

Do exporting firms benefit from multinational retail networks? Evidence from France

Angela Cheptea^a, Charlotte Emlinger^b, Karine Latouche^c

^a UMR 1302 SMART, INRA-Rennes, France & IAW Tübingen, Germany (angela.cheptea@rennes.inra.fr)

^b CEPII, Paris, France (charlotte.emlinger@cepii.fr)

^c UR LERECO, INRA-Nantes, France (karine.latouche@nantes.inra.fr)



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Angela Cheptea^a, Charlotte Emlinger^b, Karine Latouche^c

^a UMR 1302 SMART, INRA-Rennes, France & IAW Tübingen, Germany (angela.cheptea@rennes.inra.fr)

^b CEPII, Paris, France (charlotte.emlinger@cepii.fr)

^c UR LERECO, INRA-Nantes, France (karine.latouche@nantes.inra.fr)

Abstract

In this paper, we explore the link between globalization of the retail sector and the export activity of firms from their origin country. In a previous paper (Cheptea, Emlinger and Latouche, forthcoming), we showed that exporting firm from countries with internationalized retail companies benefit more from this process than firms from other countries. The underlying assumption of this paper is that the main benefits are grasped by the retailers' domestic suppliers. In other words, firms that sell their products under retailers' brands benefit more from the overseas expansion of retailers than other firms. We employ French firm-level data to evaluate the effect for the two types of firms. We identify retailers' suppliers using the certification of French agri-food firms with the private IFS standard, granting them the right to sell their products under a retailer's brand. Our empirical objective is to estimate whether firms with IFS certification have better export performance on markets where French retail companies have established outlets. We find that certified French firms export more than non-certified firms to markets where IFS retailers established outlets (mainly outside Europe). The difference is statistically significant and robust to the use of firm- and country-specific fixed effects. Results are similar for the extensive and the intensive margin of exports.

JEL codes: F12, F14, F23.

Keywords: *Multinational retailers, Firm-level exports, Private standards.*

1. Introduction

All the worlds' largest retailers have established and multiplied their outlets in foreign countries. This trend has accelerated over the last decade and the struggle for new markets remains on the top of these firms' agenda. Their large size, many of these firms being included in the Forbes Global 2000 list of world's biggest companies, and their wide transnational network of outlets and business connections make these firms major regional and global players. Therefore, the overseas expansion of multinational retailers is likely to shape not only domestic and local economies, as suggested by the traditional literature on foreign direct investment, but also the foreign trade of origin and host countries.

In this paper we explore the link between globalization of the retail sector and the export activity of firms from their origin country. The literature on this subject is new and covers only a limited number of issues. Our analysis relates the most to the work of Head, Jing and Swenson (2010) on the impact of multinational retailers established in China on host country exports, and to Nordås, Grosso and Pinali (2008)'s case study analysis of the impact of the arrival of multinational retailers on host country export patterns. In a previous paper (Cheptea, Emlinger and Latouche, forthcoming), we show that the overseas expansion of a country's retailers fosters its exports to these foreign markets. This can be due to a reduction of trade costs for firms from the origin country supplying retailers, via a network effect, or to a change in consumer preferences in the host country that benefits all origin country firms. In the current paper we use French firm-level data to evaluate the relative importance of these two channels. We argue that fixed and/or variable exporting costs are lower for the domestic suppliers of multinational retail companies than for the rest of domestic firms. From this, we build an equation that permits to measure the impact of the foreign activity of multinational retailers on the export capacity of firms from its origin country, and especially of those identified as retailer suppliers. This impact is disentangled from the one due to an increase in consumers' preference for origin country goods and benefiting to all agri-food firms. We use data on French agri-food firms and find that being a supplier for a multinational retail company on the domestic market increases the firms' export capacity to a foreign market where the retailer operates, both in terms of the probability to export and the volume of exports.

2. Descriptive statistics and stylized facts

Although information on retailers' suppliers is highly confidential, data on the certification of agri-food firms with *private standards* required by retailers is a good way to overcome this difficulty. French firms willing to sell their products in retailers' outlets have two options: sell them under their own brand, or sell products under retailers' brand. Actually, most firms selling under their own brands also sell similar products under retailers' brand. This can be explained, for example, by the attempt of firms to optimize their production capacities, which often exceed their sales. To sell its products under the retailer's label, firms need to comply with some private standards imposed by the latter, through a certification obtained from a private independent organism. Consequently, certification establishes preferential relations between retailers and their suppliers, regardless of their country of origin, and is a good proxy for identifying firms that belong to retailer networks.

Our paper focuses on the exports of French agri-food firms from 2003 to 2010 to all destinations, using information collected from different databases. We restrict the analysis to French firms from the *food and beverage industry*, i.e. agri-food firms. This choice is motivated by the fact that goods from this industry are sold in all retailer outlets and, therefore, the investigated effects should be the strongest on the international trade in this type of products. Considering a specific industry has also the advantage of limiting the

importance of unobserved factors expressed at the industry level on the firm's export behaviour.

