Buyer Power in International Trade[1]

Horst Raff
Institut für Volkswirtschaftslehre
Christian-Albrechts-Universität zu Kiel
24098 Kiel, Germany
Email: raff@econ-theory.uni-kiel.de

Nicolas Schmitt
Department of Economics
8888 University Drive
Simon Fraser University
Burnaby BC, V5A 1S6, Canada
Email: schmitt@sfu.ca

March 2007, preliminary and incomplete

[1]The authors acknowledge financial support from the Social Sciences and Humanities Research Council of Canada.

Abstract

This paper investigates the implications for international markets of the existence of intermediaries with market power. Two main results are shown. First, buyer power does not imply that retailers capture the rents from trade liberalization. Indeed manufacturers (domestic and foreign) still earn a significant share of the rents associated with freer trade. Second, price competition and welfare can be lower in free trade than in autarky because an equilibrium in which some retailers are foreclosed may be easier to sustain in free trade than in autarky.

JEL classification: F12

Keywords: buyer power, Wal-Mart, international trade

1 Introduction

The present paper investigates how buyer power, that is, the exercise of significant market power by retailers/wholesalers, might impact international markets and, in particular, how it may affect the volume of international trade, consumer prices and welfare. It is easy to imagine that powerful retailers, such as Wal-Mart, Metro or Tesco, are easily able to dictate their terms to small suppliers whether they are domestic or foreign. The issue investigated in this paper is about the choice of contractual relationships between retailers with market power and a small number of possibly *large* suppliers. In particular, we are interested in determining the circumstances under which powerful retailers, signing contractual arrangements with domestic and foreign suppliers, allow them to sell to other retailers (non-exclusivity) or not (exclusivity) and the consequences of these choices on market outcomes.

Two recent developments in the distribution sector motivate this paper. First, retailers in many countries have become significantly more powerful both on the buyer and on the seller side. The extreme case is Wal-Mart which is today the world's biggest company by sales (US$312.4 billion) and the number-one grocer in the United States with 16% of the US grocery market.[1] The same phenomenon has been observed in the EU along with the fact that the aggregate concentration ratio in retailing is very high compared to manufacturing.[2] The second feature is the fact that powerful retailers participate extensively in international markets. Wal-Mart alone accounted for an incredible 10% of total US imports from China in 2004 (Basker and Van, 2005; Fishman, 2006), and now imports more than half of its non-food products (Smith, 2004). In the apparel market, 48% of the apparel sold by US retailers in 1993 were imported against 12% in 1975[3], and in the socks industry, the US imported 670 million pairs of socks in 2004 against 12 million pairs in 2001 (Konzelmann et al., 2005). Greater reliance on international markets is also reflected by the fact that, by the mid-1970s, most major US retailers had overseas buying offices, especially in East Asia, with contacts with a large network of suppliers.[4] Gereffi (1999) sees the role of 'buyer-driven

[1] In certain US cities, Wal-Mart has 25 to 30% of the relevant market. These market shares come in large part from superior product handling and distribution technology compared to competitors. (Fishman, 2006; Economist, 2006).

[2] The 20 largest retailing firms account for 43% of aggregate EU retail food turnover when the equivalent number for manufacturing is only 14.5%. In 1999, the five-firm concentration ratio in grocery and daily goods retailing was 63% in the UK, 76.7% in Sweden, 56% in France and 62.5% in Belgium (Dobson et al., 2001). See Gereffi (1999) concerning clothing retailing.

[3] See Gereffi (1999). The picture is similar for Europe.

[4] In 2002, Wal-Mart took over Pacific Resources Exports (PREL), its exclusive global

global commodity chains'[5] as critical to understand why, despite formidable spatial and cultural distances, countries like Japan, South Korea, Taiwan, Hong Kong, Singapore, and now China have been so successful and for so long in exporting to Western countries.

