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F. Mayneris and S. Poncet

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French firms at the conquest of Asian markets: The role of export spillovers

Florian Mayneris* and Sandra Poncet**

Abstract

In this study, we explore the role of export spillovers on the capacity of French firms to conquer Asian markets. We confirm, in the context of France, previous results emphasizing the positive impact of surrounding exporters on the probability that a firm starts exporting a given product to a given country. We find that export spillovers are more important for export starts to Asia than for export starts to other countries. Moreover, for the specific Asian destinations, we find evidence of a heterogeneous effect of export spillovers. The presence of surrounding exporting firms appears especially beneficial to small and less productive firms, ad more intense for export starts to Asian countries characterized by low GDP per capita and tough administrative procedures on imports. Hence, export spillovers may help small firms to enter on the most difficult Asian markets.

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* Université catholique de Louvain, IRES, CORE. Email: florian. mayneris@uclouvain.be

** Paris School of Economics, Université Paris 1 and CEPII. Email: sandra.poncet@univ-paris1.fr

1- Introduction

The rise of Asia in international trade over the past twenty years has been well documented (IMF, 2007). The strong and rapid economic growth of several Asian countries such as Thailand, Indonesia, Malaysia, the four Tigers[1], and in the past ten years China, explains largely the increased presence of Asian countries on international markets. The supply-side of this deepest integration of Asia in international trade is usually emphasized. It is true that a quick glance at the data shows that the share of Asia in total manufacturing exports increased from 31.9% in 1995 to 37.2% in 2007. This is even more striking for China, which almost tripled its international market share in twelve years (4.4% in 1995 against 12.7% in 2007). Europe, on the opposite, saw its market share slightly decrease from 45.9% to 44.4%.[2]

However, Asia has not only become a major exporter, it is also a more and more interesting destination market for exporting firms. Even though much less spectacular than the export rise, the share of Asia in world imports has also increased in the past fifteen years, from 27.9% in 1995 to 29.1% in 2007. Again, China exhibited a more rapid evolution than the rest of Asia, since its share in world demand for manufacturing goods more than doubled, from 2.6% in 1995 to 5.5% in 2007. As a comparison, the share of Europe in world demand remained more or less stable, equal to 44.0% in 1995 and to 44.4% in 2007. This is in line with China developing its own manufacturing industry. Indeed, not all the inputs used by Chinese industries are produced locally. In particular, new high-tech products such as the iPod might be assembled in China but many components are in reality produced in other countries. Growing production and exports by China might then also be correlated with growing Chinese imports.

This is why conquering Asian markets has become a priority for European firms and governments. In a document edited in 1996 by the French ministry of Industry, Asia was

[1] Hong-Kong, Singapore, South-Korea and Taiwan

[2] These data come from authors' calculations based on the BACI database provided by CEPII. This dataset, which is constructed using COMTRADE original data, provides bilateral trade flows at the 6-digit product level (Gaulier and Zignago, 2010). BACI is downloadable from http://www.cepii.fr/anglaisgraph/bdd/baci.htm.

defined as "a market to conquer".[3] The objective of French public authorities at that time was to increase French market share in Asia from 2% to 6% in ten years. The share of Asia in French total manufacturing exports actually increased over the period from 13.9% to 14.9%. However, this increased importance of Asia in French exports does not correspond to market shares gains for France in Asia: the share of France in total Asian imports rather decreased from 2.8% in 1995 to 2.2% in 2007. Note however that this is a general movement in Europe, since the share of Europe in Asian manufacturing imports decreased from 24.0% to 23.1% between 1995 and 2007. It seems actually that Asia sources more and more from itself, the share of Asian manufacturing goods in total Asian manufacturing imports having increased from 55.0% to 62.4% over the same period.

Conquering Asian markets might not be an easy task for French firms. Apart from the competition exerted by other exporting countries, Asia can be seen as a difficult market for French firms, i.e. a market for which the sunk or fixed export cost is high (see Melitz, 2003). Indeed, the differences in terms of language, in terms of culture, in terms of business negotiations rules are often pointed as important difficulties French entrepreneurs must face when they want to develop their business in Asia. Policy-makers take this issue seriously. For example, some French universities propose training to professionals for them to learn how to develop business relationships with Asian countries.[4] In the same vein, Asian consumers might have specific tastes that French producers have to accommodate before being able to export to these countries. Consequently, helping French firms to pay or to reduce this fixed export cost might be a way to increase French market shares on Asian markets.

In this paper, we investigate one mechanism through which the entry of French firms on Asian markets could be facilitated: export spillovers. The idea is that exporting firms located in the same region might be able to share information about export markets or to mutualize some costs linked to export activities (participation to international fares to promote their products for example). Very few theoretical studies exist on export spillovers. To our knowledge, Krautheim (2010) is the only one to build a model in

[3] "Exporter vers l'Asie", 1996, Cahier Industries, French Ministry of Industry.
[4] Training proposed by Sciences-Po in October 2011, "Asian capitalism and business: Oppositions and differences with Occident".

which the fixed export cost, specific to a destination country, decreases in the number of firms exporting to that country. According to him, this might explain part of the distance puzzle observed in the trade literature.[5] The empirical literature on export spillovers is much richer. In a pioneer work, Aitken et al. (1997) show that export activities of multinational firms positively impact on the export status of Mexican domestic firms. Greenaway et al. (2004), Kneller and Pisu (2007) and Greenaway and Kneller (2008), all find evidence of export spillovers on UK data, emanating from multinational firms or from all types of exporting firms. Barrios et al. (2003) and Bernard and Jensen (2004) are by contrast much more skeptical about the existence of export spillovers in Spain and in the US.

However, because of the lack of data, these studies do not investigate the specificity of export spillovers depending on the destination country of exports. It might be the case that export spillovers are very specific in terms of product or destination country. This could explain the conflicting results in the literature. Koenig (2009) shows for example that export spillovers on the decision to start exporting exist, for French firms and that they are destination specific. Koenig et al. (2010a) go one step further. They also study the decision to start exporting but they exploit, on French firm-level data again, the product dimension of export activities at the HS4-digit level. They consequently rely on a narrower definition of export activities than previous studies, which were considering at best the industrial sector of the firm. They show that export spillovers operate at a very fine level, since they are not significant when considered on all products-all destinations and are much stronger when specific, by product and destination. In another study, Koenig et al. (2010b) show that these export spillovers are greater for entries on more difficult markets, as measured by the country-level risk ICRG index[6] and some proxies for the toughness of administrative procedures imposed by destination countries on imports.

