

With a Little Help from My Friends: Multinational Retailers and China's Consumer Market Penetration

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Abstract

We analyze the growing presence of multinational retailers and their role in Chinese imports. We identify the causal effect of foreign-retailer entry on local import intensity via sector- and origin-country level import data for a panel of Chinese cities between 1997 and 2012, and differentiate between retailer and non retailer goods. In a second step, we exploit information on the multinational retailers' headquarter countries. We find a relative rise in retail imports in cities with multinational retailers, which is sharper for imports from the retailer's country of origin. One additional multinational retailer store leads to a relative rise in the imports of retail goods of 3.4% compared to non-retail goods, rising to 6.7% for those from the multinational retailers' headquarter countries. This effect is mainly driven by food products, which is consistent with the appeal of Western gastronomy and the structuring role of own-brand products. Global retailers then act as a bridgehead for the penetration of the Chinese market by producers from their home country.

Keywords: Multinational retailers, China, Imports.

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1 Introduction

China is in the midst of an economic makeover aimed at rebalancing its economy through the increase of private domestic consumption. Consumption is replacing investment as China's main engine of economic growth, creating significant opportunities in the retail market. China overtook the United States in 2011 to become the world's largest market for grocery shopping. Penetrating the highly profitable and rapidly growing Chinese retail market is now even more the key objective for most Western producers and retailers.

Multinational hypermarkets were established only recently in China, but have developed very quickly. The number of foreign grocery retailers outlets in the Chinese market went from zero in 1995 to 126 in 2000 and reached 2,516 in 2014 (Planet Retail, 2014). The extent to which this expansion has helped producers from the retailers' home country to penetrate the Chinese consumer market is however unclear. Foreign retailers in China mainly propose locally-sourced products: 90% and 95% of the products offered in Chinese Carrefour and Walmart stores respectively are produced in China (Moreau, 2008). In contrast to the well-studied case of Mexico, foreign retailers in China do not bring a significant imports from their home country with them (Durand, 2007).

We here investigate the extent to which foreign global retailers can nevertheless act as bridgehead for the penetration of the Chinese market by their home exporters. Our empirical analysis relies on sector-country level import data for 286 cities over the 1997-2012 period.¹ We consider the five leading foreign grocery retailers in China (Auchan, Carrefour, Metro, Tesco and Walmart) and use a difference-in-differences specification. We rely on differences

¹China is divided into four municipalities (Beijing, Tianjin, Shanghai and Chongqing) and 27 provinces which are further divided into prefectures. As is common in the literature, we use the terms city and prefecture interchangeably, even though prefectures include both an urban and a rural part.

in the expected impact of international retailer presence between retailer and non-retailer goods to isolate a causal effect on imports. We furthermore investigate whether international global retail presence in Chinese cities produces a disproportionate rise in imports from the retailers' country of origin.

This paper contributes to the emerging literature on the economic implications in the home and host countries of overseas retail expansion. Most of the existing literature has focused on the impact of global retail on the host countries' economic performance. A first effect is local firm productivity: global retail chain entry has been shown to fuel productivity improvements in supplier firms in Romania (Javorcik and Li, 2013) and Mexico (Iacovone et al., 2015; Javorcik et al., 2008). A second channel is exports from the host economy: increased exposure to multinational retailers raises exports by enhancing the general export capabilities of the location (Head et al., 2014). In contrast, we here investigate whether the presence of multinational retailers affects host location imports, and thus consider additional ways in which retailers influence international trade. More specifically, one of our questions is whether international expansion by retailers contributes to their home countries' export competitiveness.

Our paper relates to the work on the importance of imports for retailers (Raff and Schmitt, 2015). Evidence from direct import activities by US retailers stresses that larger retail firms tend to import more, and that retailers are especially active in importing low-value products, predominantly from China (Bernard et al., 2010). Basker and Van (2010b) go beyond direct imports and identify a positive link between the growth of large retailers and that of imports of consumer goods across US sectors.² They show that the largest retail

²As their import data is only at the product level, they need to make a number of challenging assumptions

chains have a much greater propensity than smaller retailers to import from less-developed countries, first and foremost China, and that their greater sourcing of cheap (durable and semi-durable) products (especially from China) helps these large chain retailers dominate local retail markets. Our focus here is different since we look at Western retail presence in China, the country from which hypermarkets typically source a large share of their non-food products. In the specific context of China, the opening of Western hypermarkets is less likely to result in greater imports of non-food consumer products to be displayed on its shelves. China is hence a very good setting to identify more indirect channels through which multinational retailers contribute to the international opening of the domestic consumer market.

Our work hence contributes to the recent empirical evidence on the positive effects of a country's overseas retail presence on its exports to those markets. Cheptea et al. (2015a) consider bilateral agri-food exports for a large panel of countries over the 2000-2010 decade and find that higher sales by a retailer in a country are associated with more imports by that country from the retailer's home country. Two broad mechanisms can be at play here. First, the establishment or extension of operations abroad by a retailer from a given country reduces the export costs of the home-country firms exporting to these markets. Multinational retailers may continue to work with their domestic suppliers in their international operations. In addition, their foreign activities may generate informational externalities that benefit home-country exporters. Second, multinational retailers may influence consumer demand and give rise to new consumption behaviors. More generally, they can improve the global image of their home country among the population they serve and generate greater demand

to map imports to retail sub-sectors.

for goods (not only retail) originating from their home country.

Focusing on a single country like China, instead of an international panel of countries, is relevant for a number of reasons. First, the country's opening to multinational retail chains is recent, so that our analysis covers the emergence from scratch of the now largest retail market in the world. Second, using cross-regional data from a single country, instead of cross-country data, mitigates data-compatibility problems that are typical in cross-country regressions. Third, the large size of the country and the differences in entry timing of multinational retailers across cities provide substantial variation that we exploit to identify the causal effect of the presence of multinational retailers on imports.

