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**Working Paper**

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Economics Working Paper, No. 2015-02

**Provided in Cooperation with:**

Christian-Albrechts-University of Kiel, Department of Economics

Suggested Citation: Raff, Horst; Schmitt, Nicolas (2015) : Retailing and international trade: A survey of the literature, Economics Working Paper, No. 2015-02

This Version is available at:

<http://hdl.handle.net/10419/107704>

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Christian-Albrechts-Universität zu Kiel

Department of Economics

Economics Working Paper  
No 2015-02

# retailing and international trade: a survey of the literature

by Horst Raff and Nicolas Schmitt

issn 2193-2476



# **Retailing and International Trade: A Survey of the Literature**

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## **Abstract**

This paper reviews the literature on how retailers, by their individual behavior or as a group, influence international trade flows, and on how trade affects the structure of the retail industry. After reviewing the evidence, we discuss theoretical contributions set in an oligopolistic, game-theoretic framework. An important message coming from these contributions is that when trade liberalization occurs, there is a strong incentive to use vertical restraints to soften price competition in order to mitigate the pro-competitive impact of trade liberalization. We then review contributions that consider retailing at the industry level to discuss what we know about the impact of trade liberalization on structural changes in retailing, such as changes in market concentration and the size distribution of retail firms, on retailers' assortments and even on upfront payments by manufacturers, such as slotting allowances, to gain access to retail shelves. We conclude by discussing some directions for future research.

**Keywords:** retailing, international trade, vertical restraint

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## 1. Introduction

Retailers no longer simply distribute and sell products that they buy from wholesalers while adding little value for their customers and suppliers. Today most retailers provide a variety of services and a much wider range of products to consumers than in the past, often deal directly with suppliers, help manufacturers promote their products, set product standards, specify designs, and provide suppliers with information about consumer behavior and tastes (Nordas, 2008). In short they play a very active role with respect to both their suppliers and their customers.

This comes in large part from the fact that their average size and power have grown considerably over time. This is linked to several important technological changes that have facilitated the tracking and the management of production and inventories, leading to significant increases in efficiency and scale economies for the retailers adopting these technologies.<sup>1</sup> And it is linked, as we document in this paper, to the great expansion of international trade in consumer goods that has allowed retailers to source an ever wider range of low-cost consumer products from abroad.

The adoption of new technologies and the increased sourcing of products from abroad have also resulted in higher retail market concentration, more `vertical retailers' dominating a greater length of the value chain (Gereffi and Memedovic, 2004), and to stronger buyer power through a shift in bargaining power from manufacturers to retailers (Dobson 2005; Noll 2005).<sup>2</sup> Thus, retailers have become considerably more influential market participants over the past decades with both positive and negative consequences.<sup>3</sup>

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<sup>1</sup> The grocery sector was the first to embrace IT innovations by the creation of the Universal Product Code and the bar code allowing an exact description of an item (Albernathy and Volpe, 2011). From their first use in 1974, bar codes spread to the retail apparel sector in the mid 1980s (69% of firms having adopted it by 1992) (Albernathy et al. 1999) and to other retail sectors: `By 1994, Food & Beverage had gone from being 100 percent of all registrations [using UPC] to only about 28 percent [...] the remaining registrations were in twenty-one different [retailing] sectors' (Albernathy and Volpe, 2011, p. 59). Shipping containers (invented in 1956), standards for containers facilitating intermodal transportation and handling, as well as Electronic Data Interchange (EDI) have also been key inventions. One of the consequences of these inventions is the emergence also around 1981 of so-called `lean retailers' such as Tesco achieving substantial reductions in inventory holdings (see Burt et al. 2010). Similarly, Wal-Mart decreased its own inventory from 19.1% to 11.3% of sales between 1985 and 2001 (Coriolis Research, 2001). Note that inventories are often simply shifted away from retailers to distribution centers and to manufacturers (see OECD, 2006). `People think we got big by putting big stores in small towns. Really we got big by replacing inventory with information' (Sam Walton, cited in Coriolis Research, 2001).

<sup>2</sup> This is true whether they are mass merchant retailers, specialty retailers in the apparel sector; or brand marketers (Gereffi and Frederick, 2010). `By the beginning of the 1990s, the widespread adoption of lean retailing by American retailers (and increasingly European retailers as well) created price-sensitive networks of firms that turned manufacturing into organizational extension of retailing products' (Feenstra and Hamilton, 2006, p. 233).

<sup>3</sup> See Petrovic and Hamilton (2006) for a summary of the retail revolution. The 1980s are a key decade; in particular, `before the 1980s, the links between manufacturers and retailers were conceptualized from the manufacturers' point of view, as distribution channels. With the advent of lean retailing, the perspective shifted to that of the retailers' (Petrovic and Hamilton, 2006, p118). There is a widespread view, however, that despite high concentration in the grocery retail sector, price competition is effective and consumers have benefited from that competition especially since the middle of the 1990s (see EU Commission, 2009, section 2.3).

Retailers have increasingly participated in international markets. In fact, global retailing has become 'one of the driving forces of economic globalization' (Wrigley and Lowe, 2010). This internationalization of retailing activities has taken two main forms: increased trade flows as retailers' share of foreign products sold through their outlets has increased, and increased foreign direct investment (FDI) to establish foreign operations and new point-of-sales networks.<sup>4</sup>

These two forms of internationalization are, of course, highly interdependent. It has been noted, for instance, that a retailer entering a new market through FDI often brings with it significant initial imports from the home base. There might be a second phase during which imports fall as local sourcing and local supply chains develop. A third phase might then involve increased trade flowing back to the home market (and/or to third markets) as some local products find their way into the retailer's home outlets (see Head et al., 2014; Nordas, 2008; Wrigley and Lowe, 2010). This, in turn, may force competing retailers to also source more products abroad to stay competitive.<sup>5</sup>

While it is relatively easy to track retailers' FDI activities, it is more difficult to assess precisely their international trade activities. This is because international trade statistics typically do not exist at the retailer level and when they do, they include only direct imports, not indirect imports (i.e. foreign products sold by retailers but imported by wholesalers and other types of firms). Since a significant fraction of imports by retailers is indirect even for the largest ones (see Basker and Van, 2010a; Gereffi and Frederick, 2010), looking at retailer's direct imports cannot provide an accurate picture of the importance of foreign products on their shelves. As a result (and in the absence of proprietary data), what we know about the share of foreign products sold through retailers' outlets is incomplete and often anecdotal. The existing evidence, reviewed in Section 2, suggests that this share has increased significantly over time and is extremely high for some products.

This paper focuses its attention exclusively on the links between retailing and international trade. The main purpose is to review the literature on how retailers, by their individual behavior or as a group, influence international trade flows, and on how trade affects the structure of the retail industry. This can be separated into several questions. Does trade liberalization affect retailer's interactions with manufacturers (whether foreign or domestic) and, if so, what is the impact on international trade flows? Is the impact of trade liberalization on the volume of trade and social welfare different when power rests with retailers than when it rests with manufacturers, especially

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<sup>4</sup> See Nordas (2008) for a list of the main retailers with multi-country operations, and Durand (2007) for those having entered the Mexican market. Wrigley and Lowe (2010) argue that this internationalization of retailers has been stronger in grocery than in other retail sectors. Deloitte (2014) reports that 63.2% of the top 250 retailers have foreign operations representing an average of 24.3% of their total revenues (32.3% for the top 10 retailers). See also Javorcik and Li (2013) regarding Romania, and Javorcik et al. (2008) regarding Mexico.

