8%	0.8%	1.5%			
2006	1.3%	1.0%	1.1%	0.8%	0.9%	0.7%	1.8%	1.1%		
2007	1.2%	0.9%	1.0%	0.7%	0.9%	0.7%	1.4%	1.3%	0.6%	
2008	1.2%	0.9%	0.9%	0.7%	0.9%	0.7%	1.4%	1.2%	1.0%	1.0%
Mean 1st year	0.9%	Mean 2nd year	1.2%							

					Groups					
	Cohort 1999	Cohort 2000	Cohort 2001	Cohort 2002	Cohort 2003	Cohort 2004	Cohort 2005	Cohort 2006	Cohort 2007	Cohort 2008
1999	2.0%									
2000	2.9%	2.7%								
2001	2.8%	3.5%	1.1%							
2002	2.7%	3.1%	2.1%	0.9%						
2003	2.6%	2.8%	1.8%	1.5%	0.8%					
2004	2.5%	3.1%	1.7%	1.6%	1.5%	0.7%				
2005	2.5%	2.8%	1.6%	1.4%	1.6%	1.2%	1.6%			
2006	2.5%	2.7%	1.5%	1.4%	1.6%	1.5%	2.6%	0.5%		
2007	3.9%	2.8%	1.5%	1.3%	1.7%	1.2%	2.3%	0.8%	0.6%	
2008	4.7%	2.8%	1.5%	1.2%	1.7%	1.2%	2.2%	0.8%	1.0%	
Mean 1st year	1.2%	Mean 2nd year	1.9%							

Table 9: Number of exporters and survival, by ownership type

Firms starting exporting during 1999-2003 period					
	Number of firms			Cond. Survival probability	
	Independent	Group	% of independent	Independent	Group
Year 1	97341	12607	89%		
Year 2	27143	6203	81%	28%	49%
Year 3	17343	4672	79%	64%	75%
Year 4	12842	3904	77%	74%	84%
Year 5	10313	3329	76%	80%	85%

Firms starting exporting in 1999					
	Number of firms			Cond. Survival probability	
	Independent	Group	% of independent	Independent	Group
Year 1	21215	2599	89%		
Year 2	6296	1301	83%	30%	50%
Year 3	4127	968	81%	66%	74%
Year 4	3034	799	79%	74%	83%
Year 5	2426	677	78%	80%	85%
Year 6	2013	587	77%	83%	87%
Year 7	1727	535	76%	86%	91%
Year 8	1502	495	75%	87%	93%
Year 9	1328	447	75%	88%	90%

Table 10: Contribution of the intensive and extensive margins to the growth of new exporters, independent firms

All new exporters						
	Intensive	Extensive DP	Extensive D	Extensive P	Extensive none	Total extensive
Year 2	-1.7%	-1.7%	0.1%	-4.2%	0.2%	-5.6%
Year 3	-0.7%	0.0%	1.0%	-1.6%	-0.1%	-0.7%
Year 4	-2.0%	-1.4%	-0.2%	-2.3%	-0.1%	-4.0%
Year 5	-1.2%	-1.6%	-0.1%	-1.8%	0.0%	-3.5%
Year 6	-1.4%	-1.4%	-0.2%	-1.8%	-0.3%	-3.8%
Year 7	-1.2%	-1.3%	0.0%	-1.3%	-0.6%	-3.2%
Year 8	-2.5%	-1.2%	-0.2%	-1.1%	-0.3%	-2.8%
Year 9	-4.4%	-0.8%	-0.5%	1.3%	0.0%	-0.1%
Mean	-1.9%	-1.2%	0.0%	-1.6%	-0.1%	-2.9%
Mean by year 4	-2.1%	-1.3%	-0.2%	-1.2%	-0.2%	-2.9%

Continuing new exporters						
	Intensive	Extensive DP	Extensive D	Extensive P	Extensive none	Total extensive
Year 2	12.4%	6.1%	5.3%	4.0%	0.9%	16.2%
Year 3	6.6%	4.1%	4.2%	0.5%	0.1%	8.9%
Year 4	-0.2%	2.1%	-0.3%	1.4%	0.3%	3.5%
Year 5	1.7%	0.1%	2.0%	1.3%	0.0%	3.4%
Year 6	4.1%	0.0%	2.5%	0.5%	0.2%	3.2%
Year 7	4.1%	2.9%	1.8%	0.5%	-1.0%	4.3%
Year 8	2.3%	-0.9%	1.1%	0.0%	-0.3%	-0.1%
Year 9	-4.4%	-0.8%	-0.5%	1.3%	0.0%	-0.1%
Mean	3.3%	1.7%	2.0%	1.2%	0.0%	4.9%
Mean by year 4	1.3%	0.6%	1.1%	0.8%	-0.1%	2.4%

Table 11: Contribution of the positive and negative variations of exports by margin, independent firms

All new exporters

	Intensive pos	Intensive neg	DP in	DP out	D in	D out	P in	P out	Other in	Other out
Year 2	15%	-16%	19%	-21%	10%	-10%	22%	-26%	2%	-2%
Year 3	17%	-18%	15%	-15%	10%	-9%	22%	-23%	2%	-3%
Year 4	18%	-20%	12%	-14%	9%	-9%	19%	-21%	3%	-3%
Year 5	18%	-20%	11%	-13%	9%	-9%	18%	-19%	3%	-3%
Year 6	18%	-20%	10%	-11%	9%	-9%	16%	-18%	3%	-3%
Year 7	19%	-20%	9%	-10%	8%	-8%	16%	-17%	3%	-3%
Year 8	18%	-21%	9%	-10%	8%	-8%	15%	-16%	3%	-3%
Year 9	18%	-22%	9%	-9%	7%	-8%	16%	-15%	3%	-3%
Mean	18%	-20%	12%	-13%	9%	-9%	18%	-19%	3%	-3%
Mean by year 4	18%	-20%	10%	-11%	8%	-9%	17%	-18%	3%	-3%

Continuing new exporters

	Intensive pos	Intensive neg	DP in	DP out	D in	D out	P in	P out	Other in	Other out
Year 2	28%	-16%	15%	-9%	12%	-7%	19%	-15%	3%	-2%
Year 3	25%	-18%	12%	-8%	11%	-7%	16%	-15%	3%	-3%
Year 4	21%	-21%	10%	-8%	8%	-8%	17%	-16%	4%	-3%
Year 5	21%	-19%	9%	-9%	9%	-7%	16%	-15%	3%	-3%
Year 6	22%	-18%	9%	-9%	9%	-7%	15%	-14%	3%	-3%
Year 7	22%	-18%	10%	-7%	8%	-6%	15%	-14%	3%	-4%
Year 8	21%	-19%	8%	-9%	8%	-7%	14%	-14%	3%	-4%
Year 9	18%	-22%	9%	-9%	7%	-8%	16%	-15%	3%	-3%
Mean	22%	-19%	10%	-8%	9%	-7%	16%	-15%	3%	-3%
Mean by year 4	21%	-20%	9%	-8%	8%	-7%	15%	-15%	3%	-3%