Our analysis builds on recent efforts to address the problem of the endogenous location of multinational retailers. It seems likely that the timing and specific location choice of the opening of foreign hypermarkets in China were correlated with various broader economic variables, as well as specific ties with retailers' origin countries which likely affect import propensity. Foreign retailers clearly opened their first stores in well-developed regions, such as the Eastern metropolis of Shanghai, the busy port of Shenzhen or the capital Beijing. Another problem comes from reverse causality: greater trade openness affects the structure of the retail industry. Two recent theoretical models suggest that trade liberalization is associated with greater market concentration in retailing, so that large-scale and cost-effective chain retailers expand (Basker and Van, 2010a; Raff and Schmitt, 2012). We then risk over-estimating the positive effects that hypermarket opening have on imports.

Our main strategy to deal with endogeneity exploits variations in the expected impact of the opening of global retail chains by product categories and import origin. We hence consider the differences in the speed of expansion of the five leading foreign grocery retailers

across 286 cities, and the fact that retail goods should be more affected by hypermarkets. This allows us to include city-country-year fixed effects, and hence to control for all of the reasons behind the differential development of retail markets in a given location in a given year, and any bilateral-trade shocks between a city and its international partner.

Our main finding is a relative rise in imports following greater top five multinational retailer activity in China. This effect is economically significant: one additional Western retail store in a city brings about a relative rise in retail-product imports of 3.4%.

The second part of our analysis exploits information on the country of origin of imports. We find that multinational retailer presence in Chinese cities has produced a disproportionate rise in imports from the retailers' country of origin. This is in line with the results in Chepeta et al. (2015a), and suggests that retail expansion triggers various falls in transaction costs that specifically benefit home-country producers. Our results are robust to a variety of checks, including the inclusion of city-product-year fixed effects. As a falsification test, we re-estimate our model with processing imports, which consist of inputs to be processed in China before re-export. None of the estimated international store coefficients are significant here, suggesting that our findings do not simply reflect a general surge in retail imports in the cities chosen by multinational retailers.

We identify two of the mechanisms behind the rise in imports. First, we split the relative rise in retailer-good imports into food and non-food products, and find that the observed effect is magnified for the former. This is consistent with the appeal of Western gastronomy and hypermarkets' promotion of their national consumption habits. This may also reflect the long-lasting and trusting relationships between retailers and home-country food producers, as well as with the importance of own-brand products in food. Most multinational retailers

engage in an own-brand strategy. Own-brand products are supplied by firms that have to comply with private standards defined by retail companies and certified by a private independent entity. For example, Carrefour, Auchan and Metro use IFS (International Food Standard) certification to ensure the quality and safety of the products for which they have legal responsibility. This tight contractual relationship between retailers and suppliers may imply that these bilateral links persists throughout retail companies' international expansion.

Second, we look at the rise in imports separately for each of the top-five retailers, which differ in terms of the relative importance of own-brand products. The appeal of the different national food products is also not the same, and hence neither is the ability of retailers to shape local consumption habits. We find larger effects for German-based retailers, which is consistent with the reputation of the industrial sector of this country. The premium for food imports is greater for UK- and France-based retailers. The relative import gains for food are four times those for non-food, which is in line with the relative appeal of the food products from these two countries.

Overall, our results show that global retailers seem to act as a bridgehead for the penetration of the Chinese market by home-country producers.

The remainder of the paper is structured as follows. Section 2 describes the developments of multinational retailer activity in China and presents our measure of retailer presence in Chinese cities for the top-five multinational retailers. Section 3 describes the import data and the empirical specification relating import intensity and multinational retailer presence. Section 4 presents the results of the regression linking multinational retail presence and imports. Last, Section 5 concludes.

2 Multinational retailer activity in China

2.1 China's opening to multinational retailers

Western retailers expanded in China after 1995, following the deregulation of retailing in China (Wang and Zhang, 2006). The opening of China's retail market was gradual, with restrictions that forced multinational retailers to choose different entry locations. Up to 1995, only 11 designated zones³ could accept foreign retailers, with a maximum of two per zone (Head et al., 2014). These restrictions also applied to retailers from Greater China, i.e. Hong Kong, Macao and Taiwan. As a result Western retailers were forced to employ different strategies to locate their first hypermarket in mainland China. Our analysis takes advantage of the uneven exposure of Chinese cities to multinational retailers due to spatial differences in timing and extent.

As shown in Table 2, France-based Carrefour (the second-largest world retailer and the largest in the EU) stepped in first in 1995 with a hypermarket in Beijing. American Walmart (the world's largest retailer) and German Metro followed the next year with hypermarkets in Shenzhen and Shanghai respectively. UK-based Tesco entered in 1998 and France-based Auchan in 1999, both opening in Shanghai.

Table 2 reports the main characteristics of the Western retailers. It lists the year and location of entry in China, and provides information on sales and store numbers to show their relative presence in China. In 2010, Auchan and Carrefour accounted for 13.3 and 10.4% respectively of Chinese hypermarket grocery retail sales. Walmart is third with 10.4%,

³Six cities (Beijing, Shanghai, Tianjin, Guanzhou, Dalian, and Qingdao) and five Special Economic Zones (Shenzhen, Zhuhai, Shantou, Xiamen and Hainan).

followed by Metro and Tesco with 3.5% each (Planet Retail, 2014). These market shares are significant, even in comparison with those of Chinese retailers. Two Chinese retailers stand out: the China Resources group (Vanguard hypermarkets) and the Lianhua company (Century Mart, Lianhua and Hualian brands). These accounted for respectively 26% and 22% of 2010 Chinese hypermarket grocery sales (Retail planet, 2014).

2.2 Retail store distribution

The annual store distribution of each of the five multinational retailers was collected from various websites. The two main sources are the retailers' websites and the Chinese web site *linkshop*.⁴ We measure retailers presence as the hypermarket store count for each retailer in a location.⁵

Figure 1 shows that the timing and extent of multinational retailer presence vary across Chinese cities. Comparing 1997 to 2012 highlights the rapid growth in the number of stores of the top five multinational retailers in China. In 1997, the first year of our sample, retailer activities were very limited and concentrated in a few, mostly coastal, cities. By 2012, the last year in our sample, the number of hypermarkets had expanded to 858, including inland locations.

⁴The Chinese website <http://www.linkshop.com.cn/> focuses on the retail industry.