French retailers use the IFS (International Food Standard) certification and we focus our analysis on this particular private standard. Our objective is to see whether firms with IFS certification have better export performance on markets where French retail companies have established outlets. The IFS was launched in 2003 by the associated members of the German retail federation. Joined by its French and Italian counterparts in 2004 and, respectively, 2006, the standard drew up a quality and food safety standard for retailer branded food products, named the IFS Food, intended to allow the assessment of suppliers' food safety and quality systems, according to a uniform approach. Indeed, under the EU food law, retailers and brand owners have a legal responsibility for their brands. Private standards are, hence, designed to assist retailers and brand owners to produce food products of consistent safety and quality. In particular, they facilitate the standardization of quality, safety and operational criteria, and the fulfilment of legal obligations by manufacturers. Accordingly, these standards are appropriate tools for the application of the due diligence principle, i.e. the obligation to perform an investigation before contracting.

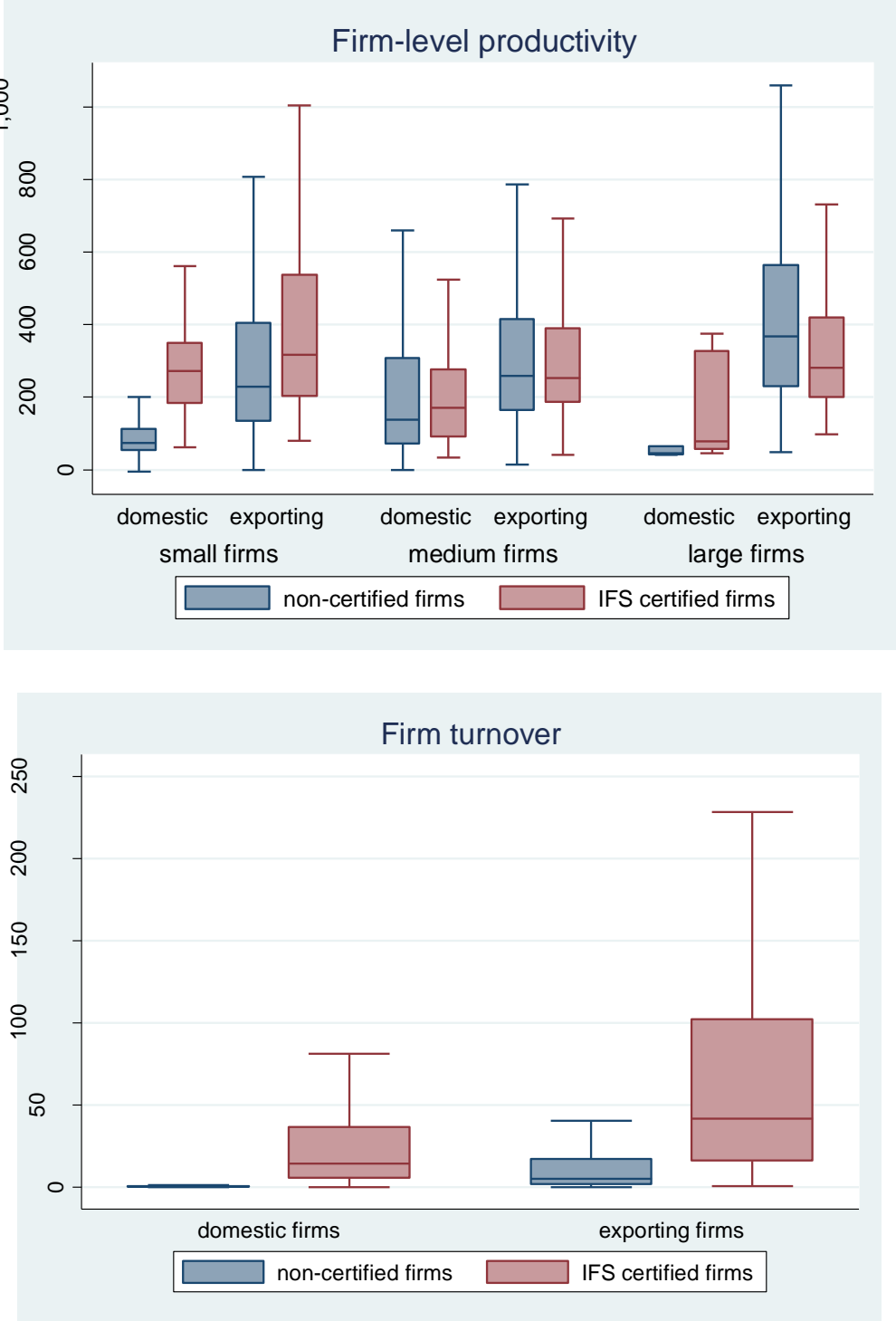
We built an original dataset on French agri-food firms, including both firms certified with the IFS and non-certified firms, in four steps. First, we identified the French agri-food firms that were IFS certified since the launching of the certification in 2003, using the exhaustive list of certified firms supplied by the IFS organization. Second, we combined the information on firms' IFS certification with data on the economic and financial activity of French firms from the AMADEUS dataset, built by Bureau van Dijk. The AMADEUS dataset records comparable financial and business information for public and private firms across Europe. The data are collected from company reports and balance sheets, and are updated weekly. Firms are distinguished by a unique identification number, corresponding to the fiscal identifier in their country of origin, which permits to match the AMADEUS data with firm-level data from national sources. The accounting data include among others firm-level variables, such as sales, value-added, stock of capital, investment, and employment. We employed the version of the AMADEUS database covering French firms operating in the agri-food sector in 2012. Third, to supplement information on the export behavior of firms, we merged our dataset with the French customs data. The French Customs Register reports the volume and the quantity of exports of all French exporting firms, by product (at the 8-digit level of the HS classification) and destination country. We focus on the exports of French agri-food firms of grocery products sold in supermarkets, corresponding to HS2 chapters 1 to 24. Finally, we combined our obtained dataset on the IFS certification, the economic, financial, and export activity of French agri-food firms with data on the volume of sales of French retailers in each country of the world from the Planet Retail database.¹ The latter provides a lower level of product detail than the French Customs data, grouping together all grocery products sold in retailers' outlets.

