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SEVENTH FRAMEWORK PROGRAMME

Clustering the Winners:
The French Policy of Competitiveness Clusters*

Lionel Fontagné[†], Pamina Koenig[‡], Florian Mayneris[§] and Sandra Poncet[¶]

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Abstract

In 2005 the French government launched a policy of competitiveness clusters, giving subsidies for innovative projects managed locally and collectively by firms, research centers and universities. This paper proposes an ex-ante analysis of the outcome of the selection process that took place before the implementation of the subsidies program, in order to assess whether the policy ended up in choosing winners or losers. We first ask how the clusters have been selected, and then focus on the selection of firms within the clusters, using export and productivity as a measure of performance. Our main conclusion is that public authorities have chosen the winners during the two-step selection procedure. Export premium, beyond what individual characteristics would predict, is however most visible within the category of clusters having no international ambition, where heterogeneity among firms is the largest.

JEL Codes:F1, F14
Keywords: Competitiveness, clusters, international trade, firm selection

1 Introduction

Cluster initiatives are popular among policy makers. Policy makers have found arguments in favor of subsidizing local networks of export-oriented innovative firms in the economic literature on externalities and localized growth. On the one hand, the new trade theory with heterogenous exporters (Melitz, 2003) highlights the existence of beachhead costs. While the bulk of these costs is specific to the firm, some may be shared, in particular when it comes to collecting information on remote or uneasy markets. On the other hand, innovation and ideas can spread over space, but, as highlighted by Jaffe et al. (1993), distance highly impedes such externalities. Both results tend to justify the geographical clustering of innovative activities. Rosenthal and Strange (2004) survey the empirical literature on agglomeration externalities and confirm the economic gains of clustering economic activity. [1]

In the French case, these arguments are reinforced by the fact that the country's deceiving export performance is often explained by the lack of medium size exporters, as well as by the lack of cooperation between universities, research centers and industrial firms. Mirroring these ideas, the French government launched in 2005 a three-year policy of competitiveness clusters, which has been extended to 2009-2011. This policy is based on a call for tender leading to financial subsidies for innovative projects managed collectively by firms, research departments and universities. It aims at improving French firms' performance thanks to radical innovations or upgrading in the quality of goods. Compared to the first French clusters policy, the "Systèmes Productifs Locaux" (SPL) policy started in 1998, the current competitiveness clusters scheme is very ambitious and quite costly (1.5 billion euros for each of the three-year phases).

Evaluations of public policies aimed at clustering economic activity are very few. Martin, Mayer and Mayneris (2009) are the first to use firm-level data to analyze the effects of a clusters policy (the French SPL program). Regarding the current competitiveness clusters policy, it is probably too early to assess the impacts of public intervention on firms' long-run performance. Still, there is an aspect of the procedure that we want to study. In the following, we perform an ex-ante evaluation of the outcome of the selection

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[1]However, these are reported to be relatively small in magnitude.

process that took place before the implementation of the subsidies program.

Since we were neither part of the administrative evaluations at the regional level, nor experts in the commission grouping entrepreneurs and academics that proposed the final list of clusters, we do not have information on the selection process *per se*. We accordingly adopt a statistical approach to highlight the outcome of the patterns of the selection process. The official selection procedure of the local actors that were to receive the grants included two steps. First, national public authorities asked firms, research centers and local authorities to submit proposals of sector-location pairs aimed at becoming the clusters.[2] Then, firms and research centers became members of the organization (generally an association) managing the cluster and could apply for subsidies for specific projects. As an example, a cluster was selected in the vicinity of Lyon, focusing on biotech ("Lyon Biopole"). Then, 26 firms had become active members of this cluster in 2006. They could apply to R&D tenders specifically oriented to labeled competitiveness clusters.

Our analysis thus investigates whether a specific pattern emerges from the selection process. Is the competitiveness clusters policy a regional policy? In which case we would find that the geographical selection has been very broad, in order to include in beneficiaries laggard regions. On the one hand, the French clusters policy has indeed been criticized on the grounds of its too limited selectivity. The number of clusters is large (66 clusters out of 105 applications in 2005, 71 now), and not all selected clusters may be credible actors in the world competition. On the other hand, a form of selectivity does appear when taking export orientation as a criterion: the selected clusters contain 2,242 exporters, which represent only 2 percent of the 111,960 exporters identified by the French customs in 2004. Is the competitiveness clusters policy an industrial policy? This possibility occurs when highlighting that firms are extremely heterogeneous and that the selectivity depends strongly on the type of firms we consider: 21 percent of the firms in the first percentile of exporters are ultimately active in the selected clusters. Hence one French export champion out of five has been *in fine* grouped in the selected clusters.

Finally, did public authorities choose the worse or the best performing firms? The empirical literature shows that industrial policies often target losers (see Beason and Weinstein (1996), Martin, Mayer and Mayneris (2009)). The capacity of governments to

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[2]There are some exceptions where different locations joined in a common sectoral tender.

pick winners has thus been questioned in the theoretical literature on industrial policy. For Corden (1974), revenue losses are affected by higher weights, relatively to revenue gains, in social planners' welfare function. According to Krueger (1990), there exists an "identity bias" so that people care more about people they know than about the others; in that sense, it would be easier to feel empathy for people who lose their jobs, because they can be clearly identified, than for potential beneficiaries of future jobs, who are rather unknown. Both stories provide an explanation to why governments have preferences biased in favor of losers. Baldwin and Robert-Nicoud (2007) adopt a different point of view. They present a model in which it is not the governments that pick the losers but the losers that capture industrial policies. Indeed, they show that in the presence of sunk entry costs, the rents created by lobbying are more appropriable in declining industries than in expanding industries. Firms operating in declining industries have thus higher incentives than firms in expanding industries to lobby in order to obtain subsidies. Another aspect of the question is linked to the design of industrial policies. Indeed, it is also possible that the type of incentives given by public authorities shapes the pool of beneficiaries: using a new economic geography model with heterogeneous firms, Baldwin and Okubo (2006) show for example that starting from a core-periphery situation, a per-firm subsidy aimed at encouraging production in the periphery tends to attract the least efficient firms. Indeed, these firms are the ones that have the least to lose from leaving the core region. These theoretical insights point at the complex interactions between the preferences of governments, the lobbying of firms and the design of policies in determining the beneficiaries of industrial policies.