⁵Following the literature we only consider the big-box retail format that sells the widest range of retail goods and omit specialty and convenience stores, as they differ in product coverage and have much smaller sales areas (Head et al., 2014).

3 Empirics

3.1 Import flows

We use Chinese customs data from 1997 to 2012. China’s import flows are listed by foreign country of origin and destination city in China. Chinese customs regulations require importers to report the place of consumption of their imports, which may differ from the port of entry or the location of the importing firm. We use 4-digit (prefecture-level city) location information. We observe import flows by detailed product classification (Harmonized System 6-digit) and by trade regime (ordinary or processing trade).⁶ We aggregate HS6 products into retail or non retail categories by HS2. Our analysis relies on the fact that only retail good imports under the ordinary regime should be affected by the chains’ presence. Our baseline results hence exclude processing activities. We re-estimate our main specifications with processing imports as a falsification test and find no significant effect of multinational retailer presence on the local relative import intensity of processing activities.

We use the Broad Economic Categories (BEC) classification of goods to identify products representing retailer goods. These include food products for household consumption, corresponding to primary and processed food and beverages (categories 111 and 112) and non-food products, corresponding to semi-durable and non-durable consumer goods (categories 62 and 63). Our dataset is constructed to differentiate between three categories of products in bilateral imports by a Chinese city from a country of a HS2 sector. The first two categories include products offered in the big-box retail format of multinational

⁶Processing sector operations involve importing inputs to process them in China and re-exporting the final products.

retailers (food and non-food products). The third category includes non-retailer goods and constitutes the control group in our regressions.⁷ We hence generate a panel of city-product-country-year observations where products refer to a given category at the HS2 level. We obtain a nomenclature of 159 products across 97 HS2 chapters.

3.2 Empirical specification

Our empirical analysis asks whether greater multinational retailer presence boosts local imports. Specifically, we see whether differences in retailer good relative import growth across Chinese cities are linked to the uneven geographical expansion of global retailers in China. We identify the causal import effect of multinational retailer presence by using sector and destination-country level import data for a panel of Chinese cities, and rely on the fact that only retail-good imports should be affected by the chains' presence. In a second step, we exploit information on the multinational retailers' headquarter countries, so that our identification exploits variations in the expected impact of multinational retailers both by product and import country of origin.

We estimate the following equation on our panel of product-level bilateral import data for 286 cities over 1997-2012:

$$\ln \text{Imports}_{ipct} = \beta \text{Western Retail Stores}_{it} \times \text{Retail}_p + \lambda_{ipc} + \mu_{pct} + \nu_{ict} + \epsilon_{ipct} \quad (1)$$

where Imports_{ipct} denotes imports of product p by city i from country c in year t .⁸ Our

⁷In 1997, retail goods constituted 2.5% of imports in the 286 cities in our sample. This proportion rose to 3.2% in 2012.

⁸Our dataset is constructed to provide observations every year from 1997 to 2012 on any city i , country c and product p triad which recorded a positive import flow at some point over this period. Some import figures will thus be zero in some years. The dependent variable is $\ln(1+\text{Imports}_{ipct})$, so as to include these

sample contains 159 products, defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) in an HS2 category. Our explanatory variable of interest is Western Retail Stores $_{it}$, which is the number of hypermarkets established in city i by the five top global retailers: Auchan, Carrefour, Metro, Tesco and Walmart. We focus on the interaction between this measure and the retailer goods dummy (Retail $_p$). This latter equals one for food and non-food retailer goods within HS2 groups.

Our specification includes city-product-country fixed effects, λ_{ipc} , to account for specialization patterns at the bilateral level. A city may have a natural inclination to import specific goods from a given international source for historical reasons or the presence of immigrants from that country. Product-country-year fixed effects, μ_{pct} , are further introduced to capture country-level variations in the supply of goods to the Chinese market over time. These account for shocks that are common to all cities relating to the international links between China and its partners, whether they are product-specific (tariffs) or not (exchange rate movements).

We further control for time-varying city-specific factors by including a set of city-year fixed effects. These pick up the uneven economic development and retail-market regulations across Chinese cities, and control for shocks to market conditions in a given location that affect the demand for all products in the city equally. Most importantly, they eliminate any simultaneity bias that might arise from the endogenous location of multinational chains. Our baseline specification allows for city-year dummies varying by import origin country, ν_{ict} . Doing so helps to distinguish the impact of foreign retail chains from general shocks to the bilateral links between a city and a foreign country. Our findings do not then solely reflect zero import figures.

the repercussions of foreign direct investment in city i from country c . Note that were the impact of global retailers to be to familiarize local consumers with the overall reliability and quality of imported goods, or even to promote the specific global image of the retailers' home country, then this would be picked up in our city-country-year fixed effects. Our specification hence focuses on the differential response of retail product imports.

In the presence of those fixed effects our key parameter β in Equation 1 captures whether the growing number of hypermarkets affects the local relative import propensity for retail goods. To see whether the import impact is specific to the retailers' home country, we exploit import origin and interact our variable of interest, the interaction $\text{Western Retail Stores}_{it} \times \text{Retail}_p$, with a dummy for the imports originating from the headquarter country of the locally-established multinational retailers. Our empirical strategy to identify the causal effect of multinational retailing on imports thus amounts to a triple difference, which focuses on a greater relative rise in retail imports in cities with multinational retailers for imports from the retailer's country of origin. We include city-product-year fixed effects, which allow us to improve the identification of the impact with respect to potential endogeneity. We also zoom in on the products that are the most likely to benefit from the expansion of Western retailers, food products for household consumption, and interact our multinational-retailer presence measure with dummies for retail food products and retail non-food products.

Last, we estimate retailer-specific effects and include the number of hypermarkets (and their interactions) for the four main countries (France, Germany, the UK and the US) simultaneously.

We cluster standard errors at the location level to take into account that retail presence is measured at the city-level (although it is time-varying) and address potential serial

correlation (Bertrand et al., 2004).