We end up with a dataset of about 25,000 agri-food firms for each year between 2004 and 2010. The introduction of the IFS certification in 2003 sets the lower limit of the investigated time period. The availability of grocery sales of multinational retailers restricts us from expanding our analysis beyond the year 2010. The international trade literature on heterogeneous firms tells us that only large and most productive firms export. This well-recognized feature is confirmed in our panel of French agri-food firms (Figure 1). Therefore, merging firm-level data collected by French statistical bodies with the AMADEUS dataset does not imply any important sample selection problem and should not affect our main

¹ This database records the grocery sales by the world's top hundred individual retail companies in each country. The five French retail companies are in this top hundred.

results. Average and median turnover and productivity levels of exporting French agri-food firms are larger than those of their domestic competitors. These results hold, both overall and within each size group defined by the firm's number of employees.

Figure 1: IFS certification and exporting across French agri-food firms



Notes: Authors' computation based on Amadeus and IFS certification data. Firm size is defined by the number of full-time employees: small (less than 50 employees), medium (50 to 499 employees), and large (500 or more employees). Outside values (below the lower adjacent value and above the upper adjacent value) are not displayed.

French firms with IFS certification are on average larger and more productive than non-certified firms. Considering the whole panel, 63% of the firms have 50 or fewer employees, while 34% have over 500 employees. This distribution across size groups is considerably skewed to the right for certified firms, 62% of which belong to the large size group. The difference between certified and non-certified firms is even more prominent in terms of the distribution of firms' turnover. Certified firms have an average turnover twenty times larger than that of the rest of the firms in our panel (€ million 97.5 vs. € million 5). Average productivity is also higher among firms with IFS certification, although the difference is statistically significant only for small-size firms (Figure 1).

Only a small fraction (13%) of firms in our panel export at least once over the considered period, and even fewer (4%) obtained the IFS certification. In 2004, the year following the creation/implementation of IFS, only 10 firms were certified; by 2010 their number increased to 933. Certified firms represent only 4% of the French agri-food firms, but 15% of the number of exporting firms in this sector. At the same time, the exports of certified firms account for one third of the French agri-food exports. These numbers illustrate that firms with IFS certification are more likely to export than non-certified firms, and when they do so, they export larger amounts. If we focus on the subsample of firms certified with IFS, the rate of exporting exceeds 40% for the entire period. Meanwhile, only 9% of the non-certified firms in our sample export. The difference between certified and non-certified firms is also reflected in the number of export destinations. Thus, certified firms export on average to 16 countries, while their non-certified compatriots only to half as many destinations. This evidence suggests that IFS certification may reduce firms' exporting costs and grant them an improved access to foreign markets.

In line with recent findings of the empirical trade literature, about half (1,580) of the exporting firms in our panel continued to export to at least one destination in each year, while one quarter (464) of these firms exported only once in the entire period. At the same time, only one firm of our sample had the IFS certification in all years from 2004 to 2010, most of the certified firms holding this status for three or four years. Although certification is not very frequent among French agri-food firms, this may change over the years to come, as firms become more familiar with the underlying procedures and the benefits of this endeavour.

The productivity gap between exporting and domestic firms found on the entire sample is confirmed on the sub-panel of certified French firms: Exporting firms with IFS certification are more productive than certified domestic firms.