The above features imply that all suppliers, large or small, must now compete for retailer's contracts. The continuing relationships between Wal-Mart and well known suppliers such as Black and Decker, Levi Strauss, Philips, Sara Lee occupy large teams of employees. There is evidence that these large suppliers have been more and more dependent on powerful buyers to the point of often being compelled to move production abroad to satisfy Wal-Mart's cost requirements. Even for the newly merged Procter&Gamble (P&G) and Gillette, for instance, with sales in excess of $68 billion a year, Wal-Mart is its number one customer with total orders as big as P&G's next nine customers combined.[6] Similarly, a leading German brand producer reports that 75% of its sales are going to four retail chains only (Clarke et al., 2002). Evidence about significant power exercised by buyers range from various favorable terms obtained by major retailers (up-front fees, listing fees, payments for special promotions, etc; see Clarke et al., 2002) to refusal to purchase or product de-listing[7], and exclusive arrangements. For instance, Springs Mills[8], a supplier of cotton towels, blankets and bedding, accepted to adapt its production and pricing to Wal-Mart specifications as well as to restrict and sometimes to sever its supply contracts with several other larger buyers (Konzelmann et al., 2005).

The analysis of buyer power dates back to Galbraith (1952) who looked at it as a countervailing power, i.e., as offsetting manufacturers' market power. Since then the industrial organization literature has concluded that the impact of higher concentration in retailing on consumer prices and consumers' welfare was ambiguous.[9] Essentially, buyer power given monopolistic

---

buyer between 1989 and 2002. PREL lists over 6000 suppliers, 80% of which are located in China (Smith, 2004).

[5]In addition to large retailers, examples of buyer-driven chains include well-known marketers that carry no production such as Liz Claiborne, Nike and Reebok (see Gereffi, 1999).

[6]'If the relationship should go sour, it would be too bad for Wal-Mart. It would be devastating for P&G' (Fishman, p234, 2006).

[7]Recent cases of refusal to purchase and de-listing have been reported in the mineral water market and in the washing powders and detergents market in France (Clarke et al., 2002).

[8]Known today as Springs Global; it is the world largest sheet and towel manufacturers after its merger with Coteminas, a Brazilian company (Konzelmann et al., 2005).

[9]Von Ungern-Sternberg (1996) and Dobson and Waterson (1997) show that increased concentration at the retail level does not necessarily lead to lower consumer prices. Chen

power at the manufacturing level constitutes a second-best solution. Thus, increased buyer power can lead to lower retail prices and higher welfare provided sellers themselves have power. If however sellers have little or no power, increased buyer power unambiguously leads to higher retail prices and lower welfare. The more recent industrial organization literature notes that sellers with buyer power have several different contractual tools at their disposal, and it aims at understanding the implications on retail prices, degree of collusion, or manufacturers incentives of some of these tools. For instance, Marx and Shaffer (2004) show that retailers with buyer power may use up-front payments, also known as slotting allowances, to exclude other retailers. Rey and al. (2005) consider the use of take-it-or-leave-it-offers made by buyers along with conditional payments, while Inderst and Wey (2004) look at the supplier's incentives to invest in product innovation in response to buyer power. This recent literature generally concludes that retailers with market power have considerable scope for anti-competitive behavior.

By looking explicitly at the contractual arrangements between sellers and buyers, the point of departure is the present paper is the recent literature in industrial organization. It extends the analysis to an international environment characterized by barriers to trade and asymmetries in the market shares of manufacturers. We are particularly interested in understanding how trade liberalization affects consumer prices and welfare in the presence of buyer power, and how this compares to a world in which producers have market power.

The existing international trade literature on intermediaries does not generally deal with buyer power.[10] Basker and Van (2005) is, to our knowledge, the only paper on buyer power in an international trade context. Their goal, however, is different from ours since they want to explain why, in the presence of economies of scale in retailing and in the import process, trade liberalization has led to an explosion of imports by large buyers (i.e., Wal-Mart).

The paper is organized as follows. In the next section, we present a simple two-country model of international trade with two domestic retailers and one manufacturer in each country. In Sections 3 we derive the equilibria in autarky and free trade. In Section 4 we compare these equilibria to determine the effect of trade liberalization on distribution contracts, retail prices and

(2003) shows that an increase in countervailing power does lower retail prices provided a competitive fringe is present in retailing.