4 Results

4.1 Baseline

Table 4 reports our baseline estimates. In columns 1 and 2, we estimate Equation 1 without city-country-year fixed effects, ν_{ict} , to assess the overall association between city import intensity and the number of multinational retailers. Column 2 adds the key interaction between Western retail presence and the retail goods dummy. The coefficients on multinational retailers and its interaction with the dummy for retail goods are both positive and significant. There is thus a rise in imports following the expansion of Western hypermarkets, which is faster for retail goods. Column 3 adds city-year fixed effects, causing the number of Western retail stores to drop out. The city-year fixed effects pick up time-varying city-level demographic and economic conditions that may affect both city-level imports and multinational retailers' location choice. These fixed effects also control for any effect from the local presence of domestic retailer chains.

Compared to column 2, the point estimate of our key parameter β on the interaction between multinational retailers and the retail goods dummy is larger, rising from 0.026 to 0.031 (although the difference is not statistically significant). Column 4 shows our benchmark specification from Equation 1 with city-country-year fixed effects. Controlling for these time-varying bilateral factors that are common to all goods does not affect the size and significance of β : Western retail expansion has brought about a relative rise in imports for the goods

offered in hypermarkets. One additional multinational retail store causes a 3.4% relative rise in local retail-good import intensity.

Table 5 proposes a number of robustness checks. Column 1 excludes imports flows from Hong Kong, Taiwan and Macao. These Greater China territories, especially Hong Kong, play a particular role in intermediating trade between China and the rest of the world (Feenstra and Hanson, 2004). Part of the imports originating from these well-known “entrepot” and import-export platforms may in fact be re-imported Chinese goods. Excluding the 100,000 observations corresponding to imports from these three partners does not change our estimates. Column 2 excludes import flows from countries without global retail chains, and column 3 those from cities in the West of China. The Western part of China differs significantly from the rest of the country: it is poorer, less urbanized and virtually without any foreign hypermarkets. Removing these different countries or cities does not change our results.

Column 4 carries out a falsification test by re-estimating our baseline specification with processing imports (imports of goods for processing in China prior to re-export) instead of ordinary imports. We may worry that our measured rise in imports associated with multinational retailers reflects unobserved shocks at the city-product-country level that are correlated with both imports and the location choice of multinational retailers. These shocks should apply to both processing and ordinary activities, but no processing-activity import gains should come from the greater presence of foreign hypermarkets. None of the estimated Western retail store coefficients significantly predict processing imports: our results do not reflect a general relative retail import rise in the cities where the multinational retailers locate.

4.2 Bilateral effects

We find that multinational retailer presence increases the local relative propensity to import retail goods. We expect a larger rise for imports from retailer headquarter countries for a number of reasons. First, the presence of hypermarkets from the home country may reduce export trade costs, by lowering the costs of market prospecting, information and logistics. Second, home-country exporters may benefit from changing consumer preferences in multinational retailer cities. Third, multinational retailers may have particular links to their home suppliers and continue to work with them in their international operations.

This subsection investigates whether the effects from retailer presence at the city level on imports differ for those from multinational retailer headquarter countries. We thus test whether Chinese imports from France are correlated with the geographic spread of Carrefour and Auchan in China, and imports from Germany, the United Kingdom and the US are in turn linked to the geographic spread of Metro, Tesco, and Walmart. To do so, we refine Equation 1 and further interact our two key variables $\text{Western Retail Stores}_{it}$ and $\text{Western Retail Stores}_{it} \times \text{Retail}_p$ with a dummy for the imports originating in the local hypermarket's headquarter country. Hence if Metro and Carrefour are both present in city i , the dummy Home_c is 1 for imports from France and Germany.

Column 1 of Table 6 adds the $\text{Western Retail Stores}_{it} \times \text{Home}_c$ and $\text{Western Retail Stores}_{it} \times \text{Retail}_p \times \text{Home}_c$ interaction terms to the specification in column 3 of Table 4. Both terms attract positive significant coefficients, showing that the relative rise in retail imports in cities with multinational retailers is twice as large for imports from the retailer's home country. These findings are not affected by city-product-year fixed effects, which control for all

the time-varying factors behind the local import propensity in Column 2. One additional multinational retailer is estimated to produce a relative rise in retail good imports of 5.3% from the multinational retailers' headquarter countries.

Finding that multinational retailer presence in Chinese cities yields a disproportionate rise in imports from the retailer's home country matches the finding in Cheptea et al. (2015a, b) that retailer expansion produces lower transaction costs that particularly benefit home-country producers, and especially firms supplying the retailer. Foreign-retail expansion also generates positive externalities, either informational or reputational, for producers from the same country. Our results nevertheless suggest that the relative rise in retail-good imports is not limited to the retailers from the home country. This is consistent with the top five retailers familiarizing local consumers with imported products, and generating new demand for foreign products going beyond brands from their home country.

Column 3 considers the difference between food and non-food products to assess the retailers' capacity to shape local consumption habits. The main difference in the retail products displayed on hypermarket shelves relates to food products. Carrefour and Auchan, for example, offer a variety of French wines and alcoholic beverages, pastries and dairy products, while Tesco proposes UK-manufactured biscuits, crisps, breakfast cereals and curries. We can then assume that the impact of retail chains on city-level imports from the retailer's home country is greater for food products. This import-creating effect may reflect three complementary channels. The first is the direct sale of food products in hypermarket aisles, the second is a supply-side effect making it easier for food producers to export to China, while the third corresponds to demand changes prompting Chinese consumers to demand imported food products from the retailer's home country.

We build on our previous difference-in-difference approach comparing retail goods to other products not offered in hypermarkets to investigate the specific effects for food and non-food products separately.

We use two dummies, Food_p and Non Food_p , for the type of goods available for sale in hypermarkets and interact them with the interaction between the city-level count of Western retail stores and the Home_c dummy. Both interaction terms attract positive and significant coefficients, the triple interaction $\text{Western Retail Stores}_{ict} \times \text{Food}_p \times \text{Home}_c$ entering with a coefficient which is twice as large as that on $\text{Western Retail Stores}_{ict} \times \text{Non Food}_p \times \text{Home}_c$. As such, our previous retailer relative import expansion from the headquarter country is mainly driven by the food sector. The 5.3% relative rise in imports from an additional international retailer in Chinese cities decomposes into a 10.6% rise for food products and 3.5% for non-food products. This hierarchy is consistent with the appeal of Western gastronomy.