3. The model

The literature on firm-level exports shows that more productive firms are more likely to export and in larger amounts (Roberts and Tybout, 1997; Melitz, 2003; Bernard and Jensen, 2004; Melitz and Ottaviano, 2008). This result is due to the fact that exporting implies fixed sunk costs which can be supported only by most productive firms. Although theoretical models assume equal export sunk costs for all firms (within a given sector of the same origin country), recent empirical studies show that export sunk costs vary across destination markets (Helpman, Rubinstein and Yeaple, 2008; Chaney, 2008; Bernard, Redding and Schott, 2011). In the current paper we argue that export costs differ as well between firms exporting to the same foreign country. The domestic suppliers of a retailer with a transnational network of outlets face lower export costs than other domestic producers. Firms that sell their products under a retailer's brand on the domestic market may also do this on foreign markets where this retailer operates. In this case, firms do not need to support costs involved with market prospection and partner search. Grouping shipments

with other suppliers of the same retailer permits them also to cut on transport, packaging and distribution costs. Exploiting the benefits of the foreign presence of a retailer does not necessarily imply selling one's products in the retailer's outlets in that country. Firms that supply exclusively the retailer's domestic network have also access to insider information on retailer's activity on foreign markets through their long and repeated interaction with the retailer. This enables these firms not only to identify most demanded products on specific foreign markets, less costly transportation networks, most efficient delivery procedures, and most reliable partners, but also to learn from retailer's success and failure stories.

For all the above reasons, we expect firms that sell their products under a retailer's brand, domestically or abroad, to benefit from lower exporting costs and, consequently, face a higher probability of engaging into an export activity. We summarize this feature in Figure 2, which plots firm export revenues against its productivity level, similar to Ahn, Khandelwal and Wei (2011). On the horizontal axis we show firm productivity at some positive power, $\varphi^{\sigma-1}$, where σ is the elasticity of substitution between traded varieties. The vertical axis corresponds to the export profits in foreign market j . Firms face a trade-off of whether to qualify for the IFS certification, and then decide whether to export their products and to which markets. Certification grants access to French retailers' networks and certain advantages in terms of export costs. Differently, non-certified firms export their products at their own cost and risk.

Exporting to foreign countries where French retailers are absent requires all firms to pay the same fixed (f_j) and variable export costs (τ_j) specific to each destination market. The overseas presence of a French retailer lowers export costs for French firms, but effect differs according to whether the firm is IFS certified or not. Non-certified firms benefit from a slight drop in fixed export costs due to the presence of French retailers: $f_j^{GD} < f_j$. Certification comes at an additional fixed cost f^{IFS} , but permits the firm to decrease not only its sunk bilateral export cost ($f_j^{GD IFS} < f_j^{GD} < f_j$), but also variable costs incurred with transportation, handling, and distribution ($\tau_j^{IFS} < \tau_j$). Certified firms can access virtually the entire domestic and foreign network of French retailers. Still, in our data we observe a large share of certified firms that do not export. This suggests that firms recover their certification cost primarily from domestic sales. Therefore, we assume that firms' decision to certify or not is independent from their sales on foreign markets. Table 1 summarizes our assumptions on firms' fixed and variable costs in each market.

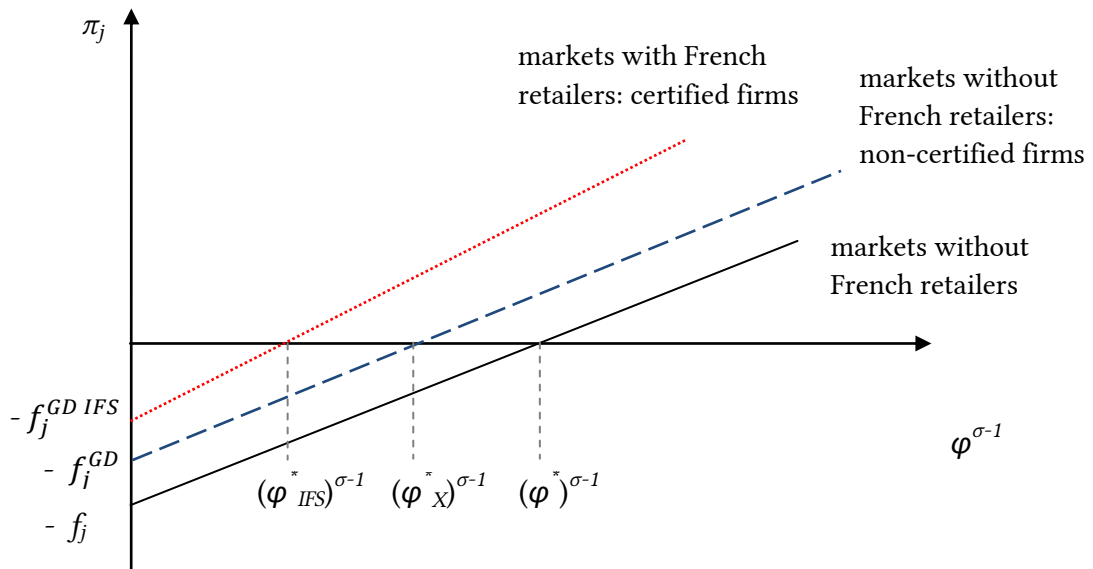
Table 1: Assumptions on firms' fixed and variable costs

	Type of costs	Domestic market	Export market j	
			French retailers present	No French retailers
Certified firms	Fixed costs	$f + f^{IFS}$	$f_j^{GD IFS}$	f_j
	Variable costs	w/φ	τ_j^{IFS}	τ_j
Non-certified firms	Fixed costs	f	f_j^{GD}	f_j
	Variable costs	w/φ	τ_j	τ_j

Notes: w/φ is the marginal production cost for a firm with productivity φ . f^{IFS} is the certification cost. We assume that $f_j^{GD IFS} < f_j^{GD} < f_j$ and $\tau_j^{IFS} < \tau_j$.