<sup>5</sup> The entry of Wal-Mart in Mexico, for instance, led to a huge increase in imports. Between 1999 and 2002 Wal-Mart's imports increased fourfold (from 200 million to over 828 million USD), making Wal-Mart the 6<sup>th</sup> most important importer in Mexico in 2003 (Durand, 2007, p402). Other major Mexican retailers (Comercial Mexicana, Gigante, Soriana) also significantly increased their imports during the same period (Durand, 2007). As a result, the ratio of (direct) imports to sales in 2003 was 54% for Wal-Mart, 52% for Soriana, 47% for Comercial Mexicana and 32% for Gigante.

foreign ones? Is there a link between international trade and the observed structural changes in retailing, such as higher market concentration and larger product assortments?

There is now a rich literature on intermediation in international trade. Because the paper is mainly about retailers, it ignores other forms of intermediation, such as wholesalers, brokers, etc. Moreover, retailers are viewed here as necessary agents to reach consumers. Thus we do not deal with issues regarding choices made by manufacturers between direct sales to consumers (for instance, by selling over the internet) and indirect sales through retailers (see, for instance, Ahn et al., 2011). Instead we concentrate on the interactions between retailers and manufacturers in the context of international trade.

The paper is organized as follows. After reviewing the evidence, we discuss theoretical contributions set in an oligopolistic, game-theoretic framework. The respective papers typically assume that either the manufacturers or the retailers have some bargaining power over the other group and are able to determine the type of contracts presented to the other group. The main questions are then what happens to these contracts when trade is liberalized and what are the consequences for the volume of international trade and for social welfare. An important message coming from these contributions is that when trade liberalization occurs, there is a strong incentive to use these contracts to soften price competition in order to mitigate the pro-competitive impact of trade liberalization. As a result the trade volume may fall or at least not increase as much as it would if retailers did not exist and producers could reach consumers directly (as is assumed in traditional international trade theory). We then review contributions that consider retailing at the industry level to discuss what we know about the impact of trade liberalization on structural changes in retailing, such as changes in market concentration and the size distribution of retail firms, on retailers' assortments and even on upfront payments by manufacturers, such as slotting allowances, to gain access to retail shelves. We conclude by discussing some directions for future research.

## 2. Evidence

Regarding direct import activities by retailers, some evidence is provided by Bernard, Jensen, Redding and Schott (2010) for the United States.<sup>6</sup> Retailers represent 14% of all US importing firms (including firms with a mix of retailing and wholesaling activities), 9% of the total value of imports (1% for pure retailers) and 60% of the total value of imports from China (35% for pure retailers). Thus retailers tend to import low-value products and, given their share of imports from China, their imports are predominantly low-cost consumer products. Not surprisingly retailers represent a much smaller group than wholesalers (representing 42% of the importing firms) and both retailers and wholesalers import lower than average values, since both types of intermediaries represent 56% of

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<sup>6</sup> Retailers' export activities are typically small and are thus ignored.

the importing firms but 24% of the total value of imports. The sectors where pure and mixed retailers are most active on the import side are footwear (34% of import value; HS 64-67), textile and clothing (31%; HS 50-63), hides, skins (26%; HS 41-43) and miscellaneous (18%; HS 90-97) (see Bernard et al.'s long version).

These data, though useful, do not help in getting a sense of the importance of imported products in retail sales, since only direct imports by retailers are reported. There are also no time series data to determine how (direct) imports have evolved through time.

Basker and Van (2010a) go beyond direct imports and have something to say about the evolution of imports through time. But, for our purpose, their approach has also limitations. Because their import data is only at the product level, they have to map imports to retail sub-sectors by assuming that the sub-sector's share of imports of a product is equal to the sub-sector's share of total retail sales of the product. They further divide each retail sub-sector into several groups (large retailers - based on the share of sales controlled by the four largest retailers), and sources of imports (whether from China, less-developed countries (LDCs), or developed countries). This organization of the data reveals two main facts: the shares of sales controlled by the four largest retailers and by large chains have increased substantially during the 1980s and the 1990s, and US imports of consumer goods from LDCs and especially from China increased at double digit rates during the same period. These facts form the basis of their empirical investigation testing whether there is a link between the growth of large retailers and that of imports of consumer products. They do find that retailers with faster sales growth (such as the largest retailers) also increased their imports more, especially imports from China. In particular, large US retailers' marginal propensity to import from China was 17 percentage points higher than that of smaller retailers, and their marginal propensity to import from less-developed countries in general was 27 percentage points higher. Thus larger retailers grew faster than smaller ones in part because of cheap imports.<sup>7</sup>

These two articles illustrate well the difficulties with the evidence: either one looks directly at retailer's imports and one misses the full picture of the importance of foreign products for retailers, or if one goes beyond direct imports, a link needs to be assumed between retail sales and product level imports. Interesting insights across multiple sectors (and across time) are uncovered by this approach, but the importance of imports for retailers cannot be easily established, and one has to rely on more diverse sources to produce clear evidence.

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<sup>7</sup> Evidence from Canadian retailing also suggests that the large retailers carry out the lion's share of direct importing. For example, the largest 5% of the retail establishments (by employment) that engage in direct imports in Clothing, Shoes, Jewellery, Luggage and Leather Goods (NAICS 4481-83) account for 76.3% of the direct sectoral imports from low-cost Asian countries. In Electronics and Appliances (NAICS 4431) the 5% largest retailers engaging in direct imports are responsible for 68.2% of the sectoral imports from low cost Asian countries; and in Sporting Goods, Hobby, Musical Instruments, Books, Periodicals, Music (NAICS 4511-12) the largest 4% of directly importing retailers account for 67.6% of that industry's direct imports (Statistics Canada, Import Register, Catalogue R007009, 2005).

The literature on 'buyer-driven commodity chains' (Gereffi, 1994) was first in pointing out the increased importance of imports for retailers and the strong influence of US retailers on export-oriented economies such as Korea, Taiwan and other Asian countries.<sup>8</sup> This literature argues that the retail revolution in the United States during the 1970s and the 1980s brought about by technological advances, mass advertising and the repeal of government regulations such as the fair trade laws led to the emergence of large retail chains and a greater segmentation of retail markets.<sup>9</sup> This induced retailers to increasingly source their products abroad especially in Asia and resulted in the emergence of intermediaries and middlemen channelling retailers' orders and product specifications to manufacturers.<sup>10</sup> This process gradually led to highly sophisticated supply chains aimed at exploiting low-cost and flexible production and accelerating turnover despite the distance of low-cost producers from the main markets.<sup>11,12</sup> Not surprisingly, it is the durable and semi-durable products that tend to be sourced internationally. Buyer-driven chains typically deal with standardized products and thus with products with low barriers to entry at the production level as compared to the entry barriers linked to design, merchandising and distribution. Thus a high proportion of these products consists of labor-intensive consumer goods (garments, footwear, toys, handicrafts, consumer electronics, etc).

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<sup>8</sup> Imports by US retailers from Asia came first through trading companies located in Japan and Hong Kong. See Feenstra and Hamilton (2006) for a detailed account of how the US retail revolution has influenced the economic development of South Korea and Taiwan, and the role of the 1985 Plaza Accord to shift the production of consumption goods to other Asian countries.

<sup>9</sup> Today the retailing market is huge since worldwide retail sales totaled \$16.5 trillion in 2010 corresponding to about 25% of global GDP. The United States is the world's largest retail market with sales totaling over \$3 trillion in 2010 and is twice as large as the next largest market (China, at \$1.6 trillion); see Reisman and Vu, 2012. According to the American Apparel and Footwear Association, US consumers spend \$340 billion on clothes and shoes, nearly twice as much as what they spent on new cars (\$175 billion), representing 25% of global apparel and footwear retail sales (see <https://www.wewear.org/assets/1/16/WeWear.pdf> ; downloaded July21, 2014). By the mid 1990s, the '29 biggest retailers made up 98% of all US apparel sales [...] with Wal-Mart, Sears, Kmart, Dayton Hudson Corp. and JC Penney accounting for 68% of all apparel sales' (Gereffi and Memedovic, 2004, p73).