Table 7 performs robustness checks similar to those in Table 5 on the specification from column 3 of Table 6. Column 1 excludes import flows from Hong Kong, Taiwan and Macao, as Greater China may play a particular trade role. Column 2 excludes import flows from countries without global retail chains to check that our results on the import gains from retailer-headquarter countries are not driven by countries that are not part of the major global retailers' international store networks. Column 3 excludes Western cities to ensure that the results do not solely emanate from a difference between cities with and without international retailing. Column 4 runs our falsification test based on processing activities, as we expect retail expansion to only affect retail goods imported under the ordinary regime. The import-promoting effect of global retailers, which is magnified for food products from the home country remains. Hence while the growing presence of global retail promotes the

local relative propensity to import retail goods in general, it seems to act as a bridgehead for the penetration of the Chinese market by food producers from the home country.

4.3 Retailer-specific effects

This last subsection considers retailer-specific effects. The import promotion effect of retail companies, and notably the relative gains for food and non-food products, may differ by the country where the chain is headquartered, due to different product specialization. For example, whereas food products represent 5.5% of Chinese imports from France, they amount to only 0.7% of imports from Germany.

Table 8 follows the specification of column 3 of Table 6, distinguishing the impact of Western hypermarkets on imports by retail chain. Tesco Stores_{it} , Metro Stores_{it} , $\text{Walmart Stores}_{it}$ and $\text{Carrefour-Auchan Stores}_{it}$ are respectively the count of Tesco, Metro, Walmart and Carrefour-Auchan hypermarkets in city i at year t .⁹ Columns 1 and 3 display the results without city-product-year fixed effect, while columns 2 and 4 include them. Columns 3 and 4 perform robustness checks and exclude flows corresponding to beverages (Chapter 22 of the Harmonized System), as these products represent a large share of Chinese imports from Western countries, in particular France (67%), and to a lesser extent Germany (23%) and Great Britain (16%).

The impact of retailer presence on imports differs by retail chain. French retail stores (Carrefour and Auchan) produce a relative rise in retail imports (food and non-food), whatever the goods' origin, as shown by the positive coefficient on the interactions $\text{Carrefour-Auchan Stores}_{ict}$

⁹Carrefour and Auchan stores are counted together, as they are both French retail chains and follow the same supply strategy

$\times \text{Food}_p$ and $\text{Carrefour-Auchan Stores}_{ict} \times \text{Non food}_p$. Walmart stores also have a positive effect on city-level imports of non-food goods in hypermarkets, while Tesco and Metro stores only have an impact on imports of retail (food and non-food) goods when they originate from the home country.

Considering bilateral effects, the interactions $\text{Food}_p \times \text{Home}_c$ and $\text{Non Food}_p \times \text{Home}_c$ attract positive coefficients for all three European retailers. By contrast there is no evidence of an import-promotion effect from Walmart for food and non-food goods imported from the US. This result is robust to the exclusion of beverages and hence is not limited to French wine, British whisky or German beers. While we find greater import-boosting effects for Germany-based retailers, there is no significant difference between the repercussions for food and non-food products. This is consistent with the superior performance of the German industrial sector but a less-pronounced international recognition of German gastronomy. The greatest relative premia for food imports are found for UK and French retailers. The relative import gains for food are four times those for non-food, which is in line with the relative appeal of food products from these two countries.

The significant impact of retail stores on imports from their country of origin for Auchan, Carrefour, Metro and Tesco is in line with the appeal of their national food products and with their strategy in terms of product offer. These chains have been engaged for many years now in an own-brand strategy, and own-brand products now represent a considerable part of their of hypermarket sales, in particular for food products (43% for Tesco, 30% for Carrefour and Auchan on average). Metro has also more recently developed (in 2009) its own brand. To offer own-brand products, retail chains implement contractual relationship with their suppliers and ensure the quality and safety of products through particular private

certification labels. Difficulties in finding local suppliers who can satisfy the requirements of these standards may lead retail chains to keep their traditional suppliers for the offer of their own-brand products in their international stores (Reardon 2007). The importance of own-brand products has a structural effect on hypermarkets' sourcing strategies. For example, Cheptea et al. (2015b) show that the benefits of French overseas retail expansion on French agrifood exports are reaped by the retailers's domestic suppliers, which have private retail certification.

In addition, to capitalize on the appeal of French food, Carrefour offers, as well as the classic Carrefour-branded goods, more than 200 food products and 40 wines under the label "Reflets de France" in international markets.¹⁰ These products developed via long-lasting and trusting relationships between the French retailer and many home-country food producers are proposed in China-based Carrefour stores for Chinese consumers to discover French gastronomy. Auchan has a similar strategy and proposes French regional products under the label "Les Produits Régionaux" and some gourmet products beside the basic Auchan-branded goods. Tesco has no such label, but proposes products with British characteristics, especially those sold under Tesco Finest, the retailer's premium range of branded goods. These particularities are likely to encourage imports from France and the UK in order to have these typical French and British products in Chinese stores. This may also improve the reputation of French and British gastronomy, providing wide benefits for these countries' food products. Although Walmart also proposes a premium retail brand, called Sam's Choice, this covers a wide range of food products with little national gastronomic positioning, which

¹⁰Set up in 1996, Reflets de France (<http://www.refletsdefrance.com/>) offers high-quality local products from French regional producers including cheese, charcuterie, canned goods and wine. This label is a retail brand, but the products do not show the retail name on their packaging.

may explain why we find a small and non-robust effect of Walmart hypermarkets on food imports from all origins, as well as specifically from the US.