[10]See Rauch (2001) on the role of networks in international trade, Feenstra and Hanson (2004) on the role of Hong Kong intermediaries with respect to Chinese products, Raff and Schmitt (2005, 2006) on the role of exclusive territory and exclusive dealing in international markets, and Richardson (2004) on the comparison between exclusivity in the distribution of domestic products and trade policy to restrict the market access of foreign producers.

social welfare. In addition, we compare the effects of buyer power with those resulting from seller power. Conclusions and extensions follow in Section 5. An Appendix contains proofs.

2 A Simple Model

In this section, we develop a simple trade model with two identical countries, home and foreign, and segmented markets. In each country there are two differentiated retailers, who distribute a product in the local market, and one manufacturer. Whereas the retailers sell only in their local market (their services are non-tradeable), they can buy the (homogeneous) good they distribute from the local manufacturer, import it from the manufacturer located abroad, or both. Given the additional assumption that production involves a constant marginal cost, c, we can concentrate on analyzing the market equilibrium in the home country, knowing that the same analysis applies to the foreign country.

Hence consider the two home country retailers, 1 and 2, and let the marginal cost of retailing be normalized to zero. Retailer differentiation comes from the fact that they have different characteristics that consumers value, such as location, customer service, parking facilities, etc. The representative domestic consumer has a quasi-linear utility function:

$$U(q_1, q_2, y) = \sum_{i=1}^{2} q_i - \frac{1}{2}\sum_{i=1}^{2} q_i^2 - bq_1q_2 + y, \tag{1}$$

where q_i denotes the quantity of the good bought from retailer i, and y the consumption of the numeraire good which can be traded at no cost. Parameter $b \in [0,1]$ reflects the degree of substitutability between retailers. If $b = 0$, the retailer services are not substitutable and each retailer acts as a monopolist; if $b = 1$, the retailers are perfectly substitutable. Denoting income by I and the retail price of retailer i by p_i, the consumer's budget constraint is

$$\sum_i p_i q_i + y = I. \tag{2}$$

Maximizing (1) subject to (2) and inverting the resulting first-order conditions yields the following demand function for each retailer:

$$D_i(p_i, p_j) = \frac{1 - b - p_i + bp_j}{1 - b^2}, \quad i, j = 1, 2; \quad i \neq j. \tag{3}$$

Retailers have all the bargaining power in their relationship with the manufacturers, and hence make take-it-or-leave-it contract offers to the manufacturers. The contracts consist of a two-part tariff, i.e., a wholesale price and a fixed fee, and may be contingent on whether a manufacturer sells exclusively to the retailer or also supplies the other retailer. We denote the case of exclusivity by E and the case of non-exclusivity by N. The wholesale price (fixed transfer) offered by retailer $i = 1, 2$ to manufacturer $j = h, f$, is denoted by w_{ij}^k (T_{ij}^k), where $k = E, N$. A contract offer by retailer i to manufacturer j can hence be summarized by the pair (T_{ij}^E, w_{ij}^E) and (T_{ij}^N, w_{ij}^N). Retailers with accepted contracts then choose retail prices p_i, $i = 1, 2$.

The strategic interactions between the retailers and between them and the manufacturers can be summarized by the following three-stage game:

1. Retailers 1 and 2 make simultaneous contract offers to manufacturers h and f. These offers are public knowledge.

2. Manufacturers h and f simultaneously decide whether to accept contracts from one retailer, both retailers or none of the contracts. These decisions are also public.

3. The relevant contracts are implemented and the retailers whose contracts were accepted choose retail prices simultaneously.

We solve this game for pure-strategy subgame-perfect equilibria, beginning with the case of autarky and then considering the case of free trade. In autarky, retailers can only buy from h, whereas in free trade they have equal access to both manufacturers. These two cases are interesting, not only because they allow us to derive results in a straightforward manner, but also because they give us strong results that can be shown to hold in the more complex case where trading costs are positive but not prohibitive.