<sup>10</sup> 'In 1980 [...] Hong Kong, Taiwan and South Korea accounted for 72 percent of all finished consumer goods exported by the Third World to OECD countries, other Asian nations supplied another 19 percent [...]. The United States was the leading market for these consumer products with 46 percent of the total' (Gereffi, 1994, p110). In 2004, China accounted for 19% of the US's total clothing imports and Basker and Van (2010b) report that, in 2004, Wal-Mart handled 6.5% of US retail sales, imported \$18 billion in goods from China accounting for over 15% of US imports of consumer goods from China.

<sup>11</sup> For instance, Li & Fung, a large Asian-based intermediary and a leading global supply chain manager has become 'the primary purchasing agent for giant retailers such as Wal-Mart, and well known apparel brands like Liz Claiborne' (Gereffi and Frederick, 2010, p17). It is also the buying agent for Kohl's, Talbots, Gymboree and Timberland (Gereffi and Frederick, 2010, Table A-6-A-8). The Yungor Group is China's largest integrated textile company that started as a garment company and is today a vertically integrated company producing '10 million shirts, 2 million suits and 20 million pieces of miscellaneous garments, mostly sportswear, annually.' (InfoDev, 2008, p33). It is or has been a manufacturer for Nike, Gap, Marks & Spencer, Next, Ralph Lauren, and Pierre Cardin able to turn around a 100,000 piece order of T-shirts for foreign retailers in a week to ten days. Hanbo Textile Company, also a Chinese company, manufactures woven ladies garments for foreign clients such as Gap, Jones New York, Liz Claiborne, Ann Taylor, Nine West, and Next representing 75% of its revenue.

<sup>12</sup> Interestingly, the protracted 2014 West Coast longshore contract negotiations lead US retailers to bring in record levels of merchandise. 'The estimate for July is the highest monthly volume in at least five years and follows a trend of unusually high import levels that began this spring as retailers worked to import back-to-school and holiday merchandise ahead of any potential problems' (Lavigne, 2014). This suggests that for many imported consumer products, the time between production and consumption is still significant.



But how important are these foreign products for retailers? Apparel is a good example where import penetration in the US has been very high for a long time, as 'by 1999 the proportion of domestically made US retail apparel dropped to just 12%' (Gereffi and Memedovic, 2004, p74). In 2006 overall apparel import penetration was 94% in the United States, 95% in the United Kingdom and Germany, 93% in Japan, 85% in France, 65% in Italy and 55% in Spain (Gereffi and Frederick, 2010). Table 1 provides some examples at the product level.<sup>13</sup>

Nordas et al. 2008 concentrate their attention on three sectors (Agriculture, Hunting, Forestry and Fishing; Food, Beverages and Tobacco; Textiles, Clothing and Footwear) where there is a prevalence of sales to consumers and thus in which retailers are most active to see whether there was any significant increase in import penetration between 1990 and 2003 across OECD countries.<sup>14</sup> They find significant increases (from 15.8 to 20.8% in Agriculture, Hunting, Forestry and Fishing; from 14.6 to 21.5% in Food, Beverage and Tobacco; and from 37.1 to 59.4% in Textiles, Clothing and Footwear).<sup>15</sup>

The last source of evidence, again for direct imports, is the *Journal of Commerce's* yearly list of top 100 importers via ocean container transport. This ranking of US importers is based on the number of TEUs (a standard container has two TEUs) coming into the US by sea in a given year. It also lists the importer's main activity. Taking only those listed as retailers (i.e. Wal-Mart, Costco, Target, Sears, etc., but not Nike, Liz Clairborne, Dole Food, etc.), we compute the share of the retailers among the top 100 importers as well as a ranking weighted by TEUs. Depending on the year, there are 30-34 retailers among the top 100 importers. Figure 1 illustrates the period 2001 to 2013. Whereas the share of retailers represented 37% in 2001, it peaked at 55% in 2005 and remained around 53% since that time. Wal-Mart's contribution represents between 20 and 25% of the retailers' total share (or as illustrated between 8 and 14% of the top 100 importers). To place this in a more telling perspective, Wal-Mart brought into the United States about 315 containers per day in 2001, the same number of daily containers brought in by Target and Home Depot combined. In 2008 like in 2013, Wal-Mart brought into the US 1,000 containers per day and thus more than three times its 2001 level. Target and Home Depot increased their imports even more relative to 2001, since their combined level in 2008 and in 2013 was slightly over 1,000 containers per day. Indeed

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<sup>13</sup> This is of course also the case at the retailer level. For instance, by the mid-1980s, 'almost half of all merchandise sold at Wal-Mart stores was imported' (Petrovic and Hamilton, 2006, p137). GAP sources its products from 780 producers in 50 different countries, representing a 98% share of foreign sourcing (and 20% from China alone); H&M has 700 suppliers, 60% located in Asia, and Zara sources 50% of its 'production' from Asia and from non-EU European countries (Nordas, Geloso Grosso and Pinali, 2008, p25). The case of an anonymous retailer based in London specialized in children and women garments (see InfoDev, 2008) indicates that this retailer sources 60% of its products from China, 30% from India and the rest mostly from Eastern Europe and Turkey.

<sup>14</sup> The share of supermarkets in total retail food sales was 85% in North America in the early 2000s and 80% in both Europe and Australasia. It was lowest in Asia with 30% (Corolis Research, 2001).

<sup>15</sup> See also their empirical analysis (Appendix A3.2). Not surprisingly import penetrations are lower at the more aggregate level. Also textile includes a significant domestic production even in advanced economies with a significant share used as intermediate products.

the overall share of imports by the larger retailers rose during the period since the weighted average rank of all retailers in that list fell from 20 to 13.4.<sup>16</sup>

### 3. Retailer-Manufacturer Contracts and Trade Liberalization

The contractual relationship between manufacturers and retailers rarely boils down simply to an agreed price and quantity. It typically involves additional contractual arrangements especially if there is a continuing relationship. An obvious reason for this is that agreeing simply on a unit price and orders would lead to double marginalization and thus relatively high retail prices and low profits. Manufacturers and retailers thus have incentives to avoid such pitfalls through contractual arrangements (Bernard and Dignara, 2014). Although these contracts are private, aspects are sometimes revealed when difficulties arise such as during the dispute between the United States and Japan in the 1980s about access to the Japanese market or when the EU Commission attempted to liberalize the European retail automobile market. These additional contract clauses may favor manufacturers or retailers depending on their respective bargaining power. In the case of complex products such as automobiles, market power is typically on the side of the manufacturers, but when it comes to simpler standardized products like T-shirts or shoes, it is much more on the retailers' side. There might be a variety of contractual clauses between parties, but the ones of interest in an international trade context are vertical restraints such as exclusive dealing or exclusive territory clauses and thus arrangements that often - and somewhat paradoxically - may enhance economic efficiency or reduce competition depending on the circumstances under which they are used. They are interesting because trade liberalization affects the incentive to impose them. We shall see in particular that in liberalized markets firms have a greater incentive to impose vertical restraints for anti-competitive reasons. This Section reviews what we know regarding the impacts of market integration on the use and on the consequences of vertical restraints between manufacturers and retailers.<sup>17</sup>

To the best of our knowledge, Fargeix and Perloff (1989) is the first article to examine an international trade issue in which a single domestic manufacturer sells to consumers through agents such as retailers. It is interested in how trade liberalization (through a foreign competitive fringe offering a perfect substitute product sold without any customer services) affects the retailers' incentives to provide customer services for this domestic product and by implication how it affects the manufacturer's profit and welfare. Treating the contract between the manufacturer and the retailers as given (an exclusive territory contract), they show that lowering tariffs may reduce welfare, harm consumers (who get fewer services) and benefit the domestic manufacturer. This is illustrative of the type of results obtained in this literature in second-best environments.

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<sup>16</sup> For each year, the weighted rank is computed as  $\sum_{i=1}^n \frac{1}{n} [w_i r_i]$  where  $w_i$  is retailer  $i$ 's imported TEUs,  $r_i$  is the retailer's rank and  $n$  is the number of retailers in the 100 top list.