In this respect, the French competitiveness clusters are interesting. Indeed, our investigation follows the steps of the official procedure. We first ask how the clusters have been selected. Is there any evidence, within the considered sector, that the selected location was actually grouping more efficient firms on average? We can consider that this first step mainly reflects mechanisms at work at the local level. Then, we focus on the selection of firms within the clusters. Indeed, only some of the firms belonging to a selected sector-location pair will become member of the organization in charge of the cluster and apply for subsidies. Accordingly, the second question we ask is whether firms involved in a competitiveness cluster are more efficient than other firms of the same sector. This se-

cond stage will help us understand the kind of self-selection generated by the design of the competitiveness clusters policy. The efficiency or the competitiveness of firms have many interdependent dimensions. Provided that this policy aims at promoting competitiveness in a context of increasing international competition, we choose to focus on the individual export performance and the productivity of firms before they received the public support.

The French competitiveness clusters policy has grouped the selected clusters in three categories reflecting their differences in terms of ambition. "Worldwide clusters" are at the top of this ranking, followed by "potentially worldwide clusters" and "national clusters". We will see that these three categories of clusters are actually composed of very different groups of firms. Our main conclusion is that the two-step selection procedure has helped public authorities extract information on the winners to be picked. This process has however been the most efficient for "national" clusters, where the heterogeneity of firms is the largest.

The rest of the paper is organized as follows. The data and estimation procedure are described in Section 2. Section 3 asks whether selected clusters exhibit on average an export premium in their sector. Section 4 asks whether firms selected in clusters exhibit an export premium, however without controlling for their individual characteristics (controlled for in section 5). Section 6 concludes.

2   Data and method

There are three main data sources. First, we rely on individual exports as recorded by the French customs.[3] Each year, the data records exports for all firms located in France,[4] at the 8-digit level of the CN8 classification of products, comprising more than 10,000 different categories of products.[5] For the purpose of the paper, we aggregate the value and the volume of exports at the firm level over all products and all destinations.

The second data source provides us with information on individual firm characteristics

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[3]Individual custom data and business surveys were made available by the CEPII.

[4]More precisely, Customs record export at the company level. Companies may belong to groups. We will however use the term "firms" by sake of simplicity, and control for ownership when necessary.

[5]Within the EU, French customs collect information on the product exported by firms when the annual cumulated value of all shipments of a firm (in the previous year) is above 100,000 euros from 2001 onwards. This threshold was 99,100 euros in 2000 and 38,100 euros before. Regarding extra-eu exports, all shipments above 1,000 euros are reported. CN8 holds for Combined Nomenclature 8-digit.

such as employment, capital, value-added etc., which we use to compute firms' productivity. These variables figure in the annual survey called "Enquêtes Annuelles d'Entreprise" (EAE), however only for firms above 20 employees.

Last, we need information on which firm belongs to which cluster. The French Ministry of Finance gave us access to this dataset, comprising 4,552 firms that are members of competitiveness cluster in 2006. These firms have thus not necessarily received R&D subsidies at that time; they are only allowed, as members of competitiveness clusters, to apply to national R&D tenders specifically oriented to competitiveness clusters firms. This dataset also contains information on the number of employees by firm.

The combination of the three datasets raises a series of issues. First, the EAE contains both single and multiplant firms. In the latter case, the total employment recorded in the EAE is the one for the firm as a whole.[6] Second, not all firms export goods: some may export services and some may not export at all, while exports of services are not recorded by the customs. Last, small exporters, below 20 employees, are not present in the EAE, even if they export goods. Out of the 111,960 exporting firms in the customs dataset for the year 2004, 13,587 are present in the manufacturing EAE, of which 1,010 belong to at least one cluster. Recalling that a total of 2,242 exporters are reported in all the clusters, the three restrictions end up in losing half of the exporters identified as belonging to a cluster. We thus proceed with different samples corresponding to different combinations of the restrictions. We first use the whole set of firms; then, in order to control for productivity and size of the firms, we restrict the sample to the firms above 20 employees (hence recorded in the EAE); finally, as a robustness check, we verify that our results hold when controlling for the number of plants and restricting to single-plant firms.

For each firm and year, we compute the number of exported products and the number of destination countries. We use the CEPII database on geographic data[7] to obtain the distance between France and each of destination country, and we compute a weighted average distance of a firm's destination countries (by weighting the distance to each country by the share of the country in the firm's total exports).

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[6]We rely on the EAE restricted to manufacturing firms.

[7]The dataset "geo cepii" is available at http://www.cepii.fr/francgraph/bdd/distances.htm.

Table 1: Share of competitiveness clusters in French export activity (firms)

Share in total...	Exporting firms in clusters	≥ 99 p.	90-99 p.	75-90 p.	50-75 p.	1-50 p.
nb of exporters	2.00	21.56	6.64	2.94	1.54	0.71
export value	27.35	35.59	9.05	3.21	1.74	0.79

Note: Firms are ordered in decreasing order of their individual export value. The table contains the shares of different percentiles of the distribution of individual export value in total French exports. The values in the first (second) row corresponds to the share of firms engaged in clusters in the column category in the total number (export value) of French exporters.

We concentrate our analysis on the year 2004. There is one observation per firm in our final sample. Table (1) informs on the selectivity of competitiveness clusters in terms of firms. Only 2% of the total number of French exporters are present in competitiveness clusters. Exporting firms in clusters however represent 27.35% of total French exports, due to the high heterogeneity of exporting firms in terms of size. This heterogeneity is mirrored in the distribution of individual export values: 21.56% of firms in the first top percent of exporters have been selected in competitiveness clusters; they represent 35.59% of the total value of exports realized by this category of exporters. The LIFI database, available at INSEE, provides the ownership of individual firms and thus allows to draw the perimeter of groups. We compute how groups are represented in clusters based on the share of groups with at least one firm engaged in a cluster. The concentration of observations is still striking when we control for ownership: Table (2) displays the same information as in Table (1), however with clustered firms represented through the group to which they belong to. It shows that groups represented in clusters account for 10.94% of total French exporting groups, however for 75.01% of total exports by French groups. In the first percentile of groups ordered according to their exported value, these percentages are respectively 86% and 93.51%.