5 Conclusion

This paper assesses whether multinational-retailer expansion has facilitated consumer-market penetration in China. Exploiting data on the five largest western retailers in China (Auchan, Carrefour, Metro, Tesco and Walmart) we find that imports of retail goods rise in locations with more foreign hypermarkets. This relative rise in retail imports in cities with multinational retailers is sharper for imports from the retailer's country of origin. The observed effect is mainly driven by food products, which is consistent with the appeal of Western gastronomy and the structural role of own-brand products which entail privileged links of retailers with their traditional home-country suppliers as they expand in China. Our results suggest that global retailers act as a bridgehead for the penetration of the Chinese market by producers from their home country.

References

- Basker, Emek, Shawn Klimek and Pham Hoang Van, 2012, Supersize It: The Growth of Retail Chains and the Rise of the “Big Box” Store, *Journal of Economics and Management Strategy*, 21 (3), Fall, 541-582
- Basker, Emek and Pham Hoang Van, 2010a, Imports ”R” Us: Retail Chains as Platforms for Developing-Country Imports, *American Economic Review (Papers and Proceedings)*, 100 (2), May, 414-418
- Basker, Emek, Shawn Klimek and Pham Hoang Van, 2010b, Putting a Smiley Face on the Dragon: Wal-Mart as Catalyst to U.S.-China Trade, revised version of University of Missouri Department of Economics Working Paper 07-10.
- Bernard, Andrew, J. Bradford Jensen, Stephen J. Redding, and Peter K. Schott, 2010, Wholesalers and Retailers in U.S. Trade. *American Economic Review*, 100, 408-13.
- Bertrand, Marianne, Esther Duflo and Sendhil Mullainathan, 2004, How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics*, 119 (1), 249-275.
- Cheptea, Angela, Charlotte Emlinger and Karine Latouche, 2015a, Multinational Retailers and Home Country Food Exports, *American Journal of Agricultural Economics*, 97 (1), 159-179.
- Cheptea Angela, Charlotte Emlinger and Karine Latouche, 2015b, Do exporting firms benefit from retail internationalization? Evidence from France. CEPII Working Paper

2015-21.

Durand, Cédric, 2007, Externalities from foreign direct investment in the Mexican retailing sector, *Cambridge Journal of Economics*, 31 (3), 393-411.

Feenstra, Robert and Gordon Hanson, 2004, Intermediaries in Entrepot Trade: Hong Kong Re-Exports of Chinese Goods, *Journal of Economics & Management Strategy*, 1, 3-35.

Head, Keith, Ran Jing and Deborah Swenson, 2014, From Beijing to Bentonville: Do Multinational Retailers Link Markets?, *Journal of Development Economics* 110, 79-92.

Javorcik Beata and Yue Li, 2013, Do the Biggest Aisles Serve a Brighter Future? Global Retail Chains and Their Implications for Romania, *Journal of International Economics*, 90 (2), 348-363.

Javorcik, Beata, Wolfgang Keller and James Tybout, 2008, Openness and industrial response in a Wal-Mart world: a case study of mexican soaps, detergents and surfactant producers, *The World Economy*, 31 (12), 1558-80.

Iacovone Leonardo, Beata Javorcik, Wolfgang Keller and James Tybout, 2015, Supplier Responses to Walmart's Invasion in Mexico, *Journal of International Economics*, 95 (1), 1-15.

Moreau, Raphael, 2008, Retail in practice, *The Retail Digest*, March 22, 42-45.

Planet Retail, 2014, China Country Profile. <http://www1.planetretail.net/>.

Raff, Horst and Nicolas Schmitt, 2012, Imports and the Structure of Retail Markets, *Canadian Journal of Economics*, 45 (4), 1431-55.

Raff, Horst and Nicolas Schmitt, 2015, Retailing and international trade: A survey of the literature, Christian-Albrechts-Universitt Kiel, Department of Economics Working Paper 2015-02.

Wang, Shuguang and Yongchang Zhang, 2006. Penetrating the Great Wall, conquering the Middle Kingdom: Wal-Mart in China. Wal-mart World? The World's Biggest Corporation in the Global Economy. Routledge, Taylor & Francis Group, New York, NY, pp. 293-313.

Table 1: Data source of hypermarket locations

Retailer	Source
Auchan	http://www.linkshop.com.cn/web/archives/2014/280981.shtml
Carrefour	http://www.carrefour.com.cn/Store/Store.aspx
Metro	http://www.metro.com.cn/public/home-cn/our_store
Tesco	http://www.cn.tesco.com/Stores_index.html
Walmart	http://www.wal-martchina.com/walmart/wminchina_map.htm

Table 2: Information on Western retail chains

Western Hypermarket chain	Country of origin	Year of entry	Location of entry	Market share in 2010	Number of Hypermarkets in 2012
Auchan	France	1999	Shanghai	13.3%	56
Carrefour	France	1995	Beijing	10.4%	226
Metro	Germany	1996	Shanghai	3.4%	64
Tesco	UK	1998	Shanghai	3.4%	111
Walmart	USA	1996	Shenzhen	10.4%	401

Market shares in 2010 are calculated using information on grocery sales from Planet retail.

Table 3: Summary statistics

Variable	Year	Obs with Zero value	Positive value				
			Obs	Mean	Std. Dev.	Min	Max
Western Retail Stores _{it}	1997	260	7	1.57	1.13	1	4
Western Retail Stores _{it}	2012	135	149	5.51	9.57	1	80

Table 4: Baseline specification: retailer expansion and imports

Dependent variable	ln Imports _{<i>ipct</i>}			
	(1)	(2)	(3)	(4)
Western Retail Stores _{<i>it</i>}	0.058 ^a (0.004)	0.050 ^a (0.005)		
Western Retail Stores _{<i>it</i>} × Retail _{<i>p</i>}		0.026 ^a (0.005)	0.031 ^a (0.004)	0.034 ^a (0.005)
Observations	4,082,737	4,082,737	4,082,737	4,082,737
R-squared	0.579	0.579	0.589	0.635
City-Product-Country fixed effects	Yes	Yes	Yes	Yes
Product-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Year fixed effects	No	No	Yes	-
City-Country-Year fixed effects	No	No	No	Yes

Heteroskedasticity-robust standard errors clustered at the city level appear in parentheses. Imports_{*ipct*} denotes imports of product *p* in city *i* from country *c* in year *t*. Products are defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) within an HS2 category. ^a, ^b and ^c indicate significance at the 1%, 5% and 10% confidence levels.