<sup>17</sup> There is a long literature in industrial organization about vertical restraints. Several of the papers mentioned in this Section are best seen as extensions of this literature to an international trade context, which essentially means a context where there are cost asymmetries among manufacturers.

Richardson (2004) also takes contracts as given but asks whether trade liberalization and the enforcement of competition policy are complements or substitutes. The motivation is the dispute between the US and Japan about access to retailing in Japan whereby foreign products had a difficult time being sold in Japan because of exclusivity arrangements ('domestic dealing') between retailers and local manufacturers or wholesalers. The analysis shows that a country may have an incentive to let these vertical arrangements to exclude foreign products go unchallenged when trade is liberalized, at least if the number of foreign entrants is small. The basic economic issue here is that a country that can no longer use standard trade barriers has still an incentive to favour its domestic agents, especially when the retail industry is imperfectly competitive. The main drawback of both articles is that the contracts between manufacturers and retailers are exogenous. Thus they are unable to predict whether vertical restraints are becoming more or less prevalent with globalization.

Raff and Schmitt (2006) endogenize the use of exclusive dealing contracts in a trade context. Since the bargaining power is on the production side, manufacturers choose to grant exclusive dealing or elect not to impose such a constraint on the retailers they deal with. In the first instance the constraint requires the retailers not to carry competing products, whereas in the absence of this clause, the retailers are free to sell competing products. Exclusive dealing contracts between domestic manufacturers and retailers may impede trade by forcing foreign exporters to set up their own distribution network.

The main issue examined by Raff and Schmitt is whether the incentive of manufacturers and retailers to sign such exclusive dealing contracts is enhanced or, on the contrary, reduced when trade barriers fall. The analysis shows that when barriers to trade are high, domestic manufacturers have an incentive to impose exclusive dealing because it is very effective at limiting international trade and thus competition from foreign manufacturers. However, manufacturers have no incentives to use exclusive dealing when barriers to trade are low and products are close substitutes. This apparently counter-intuitive result does not imply that free trade makes the retailing market highly competitive; quite the opposite. In fact, the second point is interesting precisely because paradoxically not using exclusive dealing reduces competition. To see this implication, one needs first to understand how exclusive dealing operates.

Consider a simple case with two manufacturers, one domestic and one foreign, each selling a single product in the domestic market. There are many identical retailers. Demand for product  $i$  is denoted by  $D_i(p_i, p_j, b)$ , which is decreasing in own price and increasing in the price of the other product,  $j$ , and which depends on the degree of substitution between products, here reflected by the parameter  $b$ . Each manufacturer may impose an exclusive dealing clause on the retailers. If the retailers accept this clause, they agree not to sell the other product. In the absence of exclusive dealing clause, the retailer is free to sell both products and act as a common agent for both manufacturers. Retailers face three types of unit costs: a wholesale price set by the manufacturers, a unit cost of retailing, as

well as an additional cost per unit when they sell a foreign product (for instance an international transport cost or a tariff).

The chief role of exclusive dealing is to provide incentives to manufacturers to invest in the distribution efforts by covering expenses associated with product advertising, the show room, and the like. The main impact of this manufacturer's investment is to lower the retailer's unit cost associated with the manufacturer's product. However, when there is common agency, it may also have spillover effects by decreasing the cost of carrying the other product. Obviously then a manufacturer invests more in the distribution effort with exclusive dealing than without it and, more generally, when the spillover is low than when it is high.

But a higher investment also implies a lower cost of retailing and, with competition among retailers, a lower retail price (and a higher demand for the product). The manufacturer's investment decision also crucially depends on where its product is sold. In particular, a foreign manufacturer having to pay a high tariff or trade cost to reach a market does not have a very big incentive to use exclusive dealing because its market share in that market is low. But the exact opposite is true under similar circumstances for the domestic manufacturer: investing without exclusive dealing might produce significant spillovers to the foreign products and exclusive dealing prevents this from happening.

What does this mean for the equilibrium choice of contractual arrangements?<sup>18</sup> Note that as soon as one manufacturer prefers exclusive dealing and the retailer accepts it, there is nothing the other manufacturer can do with respect to this retailer but to propose exclusive dealing as well. This means that for both products to be sold by the same retailer, both manufacturers must prefer having this retailer as a common agent to exclusive dealing. Raff and Schmitt (2006) show that in free trade both manufacturers do not impose exclusive dealing unless the spillover is sufficiently high and/or the degree of substitution between products is sufficiently low, in which case both manufacturers choose exclusive dealing.

This implies that, in free trade, having products sharing the same shelves can paradoxically raise the manufacturer's profit above the level associated with exclusive dealing! This is because sharing the same shelf acts as a commitment to have a lower level of investment in the distribution effort than with exclusive dealing. Everything else being equal this results in lower sales, and higher wholesale and retail prices. Thus exclusive dealing may lead to a more competitive environment than the alternative and this is not good news for the manufacturers.<sup>19</sup>

Suppose now that trade barriers are relatively high. What would each manufacturer like to do? For the domestic manufacturer the case is clear cut: exclusive dealing is very attractive. It is so because

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<sup>18</sup> The equilibrium is that of a sequential game where each manufacturer chooses first whether to impose exclusive dealing or not on the retailers they deal with. Then each manufacturer chooses their wholesale price and the investment level conditional on the type of contract offered to the retailers. Finally, the retailers choose retail prices.

<sup>19</sup> When the spillover is high enough, the manufacturers prefer exclusive dealing even in free trade. This result is consistent with the fact that retailing of new automobiles involves exclusive dealing, while ready-to-eat breakfast products for instance do not.

the share of the foreign product is naturally limited by the trade barrier so that its own promotion investment is effective. The foreign manufacturer would much prefer no exclusive dealing because the alternative is very costly given its small market share, but there is no way it can prevent the domestic manufacturer from using it. But this also means that, because the exclusive dealing is imposed by the domestic manufacturer, the foreign product has a lower market share, if it is distributed at all, than in the absence of exclusive contracts. This shows that exclusive dealing can by itself act as a trade barrier that magnifies the impact of an existing trade barrier whether it is a transport cost or a tariff.

We just argued that when the trade barrier is high enough, a domestic manufacturer chooses exclusive dealing with retailers, forcing the foreign manufacturer either to have a very small share of the market or even preventing it from selling in that market. And when the trade barrier is low enough, both manufacturers prefer common agency. As a result, a switch in contracts may occur as trade liberalization takes place. When it occurs, it is the domestic manufacturer that triggers this switch as the foreign manufacturer always prefers common agency (or a less competitive environment given its lower market share). This means that a domestic manufacturer's ability to replace a traditional trade barrier by a private contractual arrangement goes some way towards mitigating the pro-competitive effect of trade liberalization. Not surprisingly welfare decreases when the switch occurs.

A high degree of substitution between products is a good indicator that the contracts that are adopted in equilibrium are likely to be bad for welfare and for the volume of trade when trade liberalization occurs, but it would be wrong to conclude that exclusive dealing contracts by themselves are bad for welfare. What the analysis shows is that, in an international trade context, it depends on the market share of imports. Specifically exclusivity is bad near autarky but good near free trade. This is probably too sophisticated as a guideline for competition policy, but it suggests that competition policy should always be active when products are good substitutes, because it is precisely for these types of products that there is a strong incentive to mitigate the impact of trade liberalization through private contractual arrangements.<sup>20</sup>

Exclusive dealing is not the only vertical restraint of interest. Another important one is an exclusive territory clause which guarantees that an intermediary is the sole provider of the product in a given area. In an international trade context this could be a country and it is often the case that a retailer might be the exclusive distributor of a particular product in a particular country. It is well known that exclusive territory clauses have an anti-competitive component, but they can also raise efficiency, for instance, by eliminating free riding on the part of retailers with respect to the provision of customer services. As with exclusive dealing, the question is whether an exclusive territory clause is more likely to be used when trade barriers fall. Raff and Schmitt (2005) show it is indeed the case.