Notice that in the case of autarky, having the manufacturer accept an exclusive contract from one of the retailers implies foreclosure of the rival retailer, that is, the rival does not sell. In the case of free trade, an exclusive contract does not automatically lead to foreclosure of a retailer, since each retailer may have an exclusive contract with a different manufacturer. Foreclosure only occurs if both manufacturers accept an exclusive contract from the same retailer. We therefore have to distinguish between the type of type of contract (E or N) that we observe in equilibrium and the consequence this has for for the possible exclusion of retailers (foreclosure (F) or no foreclosure (NF)).

Before presenting the details of the autarky and free-trade equilibria, it is useful to define the maximum total industry profit that could be generated by all players acting together as Π^m, and the maximum joint profit that could be earned by a single active retailer i together with the manufacturers (when the other retailer does not sell) as Π_i^m. It is straightforward to show that $\Pi^m = \frac{(1-c)^2}{2(1+b)}$ and $\Pi_i^m = \frac{(1-c)^2}{4}$, so that for $b = 0$ we have $\Pi^m = 2\Pi_i^m$, and, as expected, $\Pi^m < 2\Pi_i^m$ for $b > 0$.

3 Characterization of the Equilibria

3.1 Autarky

Since the two home retailers can only purchase from the domestic manufacturer in autarky, our model becomes an application of Lemma 1 and Proposition 2 of Rey, Thal and Verge (2005). There are two types of equilibria that can arise in autarky: one where the manufacturer signs an exclusive contract with one of the retailers while the other retailer does not sell; and one where the manufacturer sells to both retailers under non-exclusive contracts. We first characterize these equilibria, and then discuss refinements.

Consider an equilibrium in which one of the retailers has an exclusive contract with the manufacturer and the other retailer does not sell. In this type of equilibrium, both retailers offer the manufacturer, conditional on exclusivity, a wholesale price equal to marginal cost and a fixed fee that transfers the entire monopoly profit to the manufacturer; the contract also specifies a sufficiently unattractive payment to the manufacturer in case he also sells to the rival retailer. It is easy to verify that such an equilibrium always exists, simply because it is a best response for each retailer to offer such a contract given that the other retailer does so, and for the manufacturer to accept one of them. The demand faced by the active retailer is simply $x = 1 - p$, and with a wholesale price of $\tilde{w}^E = c$ the active retailer's profit-maximizing retail price is $\tilde{p}^E = c + \frac{1-c}{2}$. The active retailer chooses a fixed transfer to shift the entire monopoly rent to the manufacturer, who therefore obtains a profit equal to $\tilde{\pi}_h^E = \frac{(1-c)^2}{4}$. Both retailers earn zero profit in equilibrium: $\tilde{\pi}_1^E = \tilde{\pi}_2^E = 0$. The intuition behind this distribution of rents is simple: the retailers are competing with each other to be the manufacturer's exclusive distributor; this competition forces them to "bid" their maximal willingness to pay for exclusivity.

Second, there may also exist non-exclusive equilibria in which both retailers carry the manufacturer's product. We consider the one that is Pareto-undominated from the point of view of the retailers. This equilibrium is characterized by two conditions. The first condition is that the manufacturer must be indifferent between accepting one retailer's exclusive contract and accepting both retailers non-exclusive contracts. If the manufacturer strictly preferred the non-exclusive contract, then at least one retailer could reduce his transfer to the manufacturer. The second condition is that the wholesale price offered by a retailer has to maximize the joint profit of the retailer and the manufacturer given the wholesale price offered by the rival retailer. If this were not the case, the retailer could adjust the wholesale price, keep the profit left to the manufacturer constant by adjusting the fixed fee, and thereby raise his own profit. It is this second condition that lets us tie down the equilibrium wholesale prices. We show in the Appendix in connection with the proof of Proposition 1 that the equilibrium wholesale prices are:

$$\tilde{w}_i^N = c + \frac{b^2(1-c)}{4}. \tag{4}$$

The corresponding retail price then is:

$$\tilde{p}_i^N = c + \frac{(2-b)(1-c)}{4}. \tag{5}$$

It is readily apparent that $\tilde{p}_i^N < \tilde{p}^E$ for $b > 0$.