In this paper, we build on these two latter studies and focus on the creation of new export linkages of French firms on Asian markets. We show that the impact of export spillovers is more important for export starts to Asia than for export starts to other

[5] Disdier and Head (2008) show that in spite of the reduction of transport costs, the impact of distance on trade flows estimated in gravity equations remains persistent over time.
[6] Which provides measures of economic or political risk in a country.

countries. Moreover, it seems that export spillovers matter more for small and less productive firms when focusing on entries on Asian markets, while they are not significantly heterogeneous across firms when considering export starts to other destinations. Finally, it seems that proximity to other exporters is especially beneficial to firms eager to penetrate (Asian) countries characterized by low GDP per capita and tough administrative procedures on imports. It thus appears that export spillovers mainly help small firms to enter on the most difficult Asian markets. These results improve our understanding of the channel through which export spillovers influence a firm's behavior; they are clearly consistent with the idea that the exposure to other exporters helps to reduce the fixed rather than the variable cost of exporting.

Section 2 presents the data and the empirical strategy, section 3 presents the results and section 4 concludes.

2- Data and empirical strategy

We investigate the impact of surrounding exporters on the decision of French firms to start exporting, with a specific interest for Asian destinations.

2.1 Data

We use firm-level data from the French customs recording export flows at the firm, product (8-digit level) and destination country level for the period 1998-2003.[7] We merge this dataset with balance-sheet data from the French Annual Business surveys. This dataset contains, among others, firm-level employment, capital, sales and address for firms bigger than 20 employees. We limit our analysis to manufacturing industries. Thanks to the address, we are able to identify the employment area where firms are located. Employment areas are statistical zonings based on daily commuting of workers.

[7] Within the EU, French customs collect information on the product (NC8 categories) 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. For extra-EU exports, all shipments above 1,000 euros are reported. As regards intra-EU exports, we consequently restrict our attention to flows from firms with an annual cumulated value of intra-EU15 shipments above 100,000 euros in order to avoid the bias due to the evolution in the reporting thresholds imposed to exporting firms by the French customs.

There are 341 employment areas in metropolitan France (excluding Corsica). We choose this geographic level of analysis for export spillovers because it is a fine level based on economic, and not on administrative, considerations. As a comparison, there are 21 administrative regions and 94 administrative départements in continental France. We drop the firms that change location over the period, in order to be sure that our controls correctly take into account all the local determinants that could be correlated to both export starts of a given firm and export activities of surrounding exporters (see below). We also drop observations with negative sales, value-added or employment.

Several remarks need to be made about our sample. By merging the customs data with the Annual Business Surveys, we loose all the very small manufacturing exporters, the balance sheet data we have being available for firms bigger than 20 employees only. Moreover, among these latter firms, some multi-plant firms have business units in different employment areas. However, the information on export flows exists at the firm level, but not at the plant level. Consequently, assessing the role of local environment on the export behavior of multi-plants firms raises some measurement issues to which no evident solution exists. This is why we decide to focus on single plant firms only, both as beneficiaries and as sources of export spillovers. Indeed, there is no measurement issue in this case. Note that several public reports showed that the difficulties to export in France were concentrated on small and medium sized firms (see Artus and Fontagné 2006). Hence, focusing on single plant firms makes sense in terms of policy relevance of our analysis.

To study the heterogeneity of export spillovers depending on country-level characteristics, we use information on GDP per capita from the World Development Indicators (World Bank), and data from the Doing Business database (also edited by the World Bank) on administrative procedures imposed by destination countries.

We define Asian destinations following the decomposition by continent in the geographic dataset provided by CEPII[8]. The 196 destination countries represented in our final dataset of French export flows are divided into the five different continents as follows: Africa for 49 countries, America for 44 countries, Asia for 47 countries, Europe

[8] http://www.cepii.fr/anglaisgraph/bdd/distances.htm

for 39 countries and Pacific for 18 countries. Table A-1 in the appendix presents the list of the 47 Asian countries (with their respective share in the final regression sample).

2.2 Estimated equation

We study the decision of French firms to start exporting a given product to a given country within a gravity framework. We build on Koenig et al. (2010a) and assume that the probability that firm *i* exports product *k* to country *j* in year *t+1*, while it did not in year *t*, writes as follows:

$$Prob_{ikj,t+1} = Prob(\alpha_0\, empl_{i,t} + \alpha_1\, demand_{kj,t} + \alpha_2\, dist_j + \alpha_3\, spill_{j,t} + \varepsilon_{ikj,t+1} > 0) \qquad (1)$$

where $empl_{i,t}$ is the log of the number of employees of firm *i* at time *t*, $demand_{kj,t}$ is the log of total imports of product *k* by country *j* at time *t*, taken from the BACI database[9], $dist_j$ is the log of distance in kilometers between France and country *j* provided by CEPII[10], and $spill_{i,t}$ is the spillover variable for firm *i* at time *t* (defined in detail in the next section).

Several endogeneity issues arise with the estimation of Equation (1). First, besides export spillovers, it could be the case that the agglomeration of firms improves their export performance through external economies of scale and productivity spillovers (see Rosenthal and Strange, 2004; Combes et al., 2010; Martin et al., 2011). Firms located in denser areas could also be more productive, and thus more likely to export, due to selection effects (Melitz and Ottaviano, 2008). To rule out this possibility, all our regressions will thus include firm-level TFP, calculated by sector (2-digit level) following the Levinsohn and Petrin (2003) methodology.

The size of the area might also be an issue. More populated areas might be areas where the local demand and where congestions effects (higher wages, saturation of transport infrastructures etc.) are higher. If the spillover variable is positively correlated to the size of the area, the estimation of export spillovers could be downward biased. We will thus include in the estimation the size of the population in the employment area

[9] See footnote 1

[10] See footnote 5.

(estimated by the French national institute of statistics from to the 1999 Census of population).

Many other determinants, fixed across time, could explain both the existence of export starts and the agglomeration of exporters in an area. For example, employment areas with good transport infrastructures could attract many exporting firms because transport infrastructures are good for the insertion of firms on international markets. In this case, spatial agglomeration would not induce exports but the reverse would be true. The existence of a common border or of migrants networks could also explain why many firms in a given area start exporting or already export to a given country. Finally, firms with a strong expertise in a given product might agglomerate in specific places, due to the presence of specific resources or to accidents of history. Clocks and watches are mainly produced in a region close to Switzerland, the Franche-Comté, while Northern France still exhibits a specialization in textile industry. Those local comparative advantages could again explain both export starts and the spatial concentration of exporters.