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<sup>20</sup> This result does not depend on the particular setting of this example whether it is the number of manufacturers, the game being played (Cournot vs Bertrand), or the fact that retailers are in a competitive environment.

Consider again the simple case of a domestic and a foreign manufacturer each selling a differentiated product with demand for product  $i$  given by  $D_i(p_i, p_j, b)$ , where  $b$  still reflects the degree of product substitutability. The two manufacturers may sell their products through potentially many competing retailers and may or may not propose an exclusive territory clause. In the first instance, the clause makes one retailer a monopoly provider of the product within the territory (an exclusive agent) and in the second case this retailer is one among many in the same territory selling the same product. Once this choice is made, the manufacturer is committed and this is observed by everybody. The contract specifies a wholesale price and a fixed payment to be paid by the retailer.

Retailers carrying the foreign product pay a trade cost, such as a tariff, transport cost and costs associated with customs red tape, etc., that is of course not incurred for a domestic product. The trade cost here is assumed to have a random component, and the retailers observe the realization of the trade cost only after the type of contract has been chosen.<sup>21</sup> Because retailers are risk averse, the randomness of trade barriers, not just their level, induces costs that they would like to avoid.<sup>22</sup>

In the absence of an exclusive territory clause, competition among retailers means they are just price takers, and the retail price of a foreign product fully reflects the realization of the trade cost and the wholesale price. This implies that the retailers face no uncertainty whatsoever. Of course, unless the two products are perfect substitutes, each manufacturer still earns positive profit.

With exclusive territories, however, the retail price is selected so as to maximize the retailer's profit (since it is an exclusive agent). This optimal retail price is increasing in the wholesale price and the trade cost, but also in the retail price of the substitute product. The problem is now that the retailer is exposed to risk, since the retailer must commit to the contract without knowing the realization of the barrier to trade. A risk-averse retailer therefore has to be compensated if it is to accept the manufacturer's exclusive territory clause. The only way to do so is to leave the retailer with some profit. The manufacturer must therefore share some of its profit with the retailer and it may or may not prefer this solution to the no-exclusive territory case.

There is thus a trade-off associated with exclusive territory: it decreases competition among substitute products especially when both products are sold under exclusive territory, but it exposes retailers to risk that they do not like and for which they must be compensated before accepting this type of contract. The choice of contract is then influenced by three factors: the degree of substitution between products, the variance of the trade cost, and the expected level of the trade cost. Raff and Schmitt show that lowering the variance, lowering the expected level of the barrier,

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<sup>21</sup> The variance of trade costs can be high in the case of international sea transportation. Not only does it take time to ship a container between continents, but custom and inspection procedures, port and transit requirements add unpredictable days and monetary costs to imports and exports. See [www.doingbusiness.org](http://www.doingbusiness.org) for country specific details. As in the previous case, the choice of contracts comes from a sequence of decisions. In the present case, each manufacturer first chooses its contract with its retailer(s), then selects a two-part tariff. Finally, the retailers learn about the barrier to trade, choose retail prices, and consumers make their purchase decisions.

<sup>22</sup> Manufacturers are risk neutral but are unable to insure retailers as they do not observe the realization of the trade cost.

or making the products better substitutes, *ceteris paribus*, induces the adoption of exclusive territory clauses, leading to higher retail prices, lower international trade and lower welfare.

These results are not very surprising. Each of these changes brings about more competition, thus making exclusive territory clauses more attractive. This clause then tends to reduce competition and to mitigate the impact of trade liberalization. The welfare consequences are not surprising either since exclusive territory leads to higher prices and a transfer of some risk to domestic retailers. It shows again that institutional barriers to trade can be replaced by private barriers, here through exclusive territory clauses. It also suggests that in a free-trade environment and one in which trade barriers are not very uncertain, exclusive territory clauses should be more common than when trade barriers are high and/or uncertain.

So far it has been assumed that manufacturers have 'seller power' and thus that they hold the bargaining power when dealing with retailers. Specifically we assumed that they can make 'take-it-or-leave-it' contract offers to retailers. While in some retail sectors the relative size of manufacturers and retailers is certainly consistent with this assumption, it is also the case that in other retail sectors the bargaining power has shifted in favor of retailers. Since it is mainly the large retailers who participate extensively in international trade, it is useful to investigate the role of 'buyer power' and thus whether the impacts of trade liberalization are affected by the distribution of bargaining power between retailers and manufacturers.<sup>23</sup>

Using a simple setting with two differentiated retailers in one country, Raff and Schmitt (2009) show that the pro-competitive effects of trade liberalization tend to be weaker with buyer power than with seller power. The analysis also shows that trade liberalization may lead to an increase in market concentration among retailers resulting in higher prices and lower welfare than in autarky.

To show these results, consider again the demand for product  $i$  as  $D_i(p_i, p_j, b)$ . Like in previous cases there are two manufacturers, one domestic and one foreign, but unlike in previous cases, they produce a homogeneous product. There is still product differentiation, but it comes solely from the retailers through location, services or other amenities. Since retailers have market power, they are able to make take-it-or-leave-it offers to manufacturers in the form of a two-part tariff (a wholesale price and a fixed fee). The offer made by the retailers is contingent on whether the manufacturer sells exclusively to one retailer or also supplies the other retailer.<sup>24</sup> Thus a retailer seeking exclusivity requires from the manufacturer that it sells only to him, whereas non-exclusivity means that the manufacturer is free also to supply the other retailer.

What should be expected from such an environment? Start with autarky with both retailers making offers to the only manufacturer able to sell in this market, the domestic manufacturer. An exclusive

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<sup>23</sup> See Basker and Van (2010b) for another article dealing with buyer power (Wal-Mart) in an international trade context at least when dealing directly with producers.

<sup>24</sup> The equilibrium results from the following sequential decisions: (i) the retailers simultaneously make contract offers to the manufacturers; (ii) the manufacturers simultaneously decide whether to accept one offer, both offers, or none, and (iii) the relevant contracts are implemented and the relevant retail prices are determined.

contract between the manufacturer and one of the retailers is always a possibility. It is so, simply because if one retailer offers an exclusive contract, the other retailer cannot do better than also to offer an exclusive contract. Thus the retailer offers to pay a wholesale price equal to the manufacturer's unit cost of production so as to maximize the joint profit between the retailer and the manufacturer. But since the only domestic manufacturer faces two retailers both competing for exclusivity, the manufacturer ends up with the entire industry profit even if only one retailer (the one obtaining exclusivity) is active in equilibrium.

There might also be a non-exclusive contract where the manufacturer sells to both retailers. For this to occur, two conditions have to hold: (i) the wholesale price offered by one retailer maximizes the joint profit of the manufacturer and the retailer given the wholesale price offered by the other retailer, and (ii) the manufacturer is indifferent between a non-exclusive and an exclusive contract. It turns out that a non-exclusive contract equilibrium exists provided that the two retailers are sufficiently differentiated. This is because the rents generated in the equilibrium have to be high enough to prevent a retailer from deviating to exclusivity. More precisely, the rents have to be so high that the manufacturer gets as much profit as with an exclusive contract and the retailers can make positive profits with non-exclusive contracts. Of course in that case, retail prices are lower than with exclusivity since both retailers are active.

Consider now a situation where there is international trade because the barrier to trade is sufficiently close to zero. An exclusive contract foreclosing one of the two retailers now requires offering it to both manufacturers compared to only one in autarky. Not surprisingly, this is more difficult to achieve than in autarky.

