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Are export promotion programs efficient for small and medium enterprises?

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Abstract

Focusing on Small and Medium Enterprises, we evaluate the impact of Export Promotion Programs on the probability of exporting and on the proportion of export related sales (export intensity) by exploiting a unique database of 259 firms. Employing a matching-based methodology and correcting for selection bias, we show that public support causes an increase of 16.27% of export intensity and a 25% increase in the probability of turning to export. We investigate for the first time the interaction between firm characteristics and the nature of public support. Only financial and innovation support increase export intensity while only network related support impacts the probability of exporting. Public support significantly impacts only profit-making firms and firms situated in an internationally exposed environment. This study fills an important gap in the literature by providing evidence that firms in the sector of services do benefit from public support, as opposed to manufacturing firms.

1   Introduction

Exporting is fundamental for the survival and long-term growth of small and medium sized enterprises (SMEs), as the most efficient way for them to internationalize. They, however, face difficulties in managing foreign market knowledge, resources, overseas contacts, information, business opportunities, and in developing organization for export activities. SMEs comprise the majority of firms and are thus pivotal for job creation in nearly all industrialized countries.
The benevolent public planner is therefore interested in SMEs finding their way to the export market and governments offer some method of export promotion support.

In this view, the French government has developed Export Promotion Programs (EPPs), a consequent set of measures to remove export barriers by lowering the variable or fixed costs of international developments. EPPs are significant as a countercyclical policy through sales diversification (Hirsch and Lev, 1971).

Abundant literature has evaluated the efficiency of similar programs in other countries, and has consistently demonstrated that they improve both aggregate and firm level exports (Van Biesebroeck, Konings, and Volpe Martincus, 2016). The impact is particularly robust for small business (Broocks and Van Biesebroeck, 2017). Similar results are not available for France to the best of our knowledge. Neither is there a specific investigation of whether a certain type of public support impacts more strongly certain types of SMEs. The present paper is an attempt to fill this gap.

EPPs help exporters to enter new product or geographical markets (Martincus and Carballo, 2010) or enchance the sustainability of export markets during a cyclical downturn (Van Biesebroeck, Konings, and Volpe Martincus, 2016). Current results imply that specific SMEs characteristics could hinder or boost the impact. Since economic activity is mostly conducted in service industries (Pilat et al., 2006) and since most firms are SMEs, investigation of the latter is critical for economic prosperity.

What is the effectiveness of EPP at enhancing the exports of SMEs? What type of support is most effective? Should public support focus on the industrial or service sector? Is an internationally exposed environment a catalyst? Do profitable and non profitable firms benefit equally? We exploit a unique database of 259 French Medium sized enterprises to shed light on the above questions.

2   Data

We built the dataset in collaboration with the Paris Chamber of Commerce and Industry (France) in two stages.

In the first stage, we extracted non-export related characteristics of 259 French SMEs from ASTREE (Coface- Bureau Van Dijk) and DIANE, two reference databases for French firms since all French SMEs are part of the bases through the French business registration authorities. The sample is random and stratified, sector and size conditioning admissibility. The size distribution of SMEs in the sample reflects the size distribution of SMEs in France.

To ensure homogeneity, all SMEs have between 5 and 249 employees.

The characteristics we retained are Staff (i.e. the number of employees, firms hire 50 workers at most), Business Sales, Profit, and whether the firm operates in the manufacturing of services Sector. We created a Spillover dummy, controlling for whether the firm is located in a border department or a major city (namely Lyon, Marseille or Paris). Indeed, an internationally exposed environment makes it easier to intensify or to start exports. All SMEs in the database are independent in the sense that no group holds more than a quarter of their capital.

In the second stage, we conducted a twenty-minute guide structured interview with the top manager. We asked the amount of export sales and whether the firm had benefited from public support within the five years preceding the interview (i.e. 2004–2009). Based on this information, we created a variable measuring the proportion of export sales in total sales (intensity) as well as a binary EPP variable. Where relevant, we asked what type of public support the firm had received in a sense that we define below.

Based on Freixanet (2012), we distinguished Financial, Competencies, Network and Innovation EPPs. Note that all EPPs are national.