In order to take into account these unobserved characteristics specific to the employment-area, to the employment area/destination country dyad and to the product/destination country dyad, we introduce a firm-product-destination country fixed effect. Doing so, we estimate the impact of our independent variables in the within time dimension only, thanks to a conditional logit estimation. This means that we explain in reality the timing of entry: conditioning on the fact that firm *i* will start exporting product *k* to country *j* at some point over the period, we relate the choice of the entry year to the presence of surrounding exporters the year before. This also means that we measure short-run determinants of entry on export markets. Since we observe a lot of starts and exits on export markets at the firm, product and destination country level, focusing on short-run determinants of exports at this very detailed level does make sense. However, regarding export spillovers, this might be an issue if the impact of surrounding exporters is not the same in the short and in the long run. Other exporters in the employment area might help to reduce the fixed export cost in the short-run, but could become competitors in the longer-run, and have in this case a total negative impact on the durability of export flows. Chen and Swenson (2009) show that it is not the case for export spillovers generated by foreign firms in China, as foreign exports

actually increase the durability of the new export linkages created by Chinese domestic firms. We do not have such insights in the case of France, and leave this issue for further research. In any case, the coefficient we will obtain on the spillover variable will be the net effect of positive (information spillovers, cost-sharing etc.) and negative (competition effect on inputs markets or on export markets, saturation of transport infrastructures etc.) externalities exporters might generate for their neighbors.

2.3 Definition of the dependent and of the spillover variables

The explained variable in our estimations is a dummy equal to 1 if firm *i* starts exporting product *k* to country *j* at time *t+1* and 0 otherwise. Ceasing and continuing export flows are not explained. We are thus interested in series of 0 followed by a 1. For a given firm-product-country, we can have several starts. For example, the subsequent export statuses 011001 become in our sample .1 . . . 01, with "." denoting a missing value.[11] For a given firm, we focus on product-destination country couples for which we observe at least one export start over the period. Defining a broader set of alternatives would be useless since in the presence of firm-product-country fixed effects, firm-product-country triads with no export starts or positive export flows all over the period would be dropped out.

The spillover variable is defined as the count of surrounding exporters in the employment area of firm *i* at time *t*. As in Koenig et al. (2010a), we define four types of spillover variables, with different degree of specificity: general spillovers (the number of other exporting firms in the area), destination specific spillovers (the number of other firms of the area exporting to the same destination), product specific spillovers (the number of other firms of the area exporting the same product) and product and destination specific spillovers (the number of other firms in the area exporting the same product to the same destination). In terms of product nomenclature, we re-aggregate export data at the 4-digit level of the harmonized system. Indeed, it is still a detailed level of activity, but it is sufficiently aggregated to avoid having spillover variables with

[11] Roberts and Tybout (1997) show that the impact of firm-level past export experience on current participation to export markets vanishes after two years. We thus do not control for firm-level past experience on export markets in our regressions. Indeed, for a given firm-product-country triad, given the definition of our dependent variable, generally more than 2 years have passed between two export starts.

zeros only. For example, the chapter 91 (2-digit), which corresponds to clocks and watches and parts thereof, is decomposed into 14 different 4-digit products, differentiating wrist-watches in precious metal from wrist-watches in base-metal, alarm clocks, wall clocks, and time registers.

We will first confirm that the effect of proximity to other exporters are much stronger when product and destination country specific. In the rest of the paper, we will explore the specificities of export spillovers for export starts to Asia focusing on this very specific spillover variable.

2.4 Descriptive statistics

We first present some simple descriptive statistics on the whole sample of firms we have. For almost 85% of observations the firm we observe has no neighbor the year before exporting the same product to the same country. In around 9% of cases the product/destination country specific spillover variable is equal to 1, and finally for 6% of the observations it is bigger than 1. The distribution of spillover variables is clearly more balanced for the product specific and the destination specific spillover variable.

Table 1 : Statistical distribution of the exporters agglomeration variable

	Number of other firms in the area			
	same product - same country	all products - same country	same product - all countries	all products - all countries
0	84.8%	12.1%	43.1%	0.1%
1	9.4%	10.1%	18.7%	0.2%
2	2.7%	8.2%	9.9%	0.3%
3-5	2.2%	17.3%	13.3%	2.1%
6-10	0.7%	16.9%	7.9%	6.8%
>10	0.2%	35.4%	7.1%	90.5%
Number of observations	645,268			

Statistics based on single-plant exporting firms in manufacturing industries, continental France. *Sources :* Customs and Annual Business Surveys.

As displayed in Table A-2, the share of non-zero product/destination country specific spillover is highest in the case of European destination (19%). The lowest values are found for Asia and Pacific with shares of 9%.

In terms of size, firms in the sample have 77 employees. This average size both reflects the fact that we neither have in our sample the smallest firms (below 20 employees) nor the biggest ones, since we focus on single plant firms only. Each firm exports on average 11 products to 11 countries. There is a clear gradation in the export spillover variable: having a neighbor exporting the same product to the same country is much rarer than having a neighbor exporting the same product whatever the destination, which is itself much rarer than having a neighbor exporting to the same destination, whatever the product.

Table 2 : Firm-level descriptive statistics

Variable	Mean	Standard-Error	Minimum	Maximum
Number of employees	77.1	170.9	2.5	6166
Total employment in the employment area	181556.8	283560.8	4630.75	1689989
Value added	3751.1	12196.5	219.1	575363
Imports of product *k* by destination country *j*	351897.5	1474511	0.6	4.62×10^7
Distance	3107.2	3451.3	262.4	19263.9
# exported products by the firm	11	13,8	1	277
# destination countries of the firm	10.5	12.9	1	116
# other firms in the employment area, all products-all countries	58.8	72.9	0	350
# other firms in the employment area, all products-same country	18	30,1	0	223.3
# other firms in the employment area, same product-all countries	3	6,6	0	62
# other firms in the employment area, same product-same country	0.47	1,7	0	35.5
Number of firms	8,071			

Statistics based on single-plant exporting firms in manufacturing industries, continental France. *Sources :* Customs and Annual Business Surveys.

This paper focuses on the beneficial effect of proximity to other exporters on the capacity of French firms to conquer Asian markets. While the proportion of export starts for Asian destinations is similar to that for the whole sample (30.8%), it is important to stress the different dimensions in which firms starting to export to Asia differ from firms exporting to other continents in our sample. As displayed in Table 3, firms starting to export to Asia appear to be slightly more efficient (measured in terms of TFP) and larger in size.