With two manufacturers and two retailers, there is again also a non-exclusive equilibrium. We then show that several cases are possible with trade liberalization including strong pro-competitive effects when moving from exclusive contracts in autarky to non-exclusive contracts in free trade. But there are also cases where trade liberalization has highly anti-competitive and welfare decreasing effects especially when one moves from non-exclusive contracts in autarky to exclusivity in free trade. Not only can retail prices be higher in free trade but so can market concentration in retailing.

To show that the pro-competitive effects of trade liberalization are weaker with buyer power than with seller power, one can show that some of these cases would never occur with seller power. In particular the pro-competitive effect of free trade is unambiguously higher under seller power than under buyer power because, with seller power, the single manufacturer can easily monopolize the market in autarky while it cannot foreclose the other manufacturer in free trade. There is thus no exclusive contract under seller power in free trade, only a non-exclusive contract. In short, one cannot have an anti-competitive impact of free trade with seller power. Thus as far as the welfare impact of trade liberalization is concerned who has bargaining power does make a difference.



Of course, these results come from a highly stylized model, but they are suggestive of the type of effects that the vertical link between retailers and manufacturers can have.<sup>25</sup> Simply, one cannot assume that rents are dissipated when trade is liberalized as would be the case in traditional international trade models. On the contrary, agents, whether the manufacturers themselves or the retailers, may have sufficient market power to capture part of the rents for themselves. The contracts adopted to capture these rents in turn may have negative consequences for social welfare that may even negate the usual gains from trade. In this sense there is more room not less for competition policy as trade barriers fall.

Is there any evidence that gains from trade may have been reduced by private contractual barriers between manufacturers and retailers? There are several examples suggesting that this indeed may be the case. Consider, for instance, the dispute between the US and Japan about the market access difficulties for foreign products in Japan during the 1980s. Several characteristics point to private contractual arrangements acting as barriers to trade, especially within the wholesaling and retailing sector, as the main culprit. The Japanese market was known to be dominated by long-term arrangements between manufacturers and trading companies, so-called *keiretsu* that handled 68% of imports during the 1980s (see Lawrence, 1991b). These closely connected firms, including large trading companies, thus had a strong influence on which products were available on retailer shelves. It is reasonable to assume that these firms favored goods produced by a member of the group and discriminated against products not belonging to the group. This suggests that foreign products and thus imports would be especially negatively affected by such a discrimination. This is precisely what Lawrence (1991b) tests and finds: *keiretsu* significantly lowered imports but did not especially affect exports. The implication is also interesting: Japan was a market with a particularly low level of intra-industry trade (Lawrence, 1991) as compared to other similarly developed countries. In other words, it is as if buyer power at the distribution level played a particularly strong role. The evidence indeed suggests that most of the rents earned on foreign products were captured by the Japanese distribution sector, not by the foreign firms themselves. In short, the Japanese trade dispute with the US can be seen in light of our analysis in this section and thus as an example of private arrangements replacing traditional barriers to trade.

Similar evidence is available for the European Union car market. Exclusive dealing in automobiles has been accepted by the European Commission since 1985. As a result, around 70% of European car dealers are exclusive dealers (Nurski and Verboven, 2013). Using detailed microdata, they estimate that exclusive dealing in the European car market constitutes an entry barrier especially for smaller Asian manufacturers. Abolishing exclusive dealing would thus raise the market share of these firms and provide significant gains for consumers.

More indirect evidence is provided by Badinger (2007) who investigates whether the Single European Market had the expected effects of lowering markups and unleashing the competitive

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<sup>25</sup> This vertical structure also makes it possible to show (Raff and Schmitt, 2007) that circumstances exist under which manufacturers can earn higher profits by letting retailers engage in parallel imports, hence showing that parallel imports may be a strategy favored by manufacturers, not simply an arbitrage strategy pursued by retailers.

forces it was predicted to bring. This is a particularly interesting article for our purpose, because it considers 18 sectors, 5 of them service sectors, including Wholesale and Retail Trade. Interestingly, lower markups are indeed found (between 1981 and 1999) in manufacturing sectors, but the opposite is found for services. In fact, Wholesale and Retail Trade is one of three service sectors where markups increased especially strongly during this period.

These examples are suggestive of the impacts of private contractual adjustments when barriers to integration are eliminated. Francois and Wooton (2010) using a gravity-type approach make the same general point: the degree of competition in the domestic service sector matters for international trade and can act as a barrier to trade of its own.

Bernard and Dhingra (2014) is the first paper to study empirically the link between trade liberalization and private contractual barriers. Its starting point however is slightly different from the papers described above. In the absence of vertical contracts, firms transact at arms' length resulting in business stealing among exporters of a good and double marginalization between the exporters of this good in a particular country and the importers in the destination market. The alternative is a joint venture which not only eliminates the issue of double marginalization, but also provides some market power to the joint venture. Naturally the elimination of double marginalization potentially lowers consumer prices, but if at the same time competition is being reduced by the creation of a joint venture between an exporter and an importer, consumer prices could well rise. They show that freer trade can induce more of these types of joint ventures and that, as a result, consumer surplus may fall even if freer trade otherwise has the traditional effects, such as an increase in product variety. Thus the channel is slightly different but the general argument is the same: trade liberalization can trigger a contractual response from the exporters and importers that can result in capturing the rents that would otherwise go to the consumers. What is particularly interesting about this paper is that it provides clear empirical evidence. Using transaction-level data for imports in Colombia (with matching exports from the US), Bernard and Dhingra test whether, following the free-trade agreement with the United States, US exporters enjoying free-trade status in Colombia are more likely to show higher prices, a lower quantity traded, as well as a smaller number of importers being served relative to a control group. They indeed find evidence of these three effects showing again that trade liberalization triggers adjustments with anti-competitive effects. This is promising even if obviously much more work needs to be done on these issues.

#### **4. Retail Market Structure and International Trade in Consumer Goods**

In this section we disregard detailed contractual arrangements between manufacturers and retailers in order to consider industry-wide adjustments of retailing to trade liberalization and, in particular, the market structure changes that have taken place in retailing since the 1980s. The main questions are how and to what extent international trade in consumer products may have contributed to

industry-wide changes in retailing, and what influence these changes may have had on the volume of international trade, the variety of traded goods and the welfare effects of trade liberalization.

International trade has grown much faster than world GDP for many decades, driven by falling trade costs, the growth of China and other Asian countries, as well as increased foreign investments. In the United States, for example, imports rose from 4.8 percent of GDP in 1972 to 11.7 percent in 2001 (Broda and Weinstein, 2006, p. 549). A comparison of import penetrations across different industries in the United States suggests that the expansion of imports was especially strong in the case of consumer goods.

As we discussed in Section 2, large retailers and retail chains have played an essential role in the growth of consumer goods imports, most prominently from China. The important role of big retailers suggests that there are significant economies of scale especially in direct importing. A survey of 86 retailers in Germany, Austria and Switzerland (accounting for about 50% of total retail sales in these countries) indicates that direct importing is indeed mostly done by large retailers, the largest of which operate their own overseas buying offices (Zentes, Hilt and Domma, 2007). This survey also argues that direct importing is associated with significantly lower variable costs, as it allows retailers to bypass additional layers of intermediaries through buying offices that can directly identify the lowest-cost supplier for specific items. The reason why only big retailers choose the direct import channel is, of course, that it is associated with large fixed costs. These include costs of operating buying offices, searching for suppliers, developing products, specifying product standards, training suppliers, and monitoring quality.

The role of economies of scale in direct importing for the growth of retail chains and, more generally, for the increased market concentration in retailing has been studied by Basker and Van (2010b) and Raff and Schmitt (2012). The mechanism works as follows: direct imports are associated with large fixed costs, but give the importer access to cheaper sources of supply. Only large retailers can afford to pay these fixed costs, but in turn they are able to import disproportionately more than smaller retailers that have to rely on more expensive indirect imports via wholesalers and other agents or may not have access to imports at all. Lower import prices following a reduction in trade barriers thus benefit the large, direct importers more than small retailers, and by making large retailers more competitive, lower import prices tend to squeeze out smaller retailers.