As explained in the introduction, clusters are grouped in three categories: category 1 refers to "worldwide competitiveness clusters", category 2 "potentially worldwide competitiveness clusters" and category 3, "national competitiveness clusters". The full list of clusters in 2006, by category, is provided in the Appendix (see Table (A-1)). In category 1, there are on average 114 firms in each cluster in 2006, with an average size of 2,500 employees (hence large enterprises). Less than half of these firms are direct exporters

Table 2: Share of Competitiveness Clusters in French export activity (groups)

Share in total...	Exporting groups in clusters	≥ 99 p.	90-99 p.	75-90 p.	50-75 p.	1-50 p.
nb of exporters	10.94	86	33.11	18.09	10.02	3.79
export value	75.01	93.51	41.46	19.70	10.56	5.00

Note: Groups are ordered in decreasing order of their export value. The table contains the shares of different percentiles of the distribution of group-level export value in total exports of French groups. The values in the first (second) row corresponds to the share of groups engaged in clusters in the column category in the total number (export value) of French exporting groups.

(the smallest firms may use intermediaries to export, however this is not visible in the database). "Lyon biopole", the biotech cluster already mentioned, is the smallest cluster in this first category, with 28 firms involved, out of which 14 export goods. In category 2, the firms are of similar size (2,400 employees on average), and the clusters smaller (90 firms on average). 40% of the firms are exporters and the smallest cluster, "Innovations thérapeutiques", comprises 29 firms (involved in the health sector). The third category is highly heterogeneous. It consists of small clusters oriented toward innovation (such as "innovative materials (MIPI)", 18 firms) as well as large clusters for which the innovative orientation is less obvious (427 firms in the meat sector "Viandes et produits carnés"). Accordingly, the mean size of the firms is not significant in the latter case. The export-orientation of "national competitiveness clusters" turns out to be greater than for "worldwide competitiveness clusters". The share of exporting firms is 55% against 47 and 40% in the other clusters types. It even rises up to 100 and 89% for the clusters "aquatic products" and "innovative materials (MIPI)" respectively. Clusters appear to be pretty outward-oriented : shares above 40% of exporting firms are 10 times higher than the average share of 4% in France. When we restrict our attention to cluster firms that are present in the manufacturing EAE (around 25% of the clusters firms) the ratio rises further to 90%, much higher than the average for the EAE sample (69% of EAE firms are exporters). Note that some firms, in worldwide clusters in particular, may belong to groups resorting to foreign presence instead of exporting.

3 Evaluating the selection of sector-location pairs

In this section we focus on the first step of the clusters' selection. In November 2004 the French government published a national tender to label clusters. Out of the 105 received applications, 66 were selected: 6 "worldwide", 10 "potentially worldwide" and 50 "national" clusters. Two types of subsidies are given to selected clusters: overhead costs and subsidies for R&D projects. R&D subsidies are allocated regularly through national tenders specifically implemented for competitiveness clusters members. We evaluate the selection of sector-location pairs using data on firms that are respectively in and out of the selected pairs. We compute performance variables at the sector-location level and compare the performance of clusters to the performance of other pairs corresponding to either the sector or the location criterion.[8]

We define locations included in clusters as all the *départements* in which there is at least one firm pertaining to a selected cluster. We identify the sectors of the clusters based on the NAF3 sector of firms that pertain to the clusters.[9] Performance is assessed in terms of exports and productivity.

Let us consider Lyon Biopole as an example. Our question is then whether biotech firms located in the département "Rhône" (where Lyon is) were on average better performers than other biotech firms in France. The issue at stake is whether the biotech cluster was appropriately located in "Rhône". To answer this question we consider all firms located in "Rhône " and in other French départements, that have biotech as their main activity. We expect the performance of the biotech-Rhône pair to be higher than any other biotech-location pair. We thus look for a locational advantage of Lyon in this sector, i.e. a greater efficiency at producing and exporting biotech products.

The results of the estimations are shown in Table (3) using a cross section for 2004 (hence before the implementation of the policy). Average performance of sector-location pairs (3635 in total) is regressed on dummies indicating whether the sector-location pair is included in one of the three cluster categories ("Worldwide", "Potentially Worldwide" or "National"), controlling for sector dummies defined at the NAF3 digit level. Since

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[8]Only 3635 sector-location pairs have positive exports out of a potential universe of 8178 (94 departments times 87 NAF3 sectors). Since 12 out of the 87 NAF3 sectors have no firms selected in a cluster, 259 out of the 3636 sector-location pairs included in the regressions below have no cluster-counterfactual.

[9]The NAF3 is the most granular available classification of main activities in France.

Table 3: Competitiveness clusters and département/NAF3 digit average performance (Customs+EAE dataset)

| Model : | Dependent Variable: Performance | | | | | | |
	Export value	Export quantity	Unit value	Number products	Number of destinations	Weighted distance	Tfp
Best category: WCC	1.766^a	0.971^a	1.520^a	19.479^a	8.070^a	0.228^a	0.156^a
	(0.271)	(0.328)	(0.180)	(5.056)	(1.777)	(0.046)	(0.035)
Best category: PWCC	1.202^a	1.296^a	0.438^a	11.596^b	6.249^a	0.142^b	0.079^a
	(0.233)	(0.253)	(0.133)	(5.573)	(1.994)	(0.063)	(0.029)
Best category: NCC	1.407^a	1.263^a	0.548^a	9.591^a	5.644^a	0.107^b	0.080^a
	(0.118)	(0.164)	(0.083)	(1.863)	(0.951)	(0.042)	(0.016)
Number of location-sector pairs	3635	3635	3635	3635	3635	3635	3635
R^2	0.056	0.032	0.043	0.040	0.032	0.005	0.010

Note: Performance indicators are in Ln except the number of products and the number of destinations. Fixed effects at the NAF3 digit level are introduced in all columns. Standard errors are clustered at the NAF3 digit level.

some sector-location pairs may be included in several clusters, we categorize the clusters assuming that "Worldwide" clusters (WCC) are better than "Potentially Worldwide" clusters (PWCC), themselves better than "National" clusters (NCC), and we identify the "best category". Out of the 3635 sector-location pairs, 102 are included in at least one "Worldwide" cluster, 89 enter in at least one "Potentially Worldwide" cluster as best category and 382 are included in at least one "National" cluster as best category.

Estimated parameters reported in the first column illustrate that firms in the three types of clusters manage to export more, as compared to firms of the same NAF3 sector but belonging to other départements. This premium is the largest for "Worldwide" clusters. More generally, we observe that the price-quality range of exported products, the diversification of products, the diversification of markets, and the ability of exporting to remote markets are greater on average in the selected locations within the considered NAF3 sectors. The coefficient of 1.766 measured for "Worldwide" clusters when looking at export value suggests that firms included in a "Worldwide" cluster export 5.84 (exp(1.766)) times more than firms of the same NAF3 sector but located in other départements.