Financial support consists in receiving financial capital in order to develop the internationalization process. Competencies development reflects the collaboration with public consulting, the services of experts or professional training. Network corresponds to the participation in international trade shows or promotional events managed by the state. Innovation refers to the capacity of SMEs to offer distinctively valuable services or products on foreign markets.

3   Methodology

We aim at evaluating the impact of public support on intensity and on the decision of firms to turn to exports (we consider that a firm exports if intensity is greater than 3%).

We face a selection problem. Indeed, firms that are set to export (because of favorable characteristics) are more likely to request public support. Reciprocally, firms that benefit from public support are more likely to export (Hanley and Pérez, 2012).[1]. A direct estimation would therefore overestimate the impact of public support.

Let us present the problem in a more conceptual manner. Let y be either the probability of turning to exports or export intensity. Subscript "1" denotes that the firm has benefited from an EPP and subscript "0" denotes the opposite. Following Heckman, Ichimura, and Todd (1997), we evaluate the average effect of public support as :

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[1]There is no equivalence, however, since only 93 exporting firms out of 161 do not benefit from public support and 17 non-exporting firms out of 99 do not benefit from an EPP

Average Treatment Effect (ATE) $= E(y_1 - y_0|EPP = 1) = E(y_1|EPP = 1) - E(y_0|EPP = 1)$

Where the last term represents the level of exports of supported firms had they not been supported, which is referred to as the counterfactual. It can not be observed directly and must therefore be estimated.

We opted for matching techniques that we detail below. Note that the cross-sectional nature of our data does not allow for a Difference in Difference estimator, perhaps the most natural approach.

In the first stage, we estimate the probability of benefiting from an EPP for each firm (i.e. the propensity score).

In the second stage, we match each supported firm with an average of unsupported firms that has close relevant characteristics. Since a firm and its matched counterpart should have similar intensities (as well as similar probabilities of turning to exports), the difference in dependent variables is attributed to public support. Averaging this difference on all firms yields what is classically referred to as "the Average Treatment Effect" (ATE). Averaging the difference on the subsample of supported firms yields the "Average Treatment Effect on the Treated" (ATET).

Propensity score matching requires selection on observables and overlap (so that a firm with any possible set of characteristics has both a positive probability of benefiting and a positive probability of not benefiting from an EPP). Both assumptions are plausible here. An excellent survey for matching techniques (Caliendo and Kopeinig, 2008) suggests that variables included in the propensity score model (i) influence the probability of benefiting from public support as well as intensity, and (ii) are not affected by benefiting from EPP. Three such variables are available : Spillover, Staff and Sector.[2]
Note that while the propensity score model is perhaps too parsimonious, it controls for most important determinants of requesting an EPP (Size in particular is positively correlated with Profit). Moreover, an ideal propensity score model should not predict its outcome "too well", so that the common support is as large as possible i.e. so that "some randomness [is present and] guarantees that [individual fims] with identical characteristics can be observed in both states" (Caliendo and Kopeinig, 2008).
Matched firms should have a similar probability of benefiting from public support, and the latter must therefore be estimated before implementing the matching algorithm proper. We decided to use a logit model for the estimation, while controlling for fixed sectorial effects and clustering standard errors at the sector level.

We estimate the ATET using the nearest neighbour matching algorithm, because the latter is fully non parametric and requires no explicit functional form for both the underlying models (i.e. the propensity score model and the model of intensity or export switching).[3]

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[2]A previous version of this paper included Profit as a covariate in the propensity score model, however, it was unclear whether assumption (ii) was verified. Moreover, the coefficient was not significant and excluding the variable "profit" has no impact on the results.

[3]Other matching algorithms, for example kernel matching (attk procedure in Stata), yield qualitatively the same results.

In the next section, we evaluate the impact of benefiting from an EPP on export intensity and on the probability of an SME turning to exports. More precisely, we estimate the magnitude and statistical significance of ATET to assess whether EPPs impacted export intensity (or the probability of turning to exports) and to evaluate the magnitude of the impact. We also test the efficiency of each of the four types of public support distinguished in section 2, namely Financial, Competencies, Network and Innovation. To this end, we use the same approach as the one described above except that we estimate the probability of benefiting for the specific type of public support considered.