Basker and Van (2010b) study this mechanism in a partial equilibrium model where only a chain retailer can afford to pay the fixed costs of direct imports. When trade costs fall, the chain retailer takes over local retail markets from small-scale competitors. Raff and Schmitt (2012) model retailing as a monopolistically competitive industry in which firm productivity follows a Pareto distribution. Fixed costs of direct importing separate retailers into a group of very productive and therefore big firms able to pay these costs and a group of less productive firms that can only source imports indirectly through wholesalers. A reduction in trade costs boosts sales and mark-ups of direct importers, but squeezes sales and mark-ups of indirect importers. The smallest retailers are

forced to exit the industry. The model is thus able to trace out the effect of trade on the size and on the productivity distribution of retailers, which changes as the least productive firms are squeezed from the market. The size distribution is affected by these exits but also by the changes in market shares associated with the sales growth of productive retailers and the decline in sales of less productive retailers. The overall effect of trade liberalization is to raise market concentration in retailing.

The models of Basker and Van (2010b) and Raff and Schmitt (2012) are consistent with what we know about market concentration in retailing and the emergence of large national chains operating large establishments. Whereas large retail firms (with at least 100 establishments) represented 18.6% of US retail sales in 1967, their share has increased to 36.9% in 1997, and the average size of these establishments more than doubled over the last 40 years. More significantly, the number of establishments operated by multi-unit retailers increased dramatically between 1977 and 1997 whereas it decreased in manufacturing (Jarmin et al., 2005). At the same time there was considerable entry and exit by firms. In fact, entry and exit rates were much higher in retailing than in manufacturing (see Jarmin et al., 2004).

The models we just discussed examine the effects of an increase in the volume of imports. They do not account for another aspect of import growth that appears equally important in the context of retail markets, namely the enormous rise in the number of traded product varieties. Broda and Weinstein (2006) define a product variety as a particular good (for instance, at the ten-digit Harmonized-Tariff-System level) coming from a particular country. By this definition, they estimate that in the United States the number of imported product varieties more than tripled between 1972 and 2001, from 71,420 varieties (7731 goods from an average of 9.2 countries) to 259,215 varieties (16,390 goods from an average of 15.8 countries). China is an especially noteworthy case. In 2001, the United States imported 10,315 varieties from China and thus fourteen times more than in 1972, when a mere 710 varieties were imported. Taiwan, Korea, India and Mexico also contributed over-proportionately to the growth in imported varieties.

While Broda and Weinstein do not distinguish between consumer and intermediate goods, there is little doubt that a considerable share of the varieties imported from China and other emerging economies are indeed consumer good varieties and that big retailers handle a large part of trade in these varieties. This raises the question of how the increase in the variety of imported goods may influence retail market structure. One paper that speaks to this is Eckel (2009).<sup>26</sup> This paper shows, in a general equilibrium model, how an increase in the number of imported varieties brought about by trade liberalization may lead to retail market concentration. The increase in varieties available for import induces retailers to expand their assortment, because consumers demand variety. But handling a larger assortment raises retailer fixed costs, since a bigger assortment requires more shelf

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<sup>26</sup> See also Basker, Klimek and Van (2012) for a partial equilibrium model with economies of scale explaining the scope of product lines within superstores.

space and better logistics among other things. As higher fixed costs cut into retail profits, the number of retailers falls to guarantee non-negative profits in industry equilibrium.

Raff and Schmitt (2014) also develop a model in which market structures in both manufacturing and retailing are endogenous. Like in Eckel, increased trade leads retailers to expand their assortment. In particular, removing trade barriers reduces the number of domestically produced varieties, as some domestic manufacturers exit the market and surviving producers expand production volume to supply export markets. The decline in the number of domestic varieties is more than offset by the increase in imported varieties. In terms of employment this implies that less domestic labor is required to produce local varieties and more to distribute foreign varieties. In the process employment is shifted from manufacturing into the retail sector.

The predictions of these models fit well with the observed increase in retail assortments and changes in employment patterns. Assortments have risen significantly over the last 30 years. According to Quelch and Kenny (1994), the number of consumer-packaged-goods stock-keeping units (SKUs) grew 16% each year between 1985 and 1992. Employment in the United States fell in manufacturing between 1970 and 1990, but rose by 71% in wholesale and retail trade (Blum, 2008) especially for those engaged in international trade (see Bernard et al., 2009, Table 9).

Another interesting development in retailing is that over the years up-front payments, which are lump-sum payments made by manufacturers to retailers to obtain access to shelf space, have become an important feature of retailing and are now used in several segments of the retail market (grocery, apparel, footwear, toys, games, etc).<sup>27</sup> It is generally accepted that these fixed payments emerged in the early 1980s exactly when the number of new varieties started to increase significantly (Sullivan, 1997). There is at least circumstantial evidence of a link between deeper import penetration of consumer products and the increased use of upfront payments in retailing. For instance, imports of consumer good varieties accelerated in the early 1980s. Using more aggregated data than Broda and Weinstein, Raff and Schmitt (2014) estimate the number of new imported consumer good varieties to have grown on average over 2.5 times faster in 1982-86 as compared to 1977-81 (4.5% per year against 1.8%).<sup>28</sup> In other words, trade liberalization has favored the proliferation of new varieties in part sourced overseas, creating bottlenecks at the retailing level and providing scope for retailers to obtain payments from manufacturers to access shelf space. In fact, retailers have themselves contributed to create this bottleneck whether it is through the introduction of private labels (Blanchard et al., 2013) and/or by actively sourcing goods abroad (Feenstra and Hamilton, 2006).

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<sup>27</sup> The term is descriptive of when these payments are actually made, that is, at the time the contract is signed and/or at the beginning of each year if the length of the contract spans several years. Slotting allowances belong to this class of payments, as do so-called listing fees, pay-to-stay fees, and street money' (Marx and Shaffer, 2007, p823).

<sup>28</sup> Based on own computations. The growth in the number of new varieties is measured by the change in 4-digit-SIC-product/country-of-origin pairs.

Eckel (2009) and Raff and Schmitt (2014) show how trade liberalization, through the growth of imported varieties, may have contributed to the emergence and rise of upfront payments. In Eckel's paper upfront payments arise in equilibrium when consumers value variety - but not too much. In this case, adding a variety to their assortment creates little additional demand from consumers, and retailers find it optimal to carry fewer varieties than would be consistent with free entry and exit in manufacturing. That is, retailers create a bottleneck, and manufacturers make upfront payments as they compete to have their products carried by retailers. Trade liberalization, instead of leading to greater product variety for consumers as in traditional intra-industry trade models, may then simply lead to greater upfront payments as more imported varieties enter the competition for a slot in retailers' assortment. Eckel shows that this may not be necessarily bad for consumers. True there are no gains from variety, but higher upfront payments induce retailers to lower markups on their existing assortment.

In Raff and Schmitt (2014), retailers choosing their product assortment take into account that distributing more varieties within their own store leads to a cannibalization effect in the sense that the demand for a new variety reduces the demand for other varieties sold in the store. The implication of this is that when a retailer bargains with a manufacturer over the wholesale price the agreed wholesale price exceeds the marginal cost of production. This is true even if the bargaining is efficient in the sense that the wholesale price maximizes the surplus of the retailer-manufacturer pair. The reason is that a higher wholesale price and therefore a smaller order reduce cannibalization. In equilibrium, competition for scarce shelf space guarantees that the rents manufacturers earn through the positive wholesale mark-ups are transferred to retailers through upfront payments.<sup>29</sup> Trade liberalization in the form of a greater number of imported varieties then induces retailers to expand their assortment but also to collect higher upfront payments. In fact, Raff and Schmitt show that upfront payments may induce retailers to carry more varieties than would be socially desirable, but to sell too little of each variety. In this sense, upfront payments are a reflection of a distortion in the wholesale market; a distortion that is not cured by trade liberalization.