The last column further indicates that the average productivity (of a given NAF3 sector) is greater in locations included in a cluster[10]. It is thus likely that above-average

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[10]The location-sector average productivity is calculated thanks to firm-level TFP, estimated following a GMM estimation of a production function. See section 5 for more details.

export performances in the selected locations are explained by a higher productivity.

What these first results are telling us is that public authorities have managed to select the right locations in the sectors they did prioritize, hence the most promising clusters. In the départements the selected clusters belong to, firms were on average performing better than those in the other départements, for a given sector. This however does not prove that these clusters have ultimately grouped the champions in the selected sectors. Recall that the firms themselves could decide to participate or not in a cluster. The next section explores the effectiveness of this self-selection process of firms.

4   Firms in clusters show better export performance

In this section, we move from average sector-location performance to firm-level performance. We concentrate on exporting firms (around 50% of clusters firms are exporters) and ask whether conditionally on exporting selected firms in the selected clusters perform better on average than firms outside the cluster. We use firm-level data and regress export performance variables (export value, export volume, number of exported products, number of destination countries[11], average distance of destination countries, unit value of exports) of French exporters on their status of being selected within one cluster. We then control for different variables (the category of cluster it belongs to, the fact that the firm belongs to several competitiveness clusters). The difficulty is that exports are declared by firms, not by plants. It is thus difficult to control for location-specific variables. Moreover, some firms are present in several clusters. We accordingly include a dummy identifying multi-cluster firms, since these firms have potentially specific performance.

Results on firm-level export value in 2004 are presented in Table 4. There are 111,960 observations. The coefficient on the cluster dummy in column 1, estimated without controls, leads to a clear-cut conclusion: firms belonging to clusters were exporting more than others, before entering into the competitiveness clusters. But remind that there has been a selection of sector-location pairs by public authorities: we must accordingly control for the sector of firms. From the Customs database we are able to identify the sector of each

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[11]We will explain performance indicators expressed in Ln terms except the number of destinations and the number of products in order to have a direct interpretation of the impact.

Table 4: Competitiveness clusters and export value (Customs dataset)

Model :	Dependent Variable: ln export value				
	(1)	(2)	(3)	(4)	(5)
Competitiveness Cluster	2.826^a	2.526^a	2.332^a		
	(0.176)	(0.107)	(0.109)		
Multi-competitiveness cluster firm			1.709^a		1.743^a
			(0.238)		(0.205)
Best category: WCC				3.001^a	2.494^a
				(0.271)	(0.182)
Best category: PWCC				2.313^a	1.926^a
				(0.20)	(0.228)
Best category: NCC				2.477^a	2.371^a
				(0.138)	(0.136)
Number of observations (firms)	111960	111960	111960	111960	111960
R^2	0.023	0.088	0.089	0.088	0.089

Note: Sectoral fixed effects at the customs HS2 digit level are introduced in all columns but column 1. Standard errors are clustered at the HS2 digit level.

firm at the HS2 digits level.[12] Column 2 includes these sectoral fixed effects. As shown by the significant and positive coefficient on the cluster dummy, our conclusion remains valid, and hence assesses the individual premium within sectors.

In column 3, the problem of multi-cluster firms is tackled: the estimated coefficient on the cluster dummy is slightly reduced, however the story is basically unchanged. Columns 4 and 5 relate to the three categories of clusters. We perform the same estimation allowing for different coefficients for each category of cluster in column 4, and we control for multi-cluster firms in column 5. From column 2 onwards, all regressions include sectoral fixed effects at the HS2 digits level. Results show that for a given sector, firms selected in a cluster export more than non selected firms. Note that the non-selected firms may be located nearby selected firms: the criterion is the competitiveness cluster, not the address. The premium associated to clusters is quite similar over all types of clusters, and an extra-premium appears for multi-clustered firms.

The total value of exports is however a basic measure of export performance. We now use the extra information available in the custom data to better characterize the export performance. Four variables are considered: the unit value (a proxy for prices and quality),

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[12]This level is chosen since it decomposes trade into 98 different sectors, a number similar to that (87) proposed by the 87 NAF3 nomenclature.

Table 5: Competitiveness clusters and export performance (Customs dataset)

| Model : | Dependent Variable: Performance | | | | | |
	Exp. val.	Exp. qty	Unit val.	Nb of prod.	Nb of dest.	Weighted distance
Best category: WCC	2.494^a	0.998^a	1.957^a	18.541^a	10.463^a	0.123^b
	(0.182)	(0.212)	(0.142)	(2.908)	(1.556)	(0.053)
Best category: PWCC	1.926^a	1.461^a	0.839^a	9.295^a	8.564^a	0.185^a
	(0.228)	(0.314)	(0.142)	(2.546)	(1.429)	(0.063)
Best category: NCC	2.371^a	2.056^a	0.540^a	10.216^a	8.179^a	-0.136^a
	(0.136)	(0.140)	(0.105)	(1.751)	(0.678)	(0.032)
Multi-competitiveness cluster firm	1.743^a	1.771^a	0.296^b	32.446^a	14.887^a	0.110
	(0.205)	(0.281)	(0.130)	(7.115)	(1.634)	(0.069)
Number of obs. (firms)	111960	111552	111552	111960	111960	111960
R^2	0.089	0.251	0.46	0.033	0.067	0.093

Note: Performance indicators are in Ln except the number of products and the number of destinations. Fixed effects at the HS2 digit level are introduced in all columns. Standard errors are clustered at the HS2 digit level.

the product diversification (number of different products exported by a firm), the market diversification (number of destinations a firm is shipping to), and the ability to export to more remote markets (average distance from France to the destination countries).

Table (5) displays the results for the various proxies of export performance in 2004. Firms in clusters on average export more, and their products are positioned in a higher range of price-quality; they also have a larger portfolio of exported products, shipped to a wider set of markets. These general results are however quite different among types of clusters. In "National" clusters, firms export more, but the quality premium is low compared to "Worldwide" clusters. The same difference is observed for the number of products and the number of destinations. Again, there is a premium for multi-cluster firms on each of these dimensions. Last, we observe that firms in "National" clusters exhibit a negative premium in terms of ability to export to remote markets: it appears that firms in this group are not the "global players".

To summarize, these results show that the firms subsidized through the French competitiveness clusters policy exhibited better export performance than others before the implementation of the policy: the French authorities selected firms having an ex ante export premium – a proxy for efficiency. It thus appears that French authorities have

managed through the two-stage selection process (sector-location pairs and then firms), to extract information on the winners. The next section explores whether this information of export premium goes beyond observable characteristics of firms, i.e. whether the geographical clustering of firms by itself did add to the firm-specific premium (such as productivity and size).