In Figure 2, a lower fixed export cost pushes the profit line to the left. A lower variable export costs for certified firms yields a steeper slope for their profit line. The intersection of the three profit functions with the horizontal axis gives the export productivity threshold corresponding to each type of firm and each type of destination market. Our framework suggests that the threshold productivity for exporting is higher for foreign markets where French retailers are absent. We conclude that *French firms export more easily and larger amounts to countries where operate French retailers*. Among these destination countries, the productivity of the least productive exporting firm is lower among certified firms. Accordingly, *on foreign markets where French retailers are present, the export probability and the volume of exports is larger for certified firms*. We test these theoretical predictions in the next section of the paper.

Figure 2: Firms' access to export markets in the presence and absence of retailers



4. Estimation of the impact of the foreign sales of French retailers on the exports of French agri-food firms

4.1. Empirical strategy and data

In this section we test empirically the implications of the theoretical model presented in the previous section by looking at the impact of French retailers' sales on the exports of French agri-food firms to the host country, distinguishing the effect on the export of retailers' suppliers from the effect on other firms' exports. To this end, we employ data on the IFS certification of French firms to identify retailers' domestic suppliers.

We evaluate the effects at the extensive and the intensive margin. We estimate the impact of retailers' overseas activity on the probability of firm f to export to country j (the extensive margin), and on the volume of its exports to these destination (the intensive margin). In both models, exports of firm f to destination country j at time t are determined by a set of firm- and country-level control variables, including the certification status of the firm, IFS_{ft} , the activity of French retailers in export market j , $\ln Sales Retailers_{jt}$, and an interaction term of these two variables. The impact of this interaction term points out

whether the probability to export and the volume of exports to markets where French retail companies established outlets is higher for retailers' suppliers.

In the model for the extensive margin the dependent variable is binary:

$$I(\ln Exports_{fjt} > 0) = \beta_0 + \beta_1 IFS_{ft} + \beta_2 \ln Sales Retailers_{jt} + \beta_3 (\ln Sales Retailers_{jt} \times IFS_{ft}) + \Delta X_{ft} + \Theta Y_{jt} + \epsilon_{fjt} \quad (1)$$

X_{ft} stands for time-varying firm controls, such as the turnover and the productivity of the firm. Y_{jt} corresponds to traditional country-specific controls used in the empirical trade literature: importer GDP, the distance separating the destination country from France, the existence of a common land border, linguistic and past colonial tie between France and the importing country. This vector also includes variables specific to our analysis, such as the importer's demand for agri-food products, import tariffs and trade restrictions on these products, and the level of development of the importer's retail sector.² Variable IFS_{ft} is a dummy indicating whether the firm was IFS-certified or not in year t . $\ln Sales Retailers_{jt}$ corresponds to the log of total sales of French retailers in their outlets established in host country j . A positive statistically significant estimate of coefficients β_2 and β_3 would confirm the predictions of our theoretical model.

We estimate a similar model for the intensive margin. Again, we expect to find positive estimates for coefficients α_2 and α_3 :

$$\ln Exports_{fjt} = \alpha_0 + \alpha_1 IFS_{ft} + \alpha_2 \ln Sales Retailers_{jt} + \alpha_3 (\ln Sales Retailers_{jt} \times IFS_{ft}) + B X_{ft} + \Gamma Y_{jt} + \epsilon_{fjt} \quad (2)$$

The data panel used for estimations covers the exports of grocery products sold in supermarkets of French agri-food firms between 2004 and 2010. The data sources and the construction of the panel are explained in detail in section 2. We aggregate the export data across products in order to obtain the overall value of agri-exports of each firm to each country.³ The volume of sales of all French retailers in each importing country are obtained by summing the sales of individual French retail companies. We use time-invariant and time-varying fixed effects for each firm and country in our panel to capture the effects of firm- and country-specific variables X_{ft} and Y_{jt} . Equation (1) is estimated using a linear probability model because of capacity constraints of estimating a Probit or Logit model with a large set of fixed effects. Equation (2) is estimated with OLS.

4.2. Results for the extensive export margin

We start by investigating the impact of certification and retailers' foreign activity on the *extensive export margin*, i.e. the probability of a firm to export to a given market. Table 3 displays the results of the estimation of equation (1) using a linear probability model. Our dependent binary variable takes the value one for all observations with positive exports, and the value zero otherwise. In order to correctly estimate the impact on the extensive margin, we need to include nil exports of each firm in our panel. Therefore, our estimation panel corresponds to the full matrix of French firms, years, and destination markets. As we use a linear probability model, the size of estimated coefficients is not directly interpretable as a change in firms' probability to export, but the sign of coefficients is a plausible indicator of a positive or negative change in export probability.