Retailing may affect the outcome of trade liberalization through yet another channel. In particular, Cole and Eckel (2014) show that retail market competition may have unexpected effects for import-competing domestic producers. In particular, rather than reducing their sales, trade liberalization may boost them, as retailers respond to lower prices of imported varieties by cutting mark-ups across their whole assortment. This happens because consumers' preference for "one-stop shopping" creates cross-price effects between domestic and foreign varieties that retailers take into account when competing for customers.

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<sup>29</sup> Raff and Schmitt (2014) also offer an explanation as to why very powerful retailers may in fact not receive upfront payments. This arises in particular when retailers are so powerful that they can dictate wholesale prices and thus eliminate the wholesale mark-up by forcing manufacturers to price at marginal cost.

The fundamental point made by these papers is that in order to assess the welfare effects of trade liberalization in consumer good markets one has to take into account how goods move through the retail sector. Simply put, retailing constitutes a bottleneck between producers and consumers and one has to determine how domestic and imported varieties pass through this bottleneck. As a result gains from variety may shrink or even vanish depending on retailers' assortment policy. Even if they increase their assortment in response to trade liberalization, social welfare may decrease as the retail industry becomes more concentrated. As shown by Eckel (2009), the growth of retail markups and greater average distance between consumers and stores may offset the traditional gains from greater variety and increased competition between manufacturers.<sup>30</sup>

The fact that the benefits consumers may reap from trade liberalization in consumer-good industries depend crucially on retail market structure has been recognized, if only indirectly, by the literature on exchange-rate pass-through into consumer prices. Distribution margins (i.e., retail costs and retailer mark-ups) often account for 30 to 50 percent of the retail prices of consumer goods and thus absorb a significant part of exchange-rate movements (Campa and Goldberg, 2006a). Thus any change in the cost structure and competition in the retail sector is bound to have a large impact on pass-through. Hellerstein's (2008) study of the beer market shows that a significant part of the variation in import prices is absorbed by retail margins. Campa and Goldberg (2006b) find that the retail price sensitivity to import price variations has generally increased over the last decade.

The importance of the retailing sector for our understanding of trade liberalization can also be seen when analyzing the impact of retail market regulation. In a number of countries, including France, Belgium, Italy, Ireland, and Japan, there is a tradition of protecting small local retailers by placing barriers on the expansion and particularly on the size of large retail establishments. Raff and Schmitt (2012) show that such restrictions tend to mute the effect of trade liberalization in a way that is detrimental to consumers. These restrictions fall on the largest, most productive retailers that would normally be the biggest importers. By making these retailers less productive retail market regulation reduces the volume of consumer-good imports and makes the average retail price level less sensitive to changes in the price of imported products. The adverse effects of retail market regulation on trade has been recognized by policy makers. For instance, the United States and other countries have complained that the Large Scale Retail Store Law in Japan made it difficult for exporters to gain access to the Japanese market (Miyagiwa, 1993). France only recently abolished the Loi Raffarin, which also regulated the entry of large retailers, following complaints about the lack of price competition at the retail level (Economist, 2008).

There is another important lesson here, namely that the liberalization of product markets may not have very big welfare effects if retail markets continue to operate inefficiently. If consumers are to reap the full benefit of trade liberalization both in terms of product variety and lower consumer prices, then it may be necessary to also remove impediments in the retail market.

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<sup>30</sup> This is consistent with the evidence of Badinger (2007) discussed above.

## 5. Conclusions

The recent international trade literature has made considerable progress in determining how industry structure, and in particular firm heterogeneity, is shaping as well as being shaped by international trade. Most of this literature, however, whether theoretical or empirical, is about manufacturing firms and about export activities. The line of research on retailers in an international trade context shows not only that firm heterogeneity matters a great deal in retailing as well, but also that import activities, not exports, are an equally important factor influencing market structures.

Another message is that retailers have become too important and too influential to be ignored if one wants to understand the positive and the normative effects of trade liberalization especially for consumer product markets. In other words, assuming that producers can directly reach consumers as in the traditional international trade approach is no longer a good enough approximation, as such an assumption often only provides an upper bound on the possible welfare gains from trade liberalization. This is the case because in many consumer markets it is the retailers that determine which and how many varieties of goods consumers may buy. Moreover, manufacturers and/or retailers have access to a wide range of contractual possibilities allowing them to offset the pro-competitive effects of trade liberalization and to capture rents that would otherwise go to consumers.

There are several interesting theoretical issues involving retailers that have not been mentioned but that need to be tackled. One of them is the trend toward 'lean retailing' (see, for instance, Evans and Harrigan, 2005), which implies that goods are sourced with a view to reducing retail inventories or shifting inventory control upstream to wholesalers or manufacturers, so-called vendor-managed inventory. The size of inventories is bound to have implications for trade dynamics and thus for the variability as well as for the volume of international trade (Alessandria et al., 2011). In particular, trade dynamics are likely to differ depending on whether inventories are held by retailers or shifted to manufacturers or wholesalers.

Another issue concerns the apparent increase in the share of private-label goods in retail assortments. Blanchard et al. (2013) is a first theoretical paper on the implications of private-label goods for international trade. But there is so far little systematic empirical evidence on the link between private labels and trade.

This brings us to the most important challenge for future research, namely that we need a lot more empirical work to assess the significance of the economic mechanisms discussed in this paper. This is likely to happen as more firm-level and transaction-level data become available.



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**Table 1: US Imports and Shares of Imports in Apparent Consumption at the Finished Product Level, Various Years**

	Imports/Apparent Consumption (%) <sup>31</sup>	Imports (million \$)	Imports/Apparent Consumption (%)	Imports
	2005		2010	
Dolls, Toys, Games (NAICS 33993)	86.8	16,244 <sup>32</sup>	96.5	18,979
Source: <a href="http://ita.doc.gov/td/ocg/2012%20toy%20report.pdf">ita.doc.gov/td/ocg/2012%20toy%20report.pdf</a>				
	1997		2001	
Footwear (NAICS 3162)	78	13,372	83	14,890
	1998		1999	
Rubber/plastic uppers and rubber/plastic soles	97.6	547,089*	98.6	616,693*
Leather uppers	93.6	642,448*	96.3	657,163*
Fabric uppers	80.9	290,203*	85.1	319,143*
*Thousand pairs				
Source: <a href="http://www.allcountries.org/uscensus/1247_footwear_production_foreign_trade_and_apparent.html">http://www.allcountries.org/uscensus/1247_footwear_production_foreign_trade_and_apparent.html</a>				
	1997		1998	
Men's/boy's apparel				
-Sweaters	98.5	571.7	97.7	802.8
-Coats	60.4	2,806.3	63.7	3,020
-Swimwear	91.8	151.1	92.4	185.1
Women's/girls' apparel				
-Sweaters	91.2	2,056.6	80.9	2715.4
-Dresses	31.6	1,980.3	33.3	2,263.2
-Tops, except sweaters	70.2	6,437.9	70.3	8,612
-Skirts	43.2	978.2	54.2	1,245.5
-Coats and Jackets	58.4	4,082.9	66.8	2,965
-Swimwear	26.1	237.1	28.2	293.5
-Pajamas	64.7	968.5	68.3	1,233.4
Infants' Apparel	73.1	1,231.5	70.7	1,630.9
Source: <a href="http://www.allcountries.org/uscensus/1246_selected_apparel_shipments_foreign_trade_and.html">http://www.allcountries.org/uscensus/1246_selected_apparel_shipments_foreign_trade_and.html</a>				

<sup>31</sup> Apparent consumption: Production plus imports minus exports, sometimes also adjusted for changes in inventories at the product level.

<sup>32</sup> 82.7% from China in 2005 and 88.6% in 2010.

**Figure 1: Retailers and Top 100 US Importers**