5   Controlling for individual characteristics eliminates the competitiveness premium

We have shown in the previous section that firms participating in competitiveness clusters overall perform better than others. The recent new trade theory literature on heterogeneous firms stresses that firms exhibiting better efficiency will also have better export performances. Thus, the export premium observed for firms in clusters might simply reflect a selection bias: firms pertaining to clusters are in reality the most productive ones. We need to check whether we continue to observe an export premium for firms in clusters once their individual characteristics are controlled for. We use the manufacturing EAE dataset to introduce controls for the characteristics of individual firms to answer this question. Our sample is reduced to 13,857 exporting firms, of which 1,010 belong to a cluster. To compute firm-level total factor productivity, we estimate a Cobb-Douglas production function. To proceed, we need information on value-added, number of employees and capital of the firms; we must consequently limit our exercise to the 13,510 exporting firms present in the EAE, member or not of the clusters for which the statistics are available. The estimation of production functions is subject to several drawbacks that we address by using a GMM estimation procedure, following Griliches and Mairesse (1996) and Bond (2002).

For sake of clarity we now consider that the value of exports is a good proxy of all the dimensions of export performance previously considered (quality, number of products, etc.), since we observed that all these variables are highly correlated. We regress the log value of exports of firms in the EAE and compare our previous results with those from this new sample comprising 13,510 observations. Column 1 of Table (6) controls for firms' size and productivity.

Table 6: Competitiveness clusters and export value (Customs + EAE dataset)

	Dependent Variable: ln export value						
Model :	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Competitiveness Cluster	0.509^a	0.337^a	0.312^a				
	(0.116)	(0.098)	(0.104)				
ln Number of employees	1.320^a	1.269^a	1.266^a	1.271^a	1.268^a	1.274^a	1.233^a
	(0.048)	(0.038)	(0.039)	(0.039)	(0.039)	(0.031)	(0.031)
ln IV total factor	0.771^a	0.772^a	0.771^a	0.773^a	0.771^a	0.738^a	0.746^a
productivity	(0.117)	(0.058)	(0.058)	(0.059)	(0.059)	(0.057)	(0.058)
Multi-competitiveness			0.204		0.290^c	0.360^b	0.441^b
cluster firm			(0.168)		(0.167)	(0.163)	(0.180)
Best category is WCC				0.152	0.077	0.050	0.052
				(0.226)	(0.228)	(0.201)	(0.232)
Best category is PWCC				0.124	0.059	-0.013	0.042
				(0.175)	(0.178)	(0.198)	(0.222)
Best category is NCC				0.404^a	0.382^a	0.289^a	0.229^b
				(0.139)	(0.140)	(0.086)	(0.097)
Number of obs. (firms)	13510	13510	13510	13510	13510	13510	13510
R^2	0.328	0.425	0.426	0.426	0.426	0.308	0.298

Note: Fixed effects at the NAF3 digit level are introduced from column 2 to 5. Fixed effects at the département/NAF2 digit and at the département/NAF3 digit are respectively introduced in columns 6 and 7. Standard errors are clustered at the NAF3 digit level from column 1 to 5, at the département/NAF2 digit level in column 6 and at the département/NAF3 digit level in column 7.

Fixed effects at the NAF3 digit level are included from column 2 to 5. Fixed effects at the département/NAF2 digit and at the département/NAF3 digit are respectively introduced in columns 6 and 7. Standard errors are clustered at the NAF3 digit level from column 1 to 5, at the département/NAF2 digit level in column 6 and at the département/NAF3 digit level in column 7.

The results obtained in the previous section are confirmed in column 1, but the magnitude of the impact of the dummy "competitiveness cluster" is strongly reduced. This does not come as a surprise since we consider larger firms, for which the dispersion of export performance might be more limited. Moreover, we now control for the size and the productivity of firms: the reduction of the export premium with respect to the previous section shows that bigger and more productive firms self-selected in competitiveness clusters. Still, there is a positive premium on the value of individual exports for competitiveness clusters firms, for a given size and productivity. When the sector the firm

belongs to is controlled for in column 2, this positive impact shrinks. It is further reduced in column 3 after controlling for multi-cluster firms. More interestingly, columns 4 to 7 reveal that the general positive impact of clusters is due to a composition effect. We decompose the dummy "competitiveness cluster" into three different dummies according to the category of cluster: only "National" clusters contribute positively and significantly to the export performance of individual firms.

We thus conclude that clusters simply group the more efficient firms in the selected sector. Controlling for this individual over-performance, nothing is left in terms of competitive premium of individual firms, with the noticeable exception of "National" clusters.[13] Concerning the latter type of clusters, of a highly heterogeneous nature, clustered firms do exhibit an export premium beyond their individual characteristics. We report in Table (A-2) in the Appendix results obtained using the same method applied to the growth rate of exports between 2001 and 2004. As shown, results are similar.

Regarding the other dimensions of firm-level performance, table 7 shows that firms belonging to "National" clusters also exhibit a productivity premium with respect to firms in the same sector-department that are not members of a competitiveness cluster. All three categories exhibit a premium in terms of unit-value, particularly large for "Worldwide" competitiveness clusters. This tends to show that firms in competitiveness clusters produce and export higher quality goods than non-cluster firms in the same sector-department. No particularly significant premium emerges for other dimensions of export performance once firm-level size, productivity and presence in several clusters is taken into account.

We must acknowledge that firms are not necessarily financially independent.[14] They often belong to a group where decisions made at the headquarter level impact the individual export performance of the affiliates. The nationality of the group is also likely to affect the performance of firms. Also, firms can be single- or multi-plant firms. If these

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[13]Results available upon request show that this finding is robust to the exclusion of multi-plants firms from the sample. To uncover the determinants of this self selection process, we also used a logit estimation to explain whether a firm participates or not to a "National" cluster based on its individual characteristics. Results showed that self-selected firms are larger, probably due to the sunk costs associated with applying, or due to better access to information and networking. These firms are also more productive, or equivalently more export oriented. Being a member of a domestic group increases the probability of entering into a cluster.

[14]Remind that French customs record exports at the company level.