Table 3: Firms' particularities of Asia sub-sample

Variable	Total sample	Asia
Average share of export start	0.307	0.308
Log TFP of exporting firms		
mean	4.04	4.08
median	3.99	4.04
Size (number of employees) of exporting firms		
mean	77.1	79.8
median	64.7	68

Statistics in Table 4 suggest that part of these differences may directly reflect the greater difficulties French entrepreneurs face when they develop their business in Asia. Asian markets turn out to be characterized by an average GDP per capita 30% lower than that of the total sample. Their access seems to be hindered by larger trade impediments as evidenced by more numerous documents and longer import procedures at their customs. In line with the heterogeneous firms trade literature, greater fixed export costs (relating to lower demand/income and larger trade impediments) imposes a higher cut-off in the exporters selection (Melitz, 2003).

Table 4: country particularities of Asia sub-sample

Variable	Total sample	Asia
GDP per capita ($)		
Mean	16,840	12,246
Median	16,650	11,615
Top quartile	3,166	1,842
Bottom quartile	27,918	20,712
Number of documents required to import		
mean	6.7	7.8
Median	6	7.7
Number of days required to import		
Mean	17.8	20.2
Median	14	14

3- Results

We first replicate the results obtained by Koenig et al. (2010a) on the assessment of export spillovers in France, and compare them to those we obtain on Asian destinations only. We then investigate several dimensions along which the beneficial effect of proximity to other exporters might vary depending on firms' characteristics and

destination countries. All regressions are clustered at the employment area level (Moulton, 1990).

3.1 Export spillovers across continents

In the first four columns of Table 5, we replicate previous results obtained by Koenig et al. (2010) in the context of France, and show the positive impact of the presence of other local exporters on the probability that a firm starts exporting a given product to a given country.

Four different spillover variables are used alternatively: all products–all destinations, all products–same destination, same product–all destinations, and same product–same destination. The main message is that export spillovers operate at a very fine level, since they are not significant when considered on all products-all destinations (column 1) and are much stronger when specific, by product and destination (column 4). This hierarchy is confirmed when focusing on European destinations (columns 5 to 8) and Asian destination (columns 9 to 12). Interestingly, the coefficient on the product and destination country specific spillovers, equal to 0.051 on average, is equal to 0.039 only for European destinations and rises to 0.062 for Asian destinations. For these later destinations, another interesting finding is that the country-specific characteristic is key for a significant effect of agglomeration, while it is less the case for export starts to European destinations.

These primary results confirm a beneficial effect of proximity to other exporters on the capacity of French firms to conquer Asian markets. An additional neighbor exporting a given product to a given country increases the probability to start exporting the same product to the same country by roughly 1.32 percentage points.[12] Export spillovers appear more important for export starts to Asia than for export starts to other countries, notably to Europe where the corresponding impact is 0.83 percentage points. In what

[12] This figure is obtained from the derivative of the choice probabilities (Train, 2003). The change in the probability that a firm *i* chooses alternative x (start exporting) given a change in an observed factor $z_{i,x}$, entering the representative utility of that alternative (and holding the representative utility of other alternatives (no exporting) constant) is $\beta_z * P_{i,x} * (1-P_{i,x})$, with $P_{i,x}$ being the average probability that firm *i* chooses alternative x (starts exporting). Our results, based on an average probability to start exporting of 30.8%, suggest that the derivative of starting exporting with respect to an additional neighbor is 1.32=0.062*0.308* (1-0.308).

follows, we suggest one explanation of this heterogeneity, related to the important difficulties French entrepreneurs face to penetrate Asian markets. But first, we investigate the heterogeneous effect of proximity to other exporters depending on firms' characteristics. To our knowledge, almost no work has so far explored the existence of such heterogeneity of agglomeration economies on exports.

Table 5. Export spillovers by continent

	Explained variable: Domestic new export link in t+1											
	All destinations				**Europe**				**Asia**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ln Employment$_{it}$	0.570 [a]	0.570 [a]	0.568 [a]	0.570 [a]	0.636 [a]	0.636 [a]	0.635 [a]	0.637 [a]	0.612 [a]	0.614 [a]	0.613 [a]	0.613 [a]
	(0.074)	(0.075)	(0.075)	(0075)	(0.097)	(0.098)	(0.098)	(0.098)	(0.119)	(0.120)	(0.119)	(0.119)
Ln TFP$_{it}$	0.118 [a]	0.119 [a]	0.119 [a]	0.118 [a]	0.204 [a]	0.205 [a]	0.205 [a]	0.204 [a]	0.067	0.068	0.066	0.066
	(0.035)	(0.035)	(0.035)	(0.035)	(0.039)	(0.039)	(0.039)	(0.039)	(0.051)	(0.052)	(0.051)	(0.051)
Ln Total Employment in area t	0.869	0.842	0.874	0.884	0.889	0.865	0.887	0. 907	1.318	1.206	1.346	1.331
	(0.582)	(0.586)	(0.586)	(0.585)	(0.820)	(0.821)	(0.821)	(0.819)	(1.037)	(1.050)	(1.040)	(1.040)
Ln Imports$_{jkt}$	0.176 [a]	0.172 [a]	0.175 [a]	0.174 [a]	0.241 [a]	0.237 [a]	0.239 [a]	0.240 [a]	0.161 [a]	0.153 [a]	0.161 [a]	0.159 [a]
	(0.013)	(0.013)	(0.013)	(0.013)	(0.028)	(0.027)	(0.028)	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)
Firm nb in area - all products-countries	0.001				0.002				0.001			
	(0.001)				(0.003)				(0.002)			
Firm nb in area - all products-same country		0.008 [a]				0.007 [c]				0.019 [a]		
		(0.003)				(0.004)				(0.004)		
Firm nb in area - same product-all country			0.012 [b]				0.019 [a]				-0.003	
			(0.005)				(0.005)				(0.006)	
Firm nb in area - same product-country				0.051 [a]				0.039 [a]				0.062 [a]
				(0.009)				(0.011)				(0.020)
Observations	645268	645268	645268	645268	329912	329912	329912	329912	111942	111942	111942	111942
R^2	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09

Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

3.2 Export spillovers and firm-level characteristics

Tables 6 and 7 explore whether export spillovers depend on two characteristics of the prospective exporters: productivity and size measured in terms of the number of employees. They focus respectively on non-Asian and Asian destinations.