² A more developed retail sector testifies of greater opportunities for exporting firms to reach foreign consumers and should increase exports (Reardon et al., 2003).

³ As in section 2, we focus only on grocery products sold in supermarkets, corresponding to chapters 1 to 24 of the HS classification.

The five columns of Table 3 correspond to five different specifications, using different sets of firm- and country-specific fixed effects. In the regression reported in column 1 we use time-varying country fixed effects alone. This permits us to compare effects across firms, for a given destination and year. The sales of French retailers on the import market are collinear with the importer fixed effects and are dropped from the estimation. We find a positive significant coefficient for the IFS certification variable and for the interaction term. This indicates that certified firms have a higher probability to export, especially when French retailers operate on the destination market.

In column 2 we add time-invariant firm fixed effects. This permits us to compare the effects of the overseas activity of French retailers within the firm, for a given destination market and year. We find a significant effect only for the interaction term. Results show that becoming certified does not increase the firm's probability to export (the coefficient of the IFS certification dummy is not significantly different from zero), but it does increase the probability to export to markets where French retailers operate.

The estimation reported in column 3 includes only time-varying firm-specific fixed effects. This enables us to evaluate the effects across different export destinations for a given firm and year. The IFS certification dummy is dropped from the estimation due to collinearity with fixed effects. Results show that the foreign sales of French retailers increase the probability to export for all French firms in the agri-food sector. This finding is in line with Cheptea, Emlinger and Latouche (forthcoming, 2014), who show that the overseas expansion of retailers fosters the exports of their country of origin to the retailers' host countries. The effect is larger for certified firms, as pointed by the positive and significant coefficient for the interaction term.

In column 4 we use time-varying firm effects together with time-invariant country fixed effects. Compared to the estimation in column 3, we now control for the main differences between import markets (the ones that remain constant in time). The coefficient of the interaction term is again positive and statistically significant, confirming that certified firms are more likely to export to foreign countries where invest French retailers. The coefficient on the sales of French retailers in the import market corresponds to the effect on the export probability of non-certified firms. The negative value of this coefficient indicates that non-certified firms are less likely to export to countries where French retailers have established outlets, although the magnitude of the effect is very small. These findings indicate that only certified firms benefit from the overseas activity of French retailers.

In column 5 we use time-varying fixed effects for firms and import countries. This permits us to control for all possible observable and non-observable firm- and country-specific factors. The only coefficient estimated in this case is that of the interaction term. The certification dummy and retailers' sales in the import country are dropped because of collinearity with the included fixed effects. Results validate our finding from the previous columns that certified firms have a higher probability to export to a destination where French retailers operate.

To sum up, in all columns of Table 3 the coefficient of our variable of interest (the interaction term $\ln Sales_{Retailers_{jt}} \times IFS_{ft}$) is always positive and statistically significant. The magnitude of the effect almost does not change, proving the robustness of the effect. This supports our prediction that certified firms benefit more than their non-certified counterparts from the presence of French retailers on foreign markets. Certified firms that can sell their products via retailers' network of outlets are more likely to export to countries where are located these outlets than non-certified firms from the same country of origin.

Table 3: Effects on the probability to export (extensive margin)

	(1)	(2)	(3)	(4)	(5)
Certification	0.0220*** (0.00)	0.0002 (0.00)			
Certification × Retail sales	0.0497*** (0.00)	0.0499*** (0.00)	0.0484*** (0.00)	0.0497*** (0.00)	0.0499*** (0.00)
Retail sales			0.0084*** (0.00)	-0.0012*** (0.00)	
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm × year FE	no	no	yes	yes	yes
Country × year FE	yes	yes	no	no	yes
Nb observations	35,008,374	35,007,193	35,007,193	35,007,193	35,007,193
R ²	0.02	0.16	0.15	0.16	0.16

Note: Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

4.3. Results for the intensive export margin

We turn now to the analysis of the *intensive margin of trade* and evaluate how multinational retailers and certification affect firms' volume of exports to each market. We estimate the intensive export margin equation (2) and report results in Table 4. The five columns of Table 4 correspond to the same specifications displayed in the five columns of Table 3.

As in the case of the extensive margin (Table 3), the coefficient of the interaction term variable is positive and statistically significant for all specifications. Hence, the activity of French retailers on foreign markets increases not only the probability of French certified firms to export to these destinations, but also the value of their exports.