Table 7: Competitiveness clusters and export performance-Firms controls (Customs+EAE)

Model :	Dependent Variable: Performance						
	Export value	Export quantity	Unit. value.	Number. of products	Number of. destinations	Weighted distance	Tfp
Best category is WCC	0.052	-1.025^a	1.377^a	7.042	3.410	0.091	0.025
	(0.232)	(0.326)	(0.205)	(5.746)	(2.998)	(0.086)	(0.059)
Best category is PWCC	0.042	-0.210	0.359^c	9.917	2.336	0.184^c	0.078
	(0.222)	(0.296)	(0.187)	(7.530)	(2.756)	(0.102)	(0.054)
Best category is NCC	0.229^b	-0.037	0.309^a	1.322	0.618	-0.006	0.052^b
	(0.097)	(0.112)	(0.079)	(1.815)	(0.833)	(0.040)	(0.022)
Multi-competitiveness cluster firm	0.441^b	0.256	0.367^b	25.479^a	10.143^a	-0.002	0.119^b
	(0.180)	(0.212)	(0.171)	(7.938)	(3.177)	(0.080)	(0.047)
ln Number of employees	1.233^a	1.351^a	-0.007	10.977^a	7.255^a	0.063^a	0.049^a
	(0.031)	(0.039)	(0.021)	(0.843)	(0.239)	(0.009)	(0.006)
ln IV total factor productivity	0.746^a	0.617^a	0.154^a	6.052^a	3.717^a	0.071^a	
	(0.058)	(0.064)	(0.038)	(0.694)	(0.430)	(0.021)	
N	13510	13500	13500	13510	13510	13510	13510
R^2	0.298	0.242	0.015	0.217	0.261	0.008	0.014

Note: Fixed effects at the département/Naf 3 digit level are introduced in all columns. Performance indicators are in Ln except the number of products and the number of destinations. Standard errors are clustered at the département/Naf 3 digit level.

variables are correlated to the competitiveness clusters membership, they could explain the premium observed for "National" clusters. We can control for the different dimensions of the selection problem by merging our data with information on (domestic and international) financial relations of firms. These are provided by a database named LIFI, constructed by the French national statistical institute. We thus verify in Table (A-3) in Appendix that after controlling for these dimensions, we observe an export performance premium only for "National" clusters.[15] Our results appear also robust to the inclusion of firm-level wage. We finally obtained very similar results when using the same strategy applied to the growth rate between 2001 and 2004. While Table (A-4) covers different measures of performance (value, quantity, unit value, product diversification, market diversification, distance to destination countries and TFP), Table (A-5) concentrates on export value and adds firm-level controls. Both confirm an export performance premium only for "National" clusters.

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[15]The scope of the firm, as proxied by the number of plants, has no statistically significant effect. On the contrary, belonging to a group increases the export performance, and this effect is larger when the group is foreign-owned. Depending of the structure of the group however, this impact can be magnified or reduced. Finally, a group focused on the French market (with a large number of domestic affiliates) will be less pro-export, while a group focused on international markets is shown to have the opposite effect.

6   Conclusion

Our results show than in spite of the large number of clusters subsidized through the French policy of competitiveness clusters, this policy has been quite selective: only 2% of manufacturing exporters are involved in a competitiveness cluster. This selection is the combination of a selection of clusters (a sector in a location) combined with a self-selection of individual firms applying for subsidies from the selected clusters.

The outcome of this two-stage process is clear-cut. The first stage ended up with clusters comprising firms that are on average better performing within their sector. This is true for the three types of clusters. Still, with the exception of "National" clusters, such export premiums are fully explained by individual characteristics of firms: the geographical clustering of firms by itself did not add to this individual premium. Winners have thus been picked only in "National" clusters which were the more heterogenous. Regarding the second stage, the self selection has actually revealed information to public authorities and helped picking the winners. On the contrary, no performance premium is left for firms belonging in the other two groups of clusters, when the firm-specific premium is controlled for.

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Table A-1: Descriptive statistics on competitiveness clusters

Name	Category	# firms	# exporting firms	Share of exporting firms	Size of firms Mean	Size of firms Median	Size of exporting firms Mean	Size of exporting firms Median
A.E.S.E.	1	365	160	0.44	1035	43	2080	143
Lyon Biopole	1	28	14	0.50	916	46	1624	316
Minalogic	1	47	34	0.72	3623	143	4523	148
MédiTech Santé	1	53	17	0.32	265	12	757	143
SYSTEM@TIC Paris-région	1	133	65	0.49	5310	43	10660	696
Solutions Communicantes Sécurisées	1	59	33	0.56	3620	57	5390	73
Mean	1	114	54	0.47	2462	57	4172	253
AXELERA Chimie-environnement Lyon	2	63	36	0.57	1232	99	1885	239
Image, Multimédia et Vie Numérique - CAP DIGITAL	2	228	47	0.21	864	15	3433	49
Images & Réseaux	2	108	36	0.33	1664	23	4545	78
Industries et Agroressources	2	50	34	0.68	7500	150	10221	174
Innovations thérapeutiques	2	29	15	0.52	208	12	397	182
Mer Bretagne	2	135	59	0.44	1356	18	2727	35
Mer, sécurité et sûreté	2	141	47	0.33	518	23	1053	115
Moveo	2	43	27	0.63	3779	329	5500	994
Pôle i-Trans	2	46	29	0.63	6463	219	9625	340
Végétal spécialisé	2	53	30	0.57	164	16	200	77
Mean	2	90	36	0.40	2375	90	3959	228
ARVE industrie	3	137	94	0.69	118	25	156	39
Auto haut de gamme	3	45	28	0.62	2302	55	596	285
Biothérapies	3	39	11	0.28	180	10	370	35
Capenergies	3	97	31	0.32	1965	13	5227	164
Cosmetic valley	3	103	51	0.50	142	24	215	43
DERBI Energie renouvelable bâtiment industrie	3	57	21	0.37	587	20	1283	63
ELOPSYS	3	20	6	0.30	819	20	1902	765
EMC2	3	57	34	0.60	777	69	1192	99
EnRRDIS	3	17	9	0.53	8979	444	15843	1232
Fibres naturelles Grand Est	3	24	15	0.63	269	106	339	147
Filière produits aquatiques	3	7	7	1.00	238	117	238	117
Filière équine	3	48	13	0.27	40	4	110	20
Gestion des risques et vulnérabilités des territoir	3	81	27	0.33	3429	37	8065	942
Imaginov	3	121	11	0.09	92	4	50	23
Industries du commerce	3	38	19	0.50	3359	64	6575	2142
Innovation dans les céréales	3	21	11	0.52	262	111	164	117
L'aliment de demain	3	116	76	0.66	274	54	362	91
Logistique Seine-Normandie	3	58	30	0.52	9759	222	18568	368
Lyon Urban Truck & Bus 2015	3	33	19	0.58	987	77	1637	349
MAUD Matériaux à usage domestique	3	15	13	0.87	1286	188	1477	357
Matériaux Innovants, Produits Intelligents (MIPI)	3	18	16	0.89	1118	192	650	192
Mobilité et transports avancés	3	34	24	0.71	11233	1468	15397	1873
Nutrition santé longévité	3	29	18	0.62	253	26	397	99
Orpheme	3	111	53	0.48	54	14	89	38
Parfums, arômes, senteurs, saveurs	3	46	32	0.70	384	31	521	47
Photonique	3	58	37	0.64	495	14	725	32
Pin maritime du futur	3	56	37	0.66	110	27	144	47
Prod'Innov	3	60	42	0.70	397	55	552	183
Pôle agronutrition en milieu tropical	3	13	3	0.23	78	60	93	125
Pôle cancer-bio-santé	3	47	18	0.38	707	28	1215	40
Pôle céramique	3	50	37	0.74	144	45	184	72
Pôle des microtechniques	3	390	253	0.65	69	14	99	21
Pôle enfant	3	38	27	0.71	186	102	230	150
Pôle européen d'innovation Fruits et Légumes	3	68	35	0.51	225	26	287	49
Pôle génie civil Ouest	3	35	12	0.34	669	292	1047	656
Pôle nucléaire Bourgogne	3	55	33	0.60	4188	70	6441	96
Pôle plasturgie	3	101	66	0.65	167	43	237	83
Q@LIMED Agropolis	3	20	12	0.60	1226	31	2002	98
Route des lasers	3	47	24	0.51	3354	42	5859	171
SPORALTEC	3	18	14	0.78	1207	134	1475	185
Sciences et Systèmes de l'Energie Electrique	3	44	29	0.66	3767	57	5316	76
Techtera	3	39	32	0.82	124	48	138	50
Transactions électroniques sécurisées	3	58	22	0.38	3851	27	9196	204
Trimatec	3	42	24	0.57	3322	76	5716	421
UP-TEX	3	51	39	0.76	1180	70	1483	99
VIAMECA	3	40	26	0.65	3854	71	5482	118
Viandes et produits carnés	3	427	186	0.44	164	36	318	91
Ville et mobilité durables	3	33	12	0.36	11141	82	33226	262
Vitagora	3	83	53	0.64	509	71	343	81
Véhicule du futur	3	228	180	0.79	1044	143	1275	182
Mean	3	69	38	0.55	1822	101	3290	265