Table 5: Retailer expansion and imports: robustness checks

Dependent variable	ln Imports _{<i>ipct</i>}			
	Excluding Greater China origins (1)	Excluding countries w/o retailers (2)	Excluding Western cities (3)	Processing activities (4)
Western Retail Stores _{<i>it</i>} × Retail _{<i>p</i>}	0.034 ^a (0.005)	0.035 ^a (0.005)	0.035 ^a (0.005)	-0.001 (0.003)
Observations	3,790,297	3,379,267	3,694,303	566,767
R-squared	0.633	0.632	0.639	0.814
City-Product-Country fixed effects	Yes	Yes	Yes	Yes
Product-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Country-Year fixed effects	Yes	Yes	Yes	Yes

Heteroskedasticity-robust standard errors clustered at the city level appear in parentheses. Imports_{*ipct*} denotes imports of product *p* in city *i* from country *c* in year *t*. Products are defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) within an HS2 category. Column 1 excludes import flows from Hong Kong, Taiwan and Macao. Column 2 excludes import flows from countries without global retail chains. Column 3 excludes Western Chinese cities. In contrast to our baseline regressions on ordinary trade transactions, in column 4 imports correspond to processing activities. ^a, ^b and ^c indicate significance at the 1%, 5% and 10% confidence levels.

Table 6: Country-specific effects: retailer expansion and imports

Dependent variable	ln Imports _{<i>ipct</i>}		
	(1)	(2)	(3)
Western Retail Stores _{<i>it</i>} × Retail _{<i>p</i>}	0.032 ^{<i>a</i>} (0.005)		
Western Retail Stores _{<i>it</i>} × Retail _{<i>p</i>} × Home _{<i>c</i>}	0.035 ^{<i>a</i>} (0.010)	0.053 ^{<i>a</i>} (0.010)	
Western Retail Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}			0.106 ^{<i>a</i>} (0.023)
Western Retail Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}			0.035 ^{<i>a</i>} (0.013)
Observations	4,082,737	4,082,737	4,082,737
R-squared	0.635	0.685	0.685
City-Product-Country fixed effects	Yes	Yes	Yes
Product-Country-Year fixed effects	Yes	Yes	Yes
City-Country-Year fixed effects	Yes	Yes	Yes
City-Product-Year fixed effects	No	Yes	Yes

Heteroskedasticity-robust standard errors clustered at the city level appear in parentheses. Imports_{*ipct*} denotes imports of product *p* in city *i* from country *c* in year *t*. Products are defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) within an HS2 category. ^{*a*}, ^{*b*} and ^{*c*} indicate significance at the 1%, 5% and 10% confidence levels.

Table 7: Country-specific effect: robustness checks

Dependent variable	ln Imports _{<i>ipct</i>}			
	(1)	(2)	(3)	(4)
Sample	No Greater China origins	No countries w/o retailers	No Western cities	Processing activities
Western Retail Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}	0.107 ^{<i>a</i>} (0.023)	0.104 ^{<i>a</i>} (0.022)	0.112 ^{<i>a</i>} (0.022)	0.006 (0.043)
Western Retail Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}	0.038 ^{<i>a</i>} (0.014)	0.035 ^{<i>a</i>} (0.013)	0.034 ^{<i>b</i>} (0.013)	-0.028 (0.021)
Observations	3,790,297	3,379,267	3,694,303	566,767
R-squared	0.686	0.687	0.687	0.869
City-Product-Country fixed effects	Yes	Yes	Yes	Yes
Product-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Product-Year fixed effects	Yes	Yes	Yes	Yes

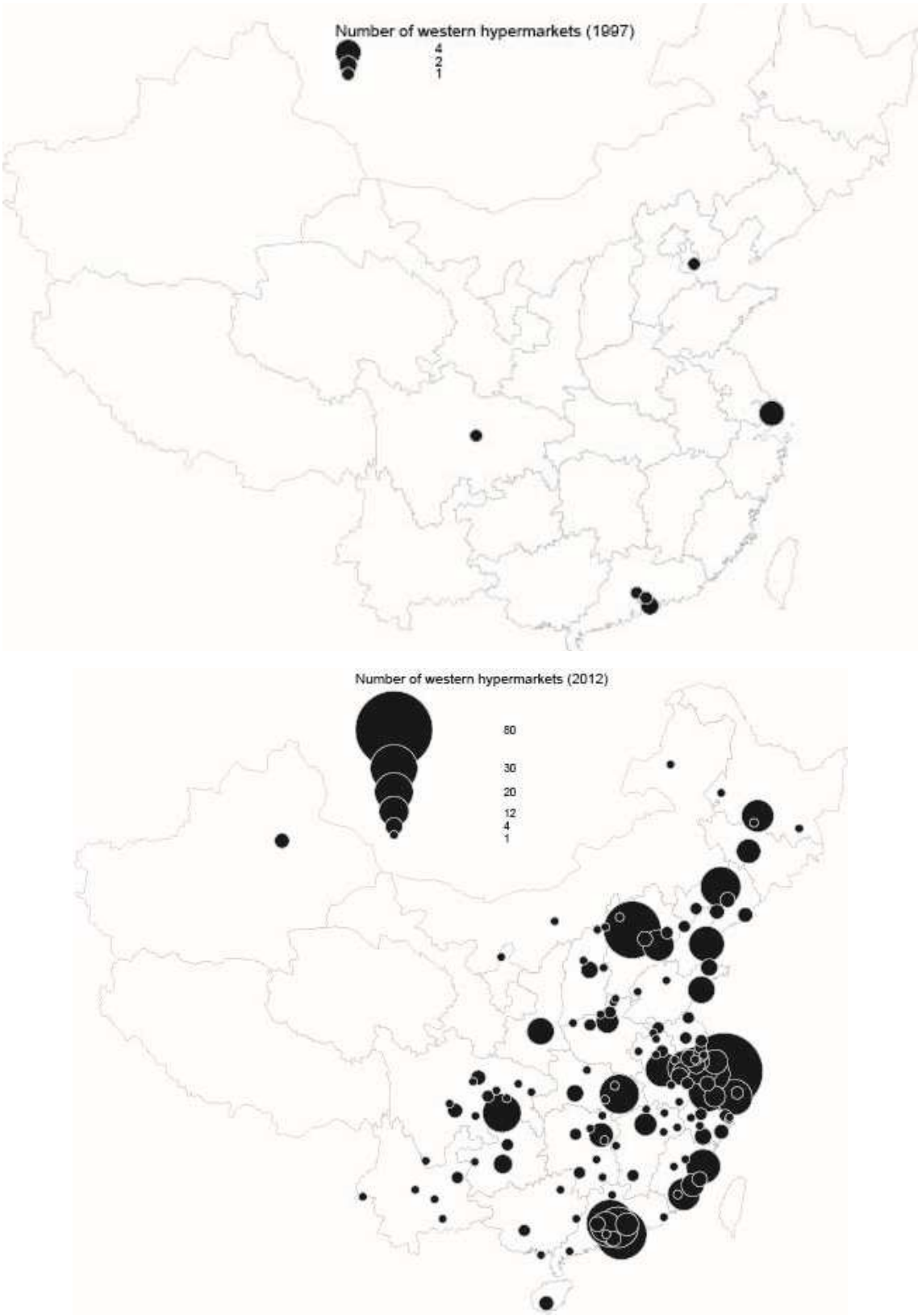
Heteroskedasticity-robust standard errors clustered at the city level appear in parentheses. Imports_{*ipct*} denotes imports of product *p* in city *i* from country *c* in year *t*. Products are defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) within an HS2 category. Column 1 excludes import flows from Hong Kong, Taiwan and Macao. Column 2 excludes import flows from countries without global retail chains. Column 3 excludes Western Chinese cities. In contrast to our baseline regressions on ordinary trade transactions, in column 4 imports correspond to processing activities. ^{*a*}, ^{*b*} and ^{*c*} indicate significance at the 1%, 5% and 10% confidence levels.