Table 4: Effects on the volume of exports (intensive margin)

	(1)	(2)	(3)	(4)	(5)
Certification	0.6176*** (0.02)	-0.0846*** (0.02)			
Certification × Retail sales	0.2021*** (0.02)	0.1713*** (0.01)	0.1641*** (0.02)	0.1714*** (0.01)	0.1882*** (0.02)
Retail sales			0.4294*** (0.01)	0.0109 (0.02)	
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm × year FE	no	no	yes	yes	yes
Country × year FE	yes	yes	no	no	yes
Nb observations	147,625	147,625	147,625	147,625	147,625
R ²	0.1	0.48	0.38	0.51	0.51

Note: Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

Comparing these results to those on the probability to export shows some differences in the coefficient of the IFS certification dummy and of French retailers' sales in import countries. For the specification in column 2, which places the analysis within the firm, for a given destination market and year, we find that certification decreases the volume of exports. This means that certified firms concentrate their exports on markets where French retailers operate, leading to a decrease of export to other markets. This trade diversion effect is found only for the volume of exports, but not the export probability. In column 4, where we analyze the effect within destination countries for a given firm and year, the sales of French retailers' in the import market does not have a significant impact. Thus, although non-certified firms are less likely to export to countries where French retailers invest, the volume of their exports is unaffected. The "driving effect" is positive for certified firms, as revealed by the positive and statistically significant coefficient of the interaction term. Firms that already belong to the retailers' network, by supplying them on their domestic market, benefit more from retailers' internationalisation, which opens them the access to new markets and allows them to export more in value terms.

5. Natural experiments: the exit of French retailers from some host markets and the loss of certification of French agri-food firms

5.1 Empirical strategy and data

To deepen our understanding of the expansion of retailers overseas and its impact on certified firms, we focus on two specific situations. The first one is the exit of French retailers from some host markets. The second one is the loss of certification by certain agri-food firms. Focussing on the subsample of our data corresponding to each of these situations permits to analyze how certified firms behave once retailers exit the market or once they lose their certification.

The positive impact of retailers' overseas activity on firms' exports can be due to a reduction of trade costs for retailers' supplying firms, via a network effect, or to an increase in consumers' preference for goods from the retailers' country. If certified firms benefit from reduced trade costs because of a network effect, established through the presence of French retailers on markets to which they export, the positive impact of retailers' overseas activity should vanish when retailers withdraw from these markets. If, however, the effect is also caused by the impact of retailers on the preferences of foreign consumers, the effect would last even after retailers' exit from the host country. Do certified firms benefit from reduced trade costs because of a network effect or from a preference effect? Do they enjoy the same access as non-certified firms when retailers exit the markets to which they export?

To answer this question we focus on exports to countries from which French retailers exited during the period of our study. French retailers exited from the following markets: Algeria in 2009, Chile in 2004, Czech Republic in 2006, Germany in 2005, Ireland in 2010, Japan in 2005, South Korea in 2007, Latvia in 2008, Lithuania in 2008, Mexico in 2007, The Netherlands in 2010, Norway in 2006, Slovakia in 2008. Accordingly, only these importing countries were included in our first subsample. We create a dummy equal to one when French retailers leave the importing country and in all the subsequent years, and to zero in all the years prior to retailers' exit. We include this variable and its interaction with the IFS certification dummy in an equation similar to (2):

$$\ln Exports_{fjt} = a_0 + a_1 IFS_{ft} + a_2 Retailer\ exit_{jt} + a_3 (Retailer\ exit_{jt} \times IFS_{ft}) + \Lambda X_{ft} + K Y_{jt} + v_{fjt} \quad (3)$$

Estimating equation (3) we test whether the higher export performance of certified firms compared to that of non-certified firms still holds once the French retailers exit from the

importing country. A decrease in exports after retailers' exit, for all firms, shall be reflected in a negative coefficient for the retailer exit dummy. The absence of such a negative effect can be interpreted as evidence of the impact of retailers' overseas activity of the preferences of foreign consumers.

A similar analysis is performed with respect to firms that lose their IFS certification. In this case we focus only on firms that lose definitely their certification in at some time during the period of our study (from 2004 to 2010). By construction, our second subsample excludes all firms that never certify. The loss of IFS certification can be due to non-compliance with certification requirements, or can reflect the firm's choice to no longer certify. Some firms switch between certification and non-certification several times. They were considered as similar to firms certified throughout the entire period and were not included in the subsample. Only firms losing definitively their certification are considered in this analysis. This is the case of 112 exporting firms from the French agri-food sector.

We test empirically whether the loss of certification has an impact on the export performance of these firms, and estimate an equation similar to (2) and (3):

$$\ln Exports_{fjt} = b_0 + b_1 loss\ IFS_{ft} + b_2 \ln Sales\ Retailers_{jt} + b_3 (\ln Sales\ Retailers_{jt} \times loss\ IFS_{ft}) + \Psi X_{ft} + \Omega Y_{jt} + u_{fjt} \quad (4)$$

Variable $loss\ IFS_{ft}$ is a dummy that takes the value zero for years when the firm obtains the IFS certification, and the value one for years when the firm is no longer certified. A negative impact of this variable would indicate that IFS certification per se increases the firm's export competitiveness. The coefficient of the interaction term indicates how this effect differs across destination countries. A positive coefficient means that the effect is larger for exports to countries where French retailers are well established. We also expect to find a positive coefficient for the retailers' sales in the import market, similar to the one in Table 4.

5.2 Estimation results

We start by evaluating the impact of the exit of French retailers from importing countries on the export competitiveness of French agri-food firms. We estimate equation (3) with different sets of firm- and country-specific fixed effects and present the results in Table 5. The five columns correspond to the five previous specifications (the same as in Tables 3 and 4). Our main interest is the effect of the interaction term between IFS certification and Retailers' exit.