Eventually, we test whether certain characteristics of SMEs make public support more efficient, i.e. whether support interacts with firm characteristics, for the first in the scientific literature to the best of our knowledge. Indeed, export promotion policies should focus mainly on (small) firms facing difficulties in establishing their first export interactions while still being able to internationalize their activity after a jumpstart. We expect concerned firms to operate in the sector of services, to be profitable and to benefit from positive location externalities (i.e. that they are situated in an internationally exposed environment, as defined by the Spillover dummy described in section 2). Therefore, we estimate ATET for export promotion programs in each corresponding subsample.

4   Results and Discussion

The estimation of the probability of benefiting from public support indicates that firms operating in the sector of services, firms that benefit from spillovers and bigger firms are more likely to benefit from an EPP (cf Table 1).

Table 1: Characteristics of publicly supported firms

Dependent variable: SME benefits from an EPP				
Sector	Size	Spillover	Profit	Intercept
-0.41 $(0.01)^a$	0.04 $(0.004)^a$	-0.41 $(0.13)^a$	$-4.1*10^{-4}$ $(3.3*10^{-4})$	-0.74 $(0.09)^a$
Standard errors in Parentheses, Profit is in ten thousands of Euros, ^{a} $p < 0.01$				

We turn to commenting on the impact of EPPs on both the export intensity and the probability of a SME turning to exports. Table 2 presents the results of the ATET estimation.

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Table 2: Average impact of EPPs on supported SMEs: Export Intensity and Export Trigger

	ATT: Intensity	ATT: Export
EPP (All)	$16.27\%^a$	$24.11\%^a$
Network	NS	$22.92\%^b$
Financial	$13.38\%^b$	NS
Innovation	$13.09\%^b$	NS
Positive Profit	$11.04\%^b$	17.28% ^{a}
Sector : Services	$14.66\%^a$	$15.49\%^b$
Spillover	$18.04\%^b$	$28.05\%^a$
NS: $p>0.05$, ^{b} $p < 0.05$, ^{a} $p < 0.01$		

First, an average firm benefiting from an EPP increases its export intensity by 16.27% and its probability of turning to exports by roughly 25%. Note that contrary to most previous studies, our estimation method fully controls for the selection bias.

Second, the impact of public support holds for the sector of services but disappears for industrial firms. Current literature on the trade performance of SMEs is mainly rooted in the evidence from manufacturing. Evidence on services' internationalization is limited and focuses on larger enterprises. Our result suggests that EPPs should focus more on services SMEs.

Third, in line with other studies, we find a significant impact of EPPs for profitable enterprises but not for loss-making enterprises. This is theoretically justified, as in standard trade models, firms become exporters if their productivity is high enough to cover fixed and sunk costs and therefore self-select into exporting.

Fourth, the impact of EPPs is significant for enterprises that are exposed to positive externalities, but not for other SMEs. Indeed, exporters raise the probability of export market entry for firms located in proximity.

Fifth, the efficiency of EPPs depends on the nature of the support. More precisely, only financial and innovation EPPs have a significant impact on the increase of intensity (by about 13% each). The only type of EPP that significantly increases the probability of switching to export is Network EPP with a roughly 25% increase.

5   Conclusion

We evaluate the impact of public support on the decision to turn to export and on export intensity by exploiting a unique database of 259 Small and Medium Enterprises. While correcting for selection bias, we find that firms benefiting from EPPs are 25% likely to switch to export and increase their export intensity by 16.27% on average.
The type of EPP is critical since only financial and innovation support impact intensity while

only network EPP impacts the probability to turn to export. We find that public support significantly impacts only SMEs that already generate a positive profit and that are located in an internationally exposed environment. To the best of our knowledge, this paper is the first to investigate the interaction between firms' characteristics and public support as well as the first to provide evidence that EPP significantly impacts firms operating in the sector of services but not on firms operating in the manufacturing sector.

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