Do exporting firms benefit from retail internationalization? Evidence from France

Angela Cheptea* Charlotte Emlinger† Karine Latouche‡

February 2, 2015

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 et al. (2014)), 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.

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

JEL classification codes: F12, F14, F23.

*UMR 1302 SMART, INRA-Rennes, France & IAW Tübingen, Germany (Angela.Chepea@rennes.inra.fr).
†CEPII Paris, France (charlotte.emlinger@cepii.fr).
‡INRA, UR LERECO, Nantes, France (Karine.Latouche@nantes.inra.fr).

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 et al. (2010) on the impact of multinational retailers established in China on host country exports, and to NordÃs et al. (2008)'s case study analysis of the impact of the arrival of multinational retailers on host country export patterns. In a previous paper (Cheptea et al. (2014)), 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, 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 variables 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 Stylized facts

2.1 IFS certification to identify retailers' suppliers

Our objective is to see whether retailers' suppliers have better export performance on markets where French retail companies have established outlets. 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 supplying retailers.

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 behavior. French retailers use the IFS (International Food Standard) certification and we focus our analysis on this particular private standard.

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.

2.2 IFS certified firms are larger, more productive, and more export oriented

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]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.

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 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. 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.

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. Average productivity is also higher among firms with IFS certification, although the difference is statistically significant only for small-size firms.

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.

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

3.1 Empirical strategy and data

In this section we estimate 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, $\ln Sales_{jt}$, 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:

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

We estimate a similar model for the intensive margin.

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

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. 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.

3.2 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 2 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.

The five columns of Table 2 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, and this probability increases with the sales of French retailers 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 on markets without French retailers (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. Moreover, the second coefficient shows that certified firms benefit more from an increase in the foreign sales of French retailers.

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 et al. (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 effect is stronger the larger the sales of French

Table 1: Extensive margin

	(1)	(2)	(3)	(4)	(5)
Certification IFS	0.022***	0.0002			
	(0.00)	(0.00)			
ln Sales			0.0084***	-0.0012***	
			(0.00)	(0.00)	
Certification IFS x ln Sales	0.0497***	0.0499***	0.0484***	0.0497***	0.0499***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm x time FE	no	no	yes	yes	yes
Country x time FE	yes	yes	no	no	yes
Nb observations	35,007,193	35,007,193	35,007,193	35,007,193	35,007,193
R^2	0.02	0.16	0.15	0.16	0.16

Clustered (by firm) standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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 destinations with high sales of French retailers.

To sum up, in all columns of Table 2 the coefficient of our variable of interest (the interaction term $\ln Sales_{jt}t \times IFS_{ft}$) 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 activity 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.

3.3 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 **??**. The five columns of Table 2 correspond to the same specifications displayed in the five columns of Table 2. As in the case of the extensive margin (Table 2), 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.

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 becoming certified decreases the volume of exports to markets with no French retailers. 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. A détailler

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 supply French retailers on their domestic market benefit more from retailers' internationalization, which opens them the access to new markets and allows them to export more in value terms.

3.4 Robustness of results

3.4.1 Selection bias

Only some firms export due to fixed export costs and firm heterogeneity. The export threshold varies across destination markets. Left-censoring of the data by the lowest export value to each market. Eaton and Kortum (2002) Tobit estimator estimate the effect together on the intensive and extensive margins.

Table 2: Intensive margin

	(1)	(2)	(3)	(4)	(5)
Certification IFS	0.64***	-0.09**			
	(0.09)	(0.03)			
ln Sales			0.44***	0.00	
			(0.02)	(0.02)	
Certification IFS × ln Sales	0.21***	0.17***	0.17***	0.18***	0.19***
	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Firm FE	no	yes	no	no	no
Country FE	no	no	no	yes	no
Firm x time FE	no	no	yes	yes	yes
Country x time FE	yes	yes	no	no	yes
Nb observations	147,625	147,625	147,625	147,625	147,625
R^2	0.093	0.469	0.373	0.502	0.505

Clustered (by firm) standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.4.2 Endogeneity of retail sales and certification

Retail sales and exports have common determinants (Cheptea et al. (2014)). The decision to certify is linked to the export decision.

4 Conclusions

Our results provide evidence that the positive impact of the internationalization of retailers on trade is more due to a reduction in trade cost for retail suppliers, than to a change in consumers' preferences in the host country. Hence, this paper calls for a discussion on the central role of retailers in the supply chain. Other papers have considered the relationship between retailers and their suppliers, in particular in the case of an overseas expansion (Wrigley and Lowe, 2010, Dawson 2007). Certification can be seen as a "formal or implicit contract" that defines the "preferential supplier" of retailers, according to Reardon, Henson, and Berdegué (2007). Our work suggests extending this discussion to other empirical strategies highlighting the central role of retailers in international trade.

References

Cheptea, A., Emlinger, C., and Latouche, K. (2014). Multinational retailers and home country food exports. *American Journal of Agricultural Economics.*

Eaton, J. and Kortum, S. (2002). Technology, Geography, and Trade. *Econometrica*, 70(5):1741–1779.

Head, K., Jing, R., and Swenson, D. L. (2010). From Beijing to Bentonville: Do Multinational Retailers Link Markets? NBER Working Paper 16288.

NordÃs, H. K., Grosso, M. G., and Pinali, E. (2008). Market Structure in the Distribution Sector and Merchandise Trade. OECD Trade Policy Papers 68, OECD Publishing.