This equilibrium can be shown to exist provided that the joint profit of the manufacturer and both retailers in the non-foreclosure equilibrium exceeds the joint profit of a single retailer-manufacturer pair. This is satisfied if $b \leq 0.73205$, i.e., when the retailers are sufficiently differentiated. Only in this case are there enough rents to prevent retailers from deviating to offering an exclusive distribution arrangement to the manufacturer. More precisely, the rents obtained by each retailer correspond to his contribution to total industry profit (i.e. to the difference between industry profit in the non-foreclosure equilibrium and the joint profit that the manufacturer and the other retailer could generate by agreeing on an exclusive deal). The remaining rent goes to the manufacturer.

What can we say about equilibrium selection? Note that a foreclosure equilibrium always exists. From the retailers' point of view this equilibrium is payoff dominated by the non-foreclosure equilibrium. Hence whenever the non-foreclosure equilibrium exists, cheap-talk between the retailers is sufficient to implement the preferred equilibrium. Hence, we conclude:

Proposition 1 *There are two different equilibrium outcomes in autarky depending on the degree of differentiation between the two retailers. If* $b \leq 0.73205$*, both retailers buy from the manufacturer under non-exclusive contracts. If* $b > 0.73205$*, the manufacturer sells exclusively to one retailer.*

P roof. See Appendix. ■

3.2 Free-Trade Equilibria

Now consider the case where there are no trading costs so that retailers have access to both manufacturers. Again we want to examine which type of contract (exclusive or non-exclusive) occur in equilibrium and what consequences this has for prices and retail market structure. With two manufacturers it is obviously more difficult for a retailer to foreclose his rival, since he would have to sign exclusivity contracts with both manufacturers. To see why this is the case, suppose that retailer $-i$ offers an exclusive contract to both manufacturers. Note that he has to offer both manufacturers the same payment, since otherwise retailer i would find it easier to convince the manufacturer receiving the less advantageous deal from retailer $-i$ to sell to him. The best deal that $-i$ can offer the manufacturers is to set the wholesale price equal to the manufacturers' marginal cost and to pay each manufacturer a fixed fee equal to half the monopoly profit that he earns. Now we have to check the best response of retailer i. Obviously, he cannot offer more than retailer $-i$ if he were to make offers to both manufacturers. But we have to check if retailer i could profitably make an offer to just one manufacturer j. We find that this is not the case if b is sufficiently large, because in this case price competition between retailers would be so tough that retailer i cannot earn enough rents to make manufacturer j a sufficiently attractive offer. Specifically:

Lemma 1 *For* $b \geq 0.61803$*, there exists an equilibrium in which one of the retailers does not sell. In this "foreclosure equilibrium", the active retailer transfers all of his profits to the two manufacturers.*

P roof. See Appendix. ■

In this foreclosure equilibrium we obviously obtain the same retail price as in the equivalent autarky equilibrium, namely $\tilde{p}^E = c + \frac{1-c}{2}$. Both domestic retailers earn zero profits: $\tilde{\pi}_1^E = \tilde{\pi}_2^E = 0$, whereas the two manufacturers share the resulting industry profits equally. With foreclosure occurring in both countries and the active foreign retailer also dividing his entire profits equally between the two manufacturers, it has to be the case that the domestic manufacturer makes the same profit as in the equivalent autarky equilibrium, namely $\tilde{\pi}_h^E = \frac{(1-c)^2}{4}$, only that in this case the profit is the sum of payments from the active retailers in both countries.

Next we examine whether there exist equilibria in which both retailers are active. There are three possibilities: (i) each retailer deals exclusively with a separate manufacturer; (ii) both retailers buy from the same manufacturer under a non-exclusive contract; and (iii) at least one retailer buys from both manufacturers under a non-exclusive contract. We first show that cases (ii) and (iii) cannot occur in equilibrium so that:

Lemma 2 *There does not exist an equilibrium, in which both retailers buy from the same manufacturer under a non-exclusive contract.*

P roof. See Appendix. ■

The reason for this is simple: if a retailer bought from both manufacturers at a wholesale price exceeding marginal cost, his rival could always offer just one of the manufacturers a deal that he would accept, namely to sell at a slightly lower wholesale price in exchange for a compensating transfer, and that would make the rival better off. Similarly, if a retailer buys only from one manufacturer, the rival's best strategy is to buy from the other manufacturer, since he does not have to compensate this manufacturer for lost sales to his existing customer.