Table 8: Country and company specific effects: retailer expansion and imports

Dependent variable	ln Imports _{<i>ipct</i>}			
	(1)	(2)	(3)	(4)
Sample	All products		W/o beverages	
Carrefour-Auchan Stores _{<i>it</i>} × Food _{<i>p</i>}	0.076 ^b (0.035)		0.083 ^b (0.036)	
Carrefour-Auchan Stores _{<i>it</i>} × Non Food _{<i>p</i>}	0.057 ^a (0.015)		0.057 ^a (0.015)	
Carrefour-Auchan Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}	0.123 ^a (0.021)	0.127 ^a (0.023)	0.138 ^a (0.025)	0.142 ^a (0.027)
Carrefour-Auchan Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}	0.002 (0.013)	0.029 ^c (0.016)	0.001 (0.013)	0.028 ^c (0.016)
Walmart Stores _{<i>it</i>} × Food _{<i>p</i>}	-0.063 ^c (0.032)		-0.084 ^a (0.032)	
Walmart Stores _{<i>it</i>} × Non Food _{<i>p</i>}	0.047 ^a (0.011)		0.047 ^a (0.011)	
Walmart Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}	0.056 ^c (0.030)	0.055 (0.036)	0.068 ^b (0.032)	0.066 ^c (0.039)
Walmart Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}	0.010 (0.017)	0.028 (0.018)	0.011 (0.017)	0.029 (0.018)
Tesco Stores _{<i>it</i>} × Food _{<i>p</i>}	0.040 (0.038)		0.047 (0.039)	
Tesco Stores _{<i>it</i>} × Non Food _{<i>p</i>}	-0.010 (0.017)		-0.010 (0.017)	
Tesco Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}	0.231 ^a (0.036)	0.227 ^a (0.040)	0.242 ^a (0.035)	0.242 ^a (0.037)
Tesco Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}	0.022 (0.020)	0.051 ^b (0.025)	0.023 (0.020)	0.051 ^b (0.025)
Metro Stores _{<i>it</i>} × Food _{<i>p</i>}	0.033 (0.099)		0.052 (0.101)	
Metro Stores _{<i>it</i>} × Non Food _{<i>p</i>}	0.008 (0.038)		0.007 (0.038)	
Metro Stores _{<i>it</i>} × Food _{<i>p</i>} × Home _{<i>c</i>}	0.435 ^b (0.184)	0.524 ^a (0.197)	0.556 ^a (0.196)	0.677 ^a (0.212)
Metro Stores _{<i>it</i>} × Non Food _{<i>p</i>} × Home _{<i>c</i>}	0.186 ^b (0.083)	0.281 ^a (0.090)	0.191 ^b (0.085)	0.286 ^a (0.092)
Observations	4082737	4082737	4047382	4047382
R-squared	0.635	0.685	0.635	0.685
Additional control variables	Carrefour-Auchan Stores _{<i>it</i>} × Home _{<i>c</i>} , Walmart Retail Stores _{<i>it</i>} × Home _{<i>c</i>} Tesco Stores _{<i>it</i>} × Home _{<i>c</i>} , Metro Stores _{<i>it</i>} × Home _{<i>c</i>} , Asian Retail Stores _{<i>it</i>} × Home _{<i>c</i>}			
City-Product-Country fixed effects	Yes	Yes	Yes	Yes
Product-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Country-Year fixed effects	Yes	Yes	Yes	Yes
City-Product-Year fixed effects	No	Yes	No	Yes

Heteroskedasticity-robust standard errors clustered at the city level appear in parentheses. Imports_{*ipct*} denotes imports of product *p* in city *i* from country *c* in year *t*. Products are defined as categories (non-retailer goods, retailer food goods and retailer non-food goods) within an HS2 category. Columns 3 and 4 exclude imports from the beverage sector (chapter 22). ^a, ^b and ^c indicate significance at the 1%, 5% and 10% confidence levels.

Figure 1: Number of hypermarkets of the five leading international retailers in China, 1997 and 2012



The number of hypermarkets is the total store count by location of the five Western retailers considered here (Auchan, Carrefour, Metro, Tesco and Walmart).