Note: Category 1 is "worldwide competitiveness clusters", category 2 is "potentially worldwide competitiveness clusters" and category 3 is "national competitiveness clusters". Statistics on the share of exporters are computed based on the confrontation of the customs dataset and the competitiveness cluster data from the French Ministry of Finance.

Table A-2: Competitiveness clusters and export value growth (Customs+EAE)

Model :	Dependent Variable: Δ ln export						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of employees in 2001	0.246^a	0.261^a	0.261^a	0.262^a	0.261^a	0.266^a	0.268^a
	(0.020)	(0.019)	(0.020)	(0.020)	(0.020)	(0.019)	(0.022)
IV total factor productivity in 2001	0.199^a	0.223^a	0.223^a	0.223^a	0.223^a	0.223^a	0.267^a
	(0.060)	(0.045)	(0.045)	(0.045)	(0.045)	(0.036)	(0.043)
ln export value in 2001	-0.192^a	-0.220^a	-0.220^a	-0.220^a	-0.220^a	-0.217^a	-0.234^a
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.010)	(0.012)
Competitiveness cluster (CC)	0.178^a	0.145^a	0.139^a				
	(0.043)	(0.043)	(0.047)				
Multi-competitiveness cluster firm			0.051		0.075	0.151	0.182^c
			(0.081)		(0.092)	(0.095)	(0.111)
Best category is WCC				0.088	0.068	-0.026	0.071
				(0.146)	(0.160)	(0.146)	(0.176)
Best category is PWCC				0.095	0.079	0.011	0.044
				(0.096)	(0.099)	(0.136)	(0.156)
Best category is NCC				0.163^a	0.157^a	0.159^a	0.195^a
				(0.057)	(0.057)	(0.052)	(0.056)
N	10812	10812	10812	10812	10812	10812	10812
R^2	0.096	0.122	0.122	0.123	0.123	0.106	0.115

Note: Fixed effects at the NAF3 digit level are introduced from column 2 to 5. Fixed effects at the département/NAF2 digit and at the département/NAF3 digit are respectively introduced in columns 6 and 7. Standard errors are clustered at the NAF3 digit level from column 1 to 5, at the département/NAF2 digit level in column 6 and at the département/NAF3 digit level in column 7.

Table A-3: Competitiveness clusters and export performance premium with controls (Customs + EAE)

Model :	Dependent Variable: ln export value						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Best category is WCC	0.052	0.047	0.043	0.049	-0.111	0.053	0.033
	(0.232)	(0.232)	(0.232)	(0.228)	(0.217)	(0.206)	(0.206)
Best category is PWCC	0.042	0.035	0.028	0.035	-0.059	0.008	-0.012
	(0.222)	(0.223)	(0.222)	(0.220)	(0.217)	(0.213)	(0.212)
Best category is NCC	0.229^b	0.226^b	0.224^b	0.208^b	0.173^c	0.189^b	0.181^b
	(0.097)	(0.097)	(0.097)	(0.096)	(0.094)	(0.089)	(0.089)
Multi-competitiveness cluster firm	0.441^b	0.446^b	0.445^b	0.417^b	0.370^b	0.405^b	0.391^b
	(0.180)	(0.180)	(0.180)	(0.185)	(0.179)	(0.168)	(0.167)
Number of employees	1.233^a	1.229^a	1.223^a	1.224^a	1.245^a	0.949^a	0.939^a
	(0.031)	(0.032)	(0.032)	(0.032)	(0.033)	(0.029)	(0.029)
IV total factor productivity	0.746^a	0.746^a	0.744^a	0.746^a	0.357^a	0.256^a	0.257^a
	(0.058)	(0.058)	(0.058)	(0.057)	(0.053)	(0.049)	(0.049)
1 if nb of plants $\succ$1		-0.013	-0.013	-0.020	-0.023	-0.040	-0.039
		(0.049)	(0.049)	(0.049)	(0.049)	(0.045)	(0.045)
1 if firm belongs to a group		0.067					
		(0.050)					
1 if firm belongs to a domestic group			0.010	0.535^a	0.589^a	0.480^a	0.476^a
			(0.061)	(0.088)	(0.088)	(0.086)	(0.086)
1 if firm belongs to a foreign group			0.140^b	0.693^a	0.764^a	0.615^a	0.615^a
			(0.068)	(0.111)	(0.108)	(0.102)	(0.102)
ln (nb of domestic affiliates in the group+1)				-0.365^a	-0.366^a	-0.339^a	-0.337^a
				(0.054)	(0.055)	(0.053)	(0.053)
ln (nb of foreign affiliates in the group+1)				0.204^a	0.154^b	0.171^a	0.167^a
				(0.059)	(0.061)	(0.056)	(0.057)
ln (Firm's average wage)					1.714^a	1.474^a	1.477^a
					(0.125)	(0.101)	(0.102)
Total imports of the firm						0.155^a	0.155^a
						(0.006)	(0.006)
ln (Firm's subsidies)							0.010^b
							(0.004)
N	13510	13510	13510	13510	13499	13499	13499
R^2	0.298	0.299	0.299	0.303	0.325	0.395	0.396