It follows that in an equilibrium in which both retailers are active the wholesale price offered by retailer i to "his" manufacturer j has to maximize their joint profit given the wholesale price of retailer $-i$: $(p_i(w_i, w_{-i}) - w_i)q_i(w_i, w_{-i}) + (w_i - c)q_i(w_i, w_{-i})$. This profit is equal to:

$$(p_i - w_i)\frac{(2 - b - b^2 - (2 - b^2)w_i + bw_{-i})}{(4 - b^2)(1 - b^2)} + (w_i - c)\frac{(2 - b - b^2 - (2 - b^2)w_i + bw_{-i})}{(4 - b^2)(1 - b^2)},$$

where

$$p_i = \frac{(2 - b - b^2 + 2w_i + bw_{-i})}{4 - b^2}. \tag{6}$$

Maximizing (**??**) with respect to w_i and using the resulting best-response functions, we obtain the following equilibrium wholesale and retail prices:

$$\hat{w}_i = c + \frac{b^2(1 - b)(1 - c)}{4 - b(2 + b)}, \tag{7}$$

$$\hat{p}_i = c + \frac{2(1-b)(1-c)}{4-b(2+b)}. \tag{8}$$

Next, notice that, just like in autarky, the possibility of foreclosure limits how much rent retailers may earn in equilibria in which both are active. Let the profits of retailer $i = 1, 2$ and the manufacturers in the case of no foreclosure be given by π_i^{NF}, π_h^{NF} and π_f^{NF}, and let $\Pi^{NF} \equiv \pi_1^{NF} + \pi_2^{NF} + \pi_h^{NF} + \pi_f^{NF}$ denote the total industry profit when both retailers are active. Similar to the autarky case, a necessary condition for existence of a non-foreclosure equilibrium is that the total industry profit in this equilibrium be higher than the joint profit that can be earned by one retailer and the two manufacturers setting up an exclusive arrangement, $\Pi^{NF} \geq \Pi_i^m$:

Lemma 3 *A necessary condition for a non-foreclosure equilibrium to exist is:* $b \leq 0.67209$*. Moreover, in such an equilibrium the sum of manufacturers' profits must be positive.*

P roof. See Appendix. ■

To prove sufficiency we have to propose strategies and prove that they constitute an equilibrium; this is done in the proof of Proposition 2. It is interesting to note that the non-foreclosure equilibrium is harder to sustain than under autarky. This makes sense, since it yields lower industry profits and hence a deviation to a foreclosure arrangement is more attractive for retailers. This is why a lower b is needed in free trade than in autarky to obtain a non-foreclosure equilibrium.

Note that a non-foreclosure equilibrium exists for $b \leq 0.67209$ and a foreclosure equilibrium for $b > 0.61803$. Hence, in the range $0.61803 \leq b \leq 0.67209$, there is an equilibrium selection problem. However, like in the autarky case, the non-foreclosure equilibrium Pareto-dominates from the point of view of the retailers the foreclosure one and cheap-talk will again be enough to implement it. Hence, in free trade, the outcome has two active retailers for $b \leq 0.67209$ and a single active retailer for $b > 0.67209$.

Proposition 2 *There are two different equilibrium outcomes in free trade on the degree of differentiation between the two retailers. If* $b \leq 0.67209$*, both retailers are active, each buying from a separate manufacturer under an exclusive contract. If* $b > 0.67209$*, only one retailer is active; this retailer has exclusive contracts with both manufacturers.*

P roof. See Appendix. ■

4 The Effects of Trade Liberalization

4.1 Prices and Welfare

It is now simple to compare equilibrium distribution arrangements and their effects on