The empirical strategy consists in running Equation (1) with the most specific export spillover variable, as in columns 4 of Table 5, and in splitting the sample according to firms' productivity (columns 2 to 5) or size (columns 6 to 9). Splits are made respectively in relation to the average and to quartiles in the sample during the period. In a comparison of columns 2 and 3 of Table 6 (non Asia sample), the impact of proximity to other exporters does not seem to be significantly different for firms with TFPs below or above the sample mean. Similar findings are obtained when comparing firms in the top and bottom quartiles. If anything, it would be the more productive firms that benefit most from spillovers. Results in columns 6 to 9 further suggest that the coefficient on the variable of agglomeration of exporters is not statistically different across firms of different size. Hence, estimates based on the non-Asia sample confirm the results obtained by Koenig et al. (2010b) for all destinations reached by French exporters: Export spillovers have a similar impact regardless of the efficiency/size of firms. By extension, the need for information on targeted non-Asian export markets does not seem to be different across firms with different size or productivity.

The results obtained for the Asian subsample (Table 7) convey a strikingly different message. They suggest a significant heterogeneity of spillovers when firms are divided according to their efficiency or the size of their workforce. The presence of surrounding exporting firms appears especially beneficial to less productive and small firms eager to penetrate Asian countries. Results based on quartiles suggest that the most productive and larger prospective exporters in fact do not extract significant gains from their exposure to other exporting firms in the area.

Table 6: Heterogeneity of export spillovers according to firm characteristics : Non Asia sample

	Explained variable: Domestic new export link in t+1								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Reference for split		TFP				Employment			
	All firms	mean		Quartile		mean		Quartile	
		≤	>	bottom	top	≤	>	bottom	top
Ln Employment$_{it}$	0.560 [a]	0.578 [a]	0.507 [a]	0.56 7 [a]	0.547 [a]	0.465 [a]	0.751 [a]	0.328 [b]	0.640 [a]
	(0.078)	(0.100)	(0.134)	(0.150)	(0.143)	(0.088)	(0.143)	(0.131)	(0.210)
Ln TFP$_{it}$	0.132 [a]	0.131 [a]	0.128 [b]	0.120 [b]	0.209 [a]	0.144 [a]	0.103 [c]	0.039	0.144 [c]
	(0.036)	(0.042)	(0.060)	(0.058)	(0.079)	(0.046)	(0.059)	(0.070)	(0.084)
Ln Total Employment in area t	0.811	0.820	0.804	-0.602	1.015	1.675 [c]	-0.443	2. 025	-0.175
	(0.613)	(0.847)	(0.982)	(1.066)	(1.637)	(0.971)	(1.162)	(1.630)	(1.731)
Ln Imports$_{jkt}$	0.182 [a]	0.179 [a]	0.184 [a]	0.157 [a]	0.180 [a]	0.178 [a]	0.188 [a]	0.191 [a]	0.199 [a]
	(0.014)	(0.019)	(0.020)	(0.028)	(0.029)	(0.020)	(0.019)	(0.030)	(0.027)
Firm nb in area - same product-country	0.050 [a]	0.042 [a]	0 .061 [a]	0.039 [a]	0.067 [a]	0.048 [a]	0.053 [a]	0.041 [a]	0.046 [b]
	(0.010)	(0.012)	(0.014)	(0.014)	(0.014)	(0.012)	(0.019)	(0.011)	(0.020)
Observations	533326	286603	246723	136628	131097	303149	230177	135935	131066
R^2	0.09	0.09	0.10	0.09	0.10	0.10	0.09	0.10	0.08

Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

Table 7: Heterogeneity of export spillovers according to firm characteristics : Asia sample

	Explained variable: Domestic new export link in t+1								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Reference for split		TFP				Employment			
	All firms	mean		Quartile		mean		Quartile	
		≤	>	bottom	top	≤	>	bottom	top
Ln Employment$_{it}$	0.613 [a]	0.602 [a]	0.623 [a]	0.54 7 [b]	0.581 [b]	0.550 [a]	0.773 [a]	0.529 [a]	0.543
	(0.119)	(0.151)	(0.169)	(0.228)	(0.237)	(0.121)	(0.223)	(0.186)	(0.365)
Ln TFP$_{it}$	0.066	0.100	0.027	0.174 [b]	0.042	0.133 [b]	-0.023	0.272 [b]	0.020
	(0.051)	(0.068)	(0.079)	(0.086)	(0.095)	(0.064)	(0.070)	(0.125)	(0.087)
Ln Total Employment in area t	1.331	2.370 [c]	0.304	1.769	0.201	2.549 [c]	-0.259	4. 480 [b]	-0.326
	(1.040)	(1.294)	(1.299)	(2.192)	(1.773)	(1.322)	(1.236)	(1.844)	(1.558)
Ln Imports$_{jkt}$	0.159 [a]	0.163 [a]	0.155 [a]	0.101	0.132 [a]	0.209 [a]	0.115 [a]	0.168 [b]	0.109 [a]
	(0.027)	(0.038)	(0.039)	(0.062)	(0.043)	(0.039)	(0.037)	(0.068)	(0.040)
Firm nb in area - same product-country	0.062 [a]	0.079 [a]	0 .041 [c]	0.086 [c]	-0.005	0.064 [a]	0.059 [c]	0.054 [c]	0.067
	(0.020)	(0.030)	(0.023)	(0.044)	(0.030)	(0.021)	(0.036)	(0.030)	(0.046)
Observations	111942	55528	56414	24474	30113	60258	51684	25403	30164
R^2	0.09	0.10	0.09	0.10	0.09	0.10	0.09	0.11	0.08

Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

3.3 Export spillovers and destination country accessibility

As a first step to investigate the potential heterogeneity of export spillovers depending on the destination country accessibility, we distinguish countries according to their GDP per capita. As evidenced in Table 4, Asian countries are on average poorer than non Asian countries. Several reasons can explain why export spillovers might be more important for these destination countries (as suggested in Table 4). First, poor countries import less varieties than rich countries (Hummels and Klenow, 2002), which could make them less accessible for French firms. Also, the lower quality of the infrastructures and under-development of the retail and wholesale sector may impose further constraints of the capacity of French exporters to reach their final consumers. In this particular case, specific information on the appropriate partners/distributors that emanate from surrounding exporters would be more valuable for prospective exporters. Another explanation relates to the toughness of import procedures. Since rich countries have better institutions and better functioning customs than poor countries on average, they might be easier targets for French firms. The overall conjecture relating to the heterogeneous influence of income per capita is confirmed by results presented in Table 8. In this table, we run separate regressions for low and high GDP per capita destination countries. In columns 1 to 6, a country is considered high GDP per capita if its GDP per capita is higher than 16,840 US dollars (the mean value for our sample) otherwise it is classified as a low-GDP per capita country. In columns 7 and 8, we restrict the sample to Asian destinations and rely on the Asian average GDP per capita (12,246 US dollars) as the cut-off line. Results in columns 1 to 3 on the total world sample show that the probability of entry on a given market is positively impacted by the number of surrounding firms exporting the same product to the same country, especially for poorer destinations. The measured coefficient is four times greater than for richer countries. When focusing on Asian destinations, the heterogeneity is even more exacerbated, as export spillovers are significant for export starts to countries poorer than the average only.

In a final step, we specifically study the heterogeneity of the impact of export spillovers among Asian countries, depending on the toughness of import procedures in destination

countries. Findings of higher export spillovers in the case of low-accessibility markets would be consistent with the idea that surrounding exporters allow reducing the fixed cost of creating new trade linkages. We rely on the Doing Business database elaborated by the World Bank. Several variables related to country-level regulations of economic activities are recorded in this database. We use in our empirical work two of them, the number of documents and the number of days that are needed to import in a given country the commodities transported by a standard cargo. The number of documents is calculated from the signature of the contract to the delivery of goods, while the time needed is calculated from the arrival of the cargo in the harbor. Both variables appear as good proxies for the toughness of procedures an exporter has to face to sell its goods to a given foreign country. They have been used in the two studies we are aware of that show that export spillovers are greater for difficult more countries (Koenig et al. 2010b; Mayneris and Poncet, 2011).

Mayneris and Poncet (2011) study the creation of new export linkages by Chinese domestic firms and observe that their exposure to foreign exporting firms is associated with a 10% increase of their probability to start exporting the year after. They find that this figure is around 50% higher when the targeted destination country is identified as difficult. They interpret their results as suggesting that the presence of foreign exporting firms in China helps Chinese domestic firms to diversify their exports towards more difficult and previously inaccessible destinations.

Koenig et al. (2010b), whose results are reproduced in Table A-3 in the Appendix, find that an additional exporting neighbor increases the likelihood that a French firm starts exporting the same product to the same country by 1.95[13] percentage point when it comes to a country where the formalities in terms of documents are higher than the average, and 0.69 point when these procedures are less cumbersome than the average. These figures are respectively 2.10 and 0.69 when looking at the cost of export in terms of days.

[13] As explained in footnote 8, the effect is computed as $0.093 \times P_{i,x} \times (1-P_{i,x})$.

Table 8: Heterogeneity of export spillovers according to GDP per capita:

	Explained variable: Domestic new export link in t+1									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All countries			Asian countries						
Reference for split	World mean GDP per capita (16,840 US $)			World mean GDP per capita (16,840 US $)			Asia mean GDP per capita (12,246 US $)			
	All	≤	>	All	≤	>	≤	>	Bottom quartile (1841 US $)	Top quartile (20712 US $)
Ln Employment$_{it}$	0.570 [a]	0.588 [a]	0.549 [a]	0.616 [a]	0.723 [a]	0.504 [a]	0.750 [a]	0.511 [a]	0.905 [a]	0.509 [a]
	(0.075)	(0.077)	(0.095)	(0.119)	(0.138)	(0.149)	(0.134)	(0.146)	(0.184)	(0.150)
Ln TFP$_{it}$	0.115 [a]	0.034	0.206 [a]	0.063	0.004	0.136 [b]	0.019	0.099	-0.047	0.164 [b]
	(0.035)	(0.037)	(0.046)	(0.052)	(0.060)	(0.068)	(0.056)	(0.065)	(0.069)	(0.075)
Ln Total Employment in area t	0.866	0.979	0.735	1.271	1.029	1.574	1.998 [c]	0. 608	0.880	2.527 [c]
	(0.593)	(0.669)	(0.810)	(1.045)	(1.194)	(1.260)	(1.193)	(1.322)	(1.419)	(1.372)
Ln Imports$_{jkt}$	0.177 [a]	0.187 [a]	0.112 [a]	0.159 [a]	0.110 [a]	0.172 [a]	0.099 [a]	0.193 [a]	0.067	0.136 [b]
	(0.013)	(0.015)	(0.028)	(0.028)	(0.032)	(0.049)	(0.035)	(0.043)	(0.048)	(0.064)
Firm nb in area - same product-country	0.050 [a]	0.114 [a]	0 .024 [a]	0.063 [a]	0.138 [a]	-0.009	0.128 [a]	0.021	0.105 [b]	-0.003
	(0.010)	(0.023)	(0.007)	(0.020)	(0.038)	(0.031)	(0.040)	(0.025)	(0.044)	(0.028)
Observations	641030	323749	317281	111603	64388	47215	55606	55997	27346	32861
R^2	0.09	0.10	0.09	0.09	0.11	0.08	0.11	0.08	0.11	0.09

Results in this table are restricted to observations for which data on GDP per capita are available. Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

In Table 9 and 10, we adopt the same strategy as Koenig et al. (2010b) and we split the sample restricted to Asian destinations according to the country's level of import impediments. In Table 9, the cut-offs are defined based on the entire world sample while in Table 10 they are calculated on the sample of Asian destinations (as reported in Table 4). Our results clearly show that spillovers deriving from proximity to other exporters are more important for more difficult markets.

We confirm the order of magnitude of Koenig et al. (2010b)'s results. The probability of the creation of a new export linkage with an Asian market increased by as high as 2.25 percentage point with an additional neighboring exporter when it takes more than 20 days to clear the customs in the targeted country. By contrast, the impact is insignificant for lower durations. The identified heterogeneous effect of export spillovers depending on the toughness of administrative procedures on imports points at a possible role of surrounding exporters on the geographic diversification of French exporters toward more difficult and previously inaccessible Asian destinations.

Table 9: Heterogeneity of export spillovers according to country trade barriers: Asia (split according to world average)

	Explained variable: Domestic new export link in t+1								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Reference for split		Number of documents to import				Time required to import			
	All firms	mean (6.7)		median (6)		mean (17.8)		median (14)	
		≤	>	≤	>	≤	>	≤	>
Ln Employment$_{it}$	0.627 [a]	0.513 [a]	0.692 [a]	0.507 [a]	0.693 [a]	0.497 [a]	0.786 [a]	0.497 [a]	0.786 [a]
	(0.121)	(0.145)	(0.138)	(0.146)	(0.138)	(0.150)	(0.140)	(0.150)	(0.140)
Ln TFP$_{it}$	0.066	0.073	0.059	0.076	0.058	0.125 [b]	-0.010	0.125 [b]	-0.010
	(0.052)	(0.069)	(0.059)	(0.069)	(0.059)	(0.063)	(0.060)	(0.063)	(0.060)
Ln Total Employment in area t	1.173	0.486	1.446	0.543	1.421	0.521	1.792	0. 521	1.792
	(1.038)	(1.202)	(1.207)	(1.210)	(1.212)	(1.243)	(1.300)	(1.243)	(1.300)
Ln Imports$_{jkt}$	0.161 [a]	0.115 [c]	0.133 [a]	0.119 [c]	0.132 [a]	0.212 [a]	0.085 [b]	0.212 [a]	0.085 [b]
	(0.030)	(0.067)	(0.033)	(0.072)	(0.033)	(0.052)	(0.036)	(0.052)	(0.036)
Firm nb in area - same product-country	0.061 [a]	-0.027	0.126 [a]	-0.026	0.125 [a]	0.025	0.119 [a]	0.025	0.119 [a]
	(0.019)	(0.027)	(0.027)	(0.027)	(0.027)	(0.024)	(0.035)	(0.024)	(0.035)
Observations	108835	32871	75964	32725	76110	55597	53238	55597	53238
R^2	0.09	0.08	0.10	0.08	0.10	0.08	0.11	0.08	0.11

Results in this table are restricted to observations for which data on trade impediments are available. Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

Table 10: Heterogeneity of export spillovers according to country trade barriers: Asia (split according to Asia average)

	Explained variable: Domestic new export link in t+1								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Reference for split		Number of documents to import				Time required to import			
	All firms	mean (7.8)		median (7.7)		mean (20.2)		median (14)	
		≤	>	≤	>	≤	>	≤	>
Ln Employment$_{it}$	0.627 [a]	0.554 [a]	0.738 [a]	0.554 [a]	0.738 [a]	0.517 [a]	0.812 [a]	0.497 [a]	0.786 [a]
	(0.121)	(0.154)	(0.144)	(0.154)	(0.144)	(0.151)	(0.136)	(0.150)	(0.140)
Ln TFP$_{it}$	-0.017	0.125 [b]	-0.010	-0.113	0.066	0.048	0.790	0.048	0.790
	(0.052)	(0.063)	(0.061)	(0.063)	(0.061)	(0.058)	(0.064)	(0.063)	(0.060)
Ln Total Employment in area t	-0.131	2.972 [b]	0.861	1.603	0. 521	1.792	-2.566	1.173	-0.131
	(1.038)	(1.147)	(1.478)	(1.147)	(1.478)	(1.125)	(1.427)	(1.243)	(1.300)
Ln Imports$_{jkt}$	0.264 [a]	0.068 [c]	0.264 [a]	0.068 [c]	0.194 [a]	0.066 [c]	0.212 [a]	0.085 [b]	0.139
	(0.030)	(0.049)	(0.038)	(0.049)	(0.038)	(0.043)	(0.038)	(0.052)	(0.036)
Firm nb in area - same product-country	0.061 [a]	0.045 [b]	0.102 [a]	0.045 [b]	0.102 [a]	0.035	0.106 [a]	0.025	0.119 [a]
	(0.019)	(0.021)	(0.039)	(0.021)	(0.039)	(0.024)	(0.040)	(0.024)	(0.035)
Observations	108835	63588	45247	63588	45247	63529	45306	55597	53238
R^2	0.09	0.08	0.10	0.08	0.10	0.08	0.11	0.08	0.11

4- Conclusion

In this study, we explore the possibility of a beneficial effect of proximity to other exporters on the capacity of French firms to conquer Asian markets. We confirm previous results in the context of France of a positive impact of the presence of other local exporters on the probability that a firm starts exporting a given product to a given country. Our results in fact suggest that exposure to other exporters is an especially efficient mechanism for French firms contemplating exporting to Asia (relative to other destinations). This seems to relate to the fact that Asian countries are particularly difficult market for French firms, i.e. markets for which the fixed export cost is high. Our results hence confirm existing evidence of a heterogeneous effect of export spillovers. Overall, we find that the surrounding presence of exporting firms appears especially beneficial to small and less productive firms eager to penetrate Asian countries characterized by low GDP per capita and tough administrative procedures on imports. These results improve our understanding of the channel through which export spillovers impact a firm's behavior; they are clearly consistent with the ideas that the exposure to other exporters helps to reduce the fixed rather than the variable cost of exporting. From a policy point of view, our results tend to show that devices aimed at promoting exports to Asia should be concentrated on specific product and country markets. They also should not be expected to be effective for all firms as their impact may be limited to small and less productive ones.

References

Aitken B., G. Hanson and A. Harrison, 1997, "Spillovers, Foreign Investment, and Export Behavior" Journal of International Economics 43, 103-132.

Artus P., and L. Fontagné, 2006, "Evolution récente du commerce extérieur français", Rapport CAE No. 64.

Barrios, S., H. Gorg and E. Strobl, 2003, "Explaining Firms' Export Behaviour: R&D, Spillovers and the Destination Market", Oxford Bulletin of Economics and Statistics, 65(4), 475-96.

Bernard A. and J. B. Jensen, 2004, "Why Do Firms Export", The Review of Economics and Statistics, 86(2), 561-569.

Chen H. and D. Swenson, 2009, "Multinational Exposure and the Quality of New Chinese Exports", mimeo.

Combes, P.P., G. Duranton, L. Gobillon, D. Puga and S. Roux, 2011, "The productivity advantages of large cities: Distinguishing agglomeration from firm selection", CEPR DP 7191.

Disdier, A.C. and K. Head, 2008, "The Puzzling Persistence of the Distance Effect on Bilateral Trade", Review of Economics and Statistics, 37-48.

Gaulier G. and S. Zignago, 2010. "BACI: A World Database of International Trade at the Product level, The 1994-2007 Version", CEPII working paper 2010-23.

Greenaway D., R. Kneller, 2008, "Exporting, Productivity and Agglomeration", European Economic Review, 52, 919-939.

Greenaway D., N. Sousa et K. Wakelin, 2004**,** "Do Domestic Firms Learn to Export from Multinationals?", European Journal of Political Economy, 20, 1027-1043.

Hummels, D. and P. Klenow, "The Variety and Quality of a Nation's Exports", American Economic Review, 95(3), 704-723.

IMF, 2007, Regional Economic Outlook: Asia and Pacific. World Economic and Financial Surveys. IMF.

Kneller R., M. Pisu, 2007, "Industrial Linkages and Export Spillovers from FDI", The World Economy, 30(1), 105-134.

Koenig P., 2009, "Agglomeration and the Export Decisions of French Firms", Journal of Urban Economics, 66(3), 186-195 .

Koenig P., F. Mayneris and S. Poncet, 2010a, "Local export spillovers in France", European Economic Review, 54, 622-641.

Koenig P., F. Mayneris and S. Poncet, 2010b, "Economies d'agglomération à l'exportation

et difficulté d'accès aux marchés", Economie et Statistique, 435-436, 85-103.

Krautheim S., 2010, "Gravity and Information: Heterogenous Firms, Exporter Networks and the 'Distance Puzzle"', Mimeo.

Levinsohn, J., and A. Petrin, 2003, "Estimating Production Functions Using Inputs to Control for Unobservables," Review of Economic Studies, 70(2), 317-342.

Martin P., T. Mayer and F. Mayneris, 2011, "Spatial Concentration and plant-level productivity in France", Journal of urban Economics, 69(2), 182-195.

Mayneris F. and S. Poncet, 2011, "Entry on difficult export markets by Chinese domestic firms: The role of foreign export spillovers", mimeo.

Melitz, M., 2003, "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity," Econometrica, Econometric Society, vol. 71(6), 1695-1725.

Melitz M. and G.I.P. Ottaviano, 2008, "Market size, Trade and Productivity", The Review of Economic Studies, 75(1), 295-316.

Moulton, B. R., 1990, "An Illustration of a Pitfall in Estimating the Effects of Aggregate Variables on Micro Unit," The Review of Economics and Statistics, 72(2), 334-38.

Roberts, M. and J. Tybout, 1997, "The Decision to Export in Colombia: An Empirical Model of Entry with Sunk Costs", American Economic Review, 87(4), 545-564.

Rosenthal, S. S., and W. C. Strange, 2004, "Evidence on the nature and sources of agglomeration economies," in Handbook of Regional and Urban Economics, ed. by J. V. Henderson, and J. F. Thisse, vol. 4 of Handbook of Regional and Urban Economics, chap. 49, 2119-2171. Elsevier.

Table A-1: List of countries (Asia continent)

Country	Number of observations	Share of observations (%)	Country	Number of observations	Share of observations (%)
Afghanistan	24	0.02	Lebanon	4,399	3.93
Armenia	146	0.13	Macau (Aomen)	181	0.16
Azerbaijan	346	0.31	Malaysia	4,096	3.66
Bahrain	1,072	0.96	Maldives	67	0.06
Bangladesh	455	0.41	Mongolia	25	0.02
Brunei Darussalam	117	0.1	Nepal	96	0.09
Burma	140	0.13	Oman	981	0.88
Cambodia	246	0.22	Pakistan	1,263	1.13
China	9,062	8.1	Philippines	2,027	1.81
Georgia	152	0.14	Qatar	1,441	1.29
Hong Kong	8,134	7.27	Russian Federation	5,940	5.31
India	5,600	5	Saudi Arabia	4,719	4.22
Indonesia	2,334	2.09	Singapore	6,182	5.52
Iran	2,456	2.19	Sri Lanka	839	0.75
Iraq	173	0.15	Syrian Arab Republic	1,403	1.25
Israel	7,241	6.47	Taiwan	5,130	4.58
Japan	11,051	9.87	Tajikistan	18	0.02
Jordan	1,566	1.4	Thailand	4,036	3.61
Kazakstan	506	0.45	Turkmenistan	74	0.07
Korea	7,710	6.89	United Arab Emirates	6,053	5.41
Korea Dem. People's Rep. of	199	0.18	Uzbekistan	172	0.15
Kuwait	1,685	1.51	Viet Nam	1,875	1.67
Kyrgyzstan	46	0.04	Yemen	372	0.33
Lao People's Democratic Republic	92	0.08	Total (Asia)	111,942	100

Table A-2 : Exporters agglomeration variable by continent

Continent	Number of observations	Share with other exporter (same product - same country) in the area
Africa	101,264	0.10
America	78,887	0.17
Asia	111,942	0.09
Europe	329,912	0.19
Pacific	23,263	0.09
Total	645,268	0.15

Table A-3: Heterogeneity of export spillovers according to country trade barriers: all sample

	Explained variable: Domestic new export link in t+1								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Reference for split		Number of documents to import				Time required to import			
	All firms	mean		median		mean		median	
		≤	>	≤	>	≤	>	≤	>
Ln Employment$_{it}$	0.566 [a]	0.553 [a]	0.578 [a]	0.561 [a]	0.570 [a]	0.555 [a]	0.580 [a]	0.538 [a]	0.598 [a]
	(0.075)	(0.093)	(0.080)	(0.094)	(0.080)	(0.098)	(0.077)	(0.097)	(0.076)
Ln TFP$_{it}$	0.118 [a]	0.185 [a]	0.052	0.186 [a]	0.052	0.186 [a]	0.040	0.193 [a]	0.044
	(0.036)	(0.044)	(0.040)	(0.044)	(0.040)	(0.046)	(0.038)	(0.047)	(0.037)
Ln Total Employment in area t	0.740	0.662	0.817	0.689	0.786	0.425	1.112 [c]	0. 536	0.939
	(0.595)	(0.697)	(0.786)	(0.701)	(0.783)	(0.737)	(0.659)	(0.739)	(0.679)
Ln Imports$_{jkt}$	0.188 [a]	0.154 [a]	0.194 [a]	0.168 [a]	0.190 [a]	0.142 [a]	0.200 [a]	0.142 [a]	0.195 [a]
	(0.014)	(0.026)	(0.016)	(0.027)	(0.016)	(0.027)	(0.017)	(0.027)	(0.016)
Firm nb in area - same product-country	0.049 [a]	0.033 [a]	0.093 [a]	0.033 [a]	0.093 [a]	0.030 [a]	0.100 [a]	0.027 [a]	0.099 [a]
	(0.010)	(0.008)	(0.019)	(0.008)	(0.019)	(0.008)	(0.021)	(0.008)	(0.024)
Observations	620471	321897	298574	318167	302304	342382	278089	316179	304292
R^2	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.09	0.10

Results in this table are restricted to observations for which data on trade impediments are available. Heteroskedasticity-robust standard errors are reported in parentheses. Standard errors are clustered at the employment area level. [a], [b] and [c] indicate significance at the 1%, 5% and 10% confidence level. Conditional logit estimations in all columns.

Institut de Recherches Économiques et Sociales
Université catholique de Louvain

Place Montesquieu, 3
1348 Louvain-la-Neuve, Belgique

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