Note: Fixed effects at the département/NAF3 digit level are introduced in all columns. Standard errors are clustered at the département/NAF3 digit.

Table A-4: Competitiveness clusters and export performance growth 2001-2004 (Customs and EAE)

Model :	ln Exp. val.	ln Exp. qty.	ln Unit val.	Nb. prod.	Nb dest.	ln Dist.	ln
			Dependent Variable: Δ Performance				
Best category is WCC	0.071	-0.224	0.360^a	-0.027	0.066	0.010	-0.
	(0.176)	(0.222)	(0.118)	(0.109)	(0.071)	(0.086)	(0.
Best category is PWCC	0.044	-0.067	0.055	0.056	-0.031	0.111	0.
	(0.156)	(0.193)	(0.134)	(0.175)	(0.111)	(0.082)	(0.
Best category is NCC	0.195^a	0.133^c	0.129^b	0.020	0.121^b	-0.003	0.
	(0.056)	(0.070)	(0.055)	(0.059)	(0.052)	(0.035)	(0.
Multi-competitiveness cluster firm	0.182^c	0.119	0.018	0.136	-0.007	-0.074	0.
	(0.111)	(0.146)	(0.098)	(0.102)	(0.068)	(0.062)	(0.
Number of employees in 2001	0.268^a	0.340^a	0.018	0.037^c	0.087^a	0.029^a	0.
	(0.022)	(0.027)	(0.013)	(0.019)	(0.026)	(0.007)	(0.
IV total factor productivity in 2001	0.267^a	0.251^a	0.126^a	0.039	0.101^b	0.043^b	-0.
	(0.043)	(0.051)	(0.032)	(0.033)	(0.040)	(0.019)	(0.
ln export value in 2001	-0.234^a						
	(0.012)						
ln export qty in 2001		-0.246^a					
		(0.013)					
ln unit value in 2001			-0.344^a				
			(0.013)				
Nb exported products in 2001				-0.007^a			
				(0.001)			
Nb destinations in 2001					-0.014^a		
					(0.001)		
Ln of weighted average distance						-0.349^a	
						(0.011)	
N	10812	10807	10807	10812	10812	10812	10
R^2	0.115	0.121	0.169	0.018	0.028	0.177	0.

Note: Fixed effects at the département/NAF3 digit level are introduced in all columns. Standard errors are clustered at the département/NAF3 digit level.

Table A-5: Competitiveness clusters and export performance growth 2001-04 (Customs+EAE)

Model :	Dependent Variable: Δ ln export						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Best category is WCC	0.071	0.071	0.072	0.072	0.059	0.112	0.108
	(0.176)	(0.176)	(0.176)	(0.176)	(0.174)	(0.166)	(0.166)
Best category is PWCC	0.044	0.043	0.041	0.046	0.032	0.031	0.025
	(0.156)	(0.156)	(0.156)	(0.157)	(0.156)	(0.156)	(0.156)
Best category is NCC	0.195^a	0.194^a	0.194^a	0.192^a	0.186^a	0.184^a	0.182^a
	(0.056)	(0.056)	(0.056)	(0.056)	(0.057)	(0.056)	(0.056)
Multi-competitiveness cluster firm	0.182^c	0.182^c	0.182^c	0.175	0.167	0.183^c	0.178
	(0.111)	(0.111)	(0.111)	(0.112)	(0.111)	(0.110)	(0.110)
ln Number of employees in 2001	0.268^a	0.266^a	0.263^a	0.264^a	0.273^a	0.211^a	0.208^a
	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)	(0.022)	(0.022)
ln IV total factor productivity in 2001	0.267^a	0.266^a	0.265^a	0.266^a	0.196^a	0.169^a	0.171^a
	(0.043)	(0.043)	(0.043)	(0.042)	(0.043)	(0.041)	(0.041)
ln firm exports in 2001	-0.234^a	-0.234^a	-0.234^a	-0.235^a	-0.240^a	-0.272^a	-0.272^a
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.013)
1 if nb of plants $\succ 1$		0.008	0.008	0.007	0.006	0.002	0.002
		(0.032)	(0.032)	(0.032)	(0.032)	(0.031)	(0.031)
1 if firm belongs to a group		0.007					
		(0.031)					
1 if firm belongs to a domestic group			-0.014	0.075	0.090	0.079	0.077
			(0.038)	(0.062)	(0.061)	(0.063)	(0.063)
1 if firm belongs to a foreign group			0.033	0.104	0.120^c	0.10	0.10
			(0.043)	(0.070)	(0.070)	(0.068)	(0.068)
ln (nb of domestic affiliates in the group+1)				-0.063^c	-0.068^c	-0.070^c	-0.069^c
				(0.037)	(0.037)	(0.038)	(0.038)
ln (nb of foreign affiliates in the group+1)				0.045	0.041	0.052	0.051
				(0.043)	(0.043)	(0.042)	(0.043)
ln (Firm's average wage)					0.280^a	0.235^a	0.236^a
					(0.077)	(0.071)	(0.071)
ln firm imports						0.057^a	0.057^a
						(0.005)	(0.005)
ln firm subsidies							0.003
							(0.003)
N	10812	10812	10812	10812	10803	10803	10803
R^2	0.115	0.115	0.115	0.116	0.118	0.143	0.143

Note: Fixed effects at the département/NAF3 digit level are introduced in all columns. Standard errors are clustered at the département/NAF3 digit level.