In column 1, certification has a positive impact on firms' exports to a given market, in line with results in Table 4. The interaction term, however, is not significant. This indicates that the exit of French retailers from the importing country does not alter the effect of certification. This effect disappears when we add firm fixed effects in the estimation (a non-significant coefficient for the IFS dummy in column 2). This means that for a given firm, to become certified has no impact on exports to the countries included in the sub-sample, and is consistent with what we expected. Results from column 3 show that certified firms export less after French retailers exit from the importing country. Conversely, the exit of retailers increases the exports of non-certified firms. This result could mean that non-certified firms benefit from the exit of retailers. As certified firms export less, the mean positive effect for all firms would be due to non-certified firms. When retailers exit the market, non-certified firms can benefit from the remaining demand for French products. However, results in column 3 vanish when we control for country-specific characteristics. All coefficients in column 4 are statistically non-significant, implying that retailer exit has no impact on both

certified and non certified firms. The effect is also non-significant when we include time-varying fixed effects for both firms and countries (column 5).

To summarize, results show that the export advantage of certified firms (due to reduced trade costs) on markets covered by the network of French retailers disappears when the latter abandon these markets. This suggests that when retailers enter a host market, certified firms have an advantage in exporting to this country. When retailers exit this market, certified firms lose their advantage. They do not benefit from an alternative effect, such as a larger preference for French products, developed during retailers' presence in the host country.

Table 5: Effects of French retailers' exit on the volume of exports

	(1)	(2)	(3)	(4)	(5)
Certification	0.85*** (0.08)	0.02 (0.06)			
Certification × Retailer exit	0.06 (0.09)	0.01 (0.07)	-0.21** (0.09)	-0.04 (0.08)	-0.04 (0.08)
Retailer exit			0.48*** (0.03)	-0.04 (0.03)	
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm × year FE	no	no	yes	yes	yes
Country × year FE	yes	yes	no	no	yes
Nb observations	31,646	31,646	31,646	31,646	31,646
R ²	0.07	0.58	0.52	0.65	0.65

Note: Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

Table 6 presents the results concerning the loss of certification by exporting agri-food firms. The same specifications used previously are replicated in the five columns of the table. The loss of certification does not affect the volume of firms' exports. The result is the same for exports to countries where French retailers operate, and to other destinations. The interaction term is never significantly different from zero in Table 6. This indicates that retailers' sales has no impact on firms' exports after the loss of certification. The only statistically significant estimated coefficient is found for the volume of retailers' sales. The finding in column 3 confirms our previous results that firms export more to markets where French retailers operate. We conclude that firms that lose their IFS certification never benefit from the positive impact of the presence of French retailers on a given market. The cross variable under interest is never significant.

These two analyses focused on specific markets (where French retailers exited) or specific firms (that lost their certification). The empirical strategy needs to be improved in order: (1) to compare the impact of certification on markets from which French retailers withdrew their investment to that on markets where French retailers did not enter, (2) to compare the behaviour of firms that lose their certification to that of firms that do not lose their certification on a given markets.

Table 6: Effects of losses of certification on the intensive margin

	(1)	(2)	(3)	(4)	(5)
Loss of certification	-0.03 (0.21)	0.03 (0.18)			
Retail sales × Loss certification	0.04 (0.16)	0.01 (0.14)	-0.06 (0.14)	-0.03 (0.12)	0.04 (0.15)
Retail sales			0.39*** (0.05)	-0.10 (0.17)	
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm × year FE	no	no	yes	yes	yes
Country × year FE	yes	yes	no	no	yes
Nb observations	2,147	2,147	2,147	2,147	2,147
R ²	0.31	0.48	0.21	0.46	0.52

Note: Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01

6. Conclusion

A recent study shows that agri-food exports to a given country are impacted positively by the presence of domestic retailer in this country (Cheptea, Emlinger and Latouche, forthcoming). In this paper, we explore more deeply this link between the globalization of the retail sector and the export activity of origin country firms. We test whether this effect is due to a reduction in exports costs via the access to a retailer's foreign network for its domestic suppliers. Although information on retailers' suppliers is highly confidential, we use French agri-food firm data on certification as a proxy for the privileged relationship between the firm and a retail company. We use an original dataset of firms certified with the IFS private standard, granting them the right to sell their products under a French retailer's brand. We evaluate the effects both at the extensive and the intensive export margin. We find that certified French firms are more likely to export and export larger volumes than non-certified firms to markets where French retailers established outlets. The result is statistically significant and robust to the specification we use to properly account for firm and market heterogeneity. This outcome argues in favour of a network effect for French retail suppliers, which allows them to reach foreign markets at lower costs.

Deepening our analysis on markets where French retailers exited or on firms that lost their certification seems to confirm the importance of retailers' networks in the decrease of trade costs. Further works are needed to fully address the issue of failure (of retailers on a market or of certification for a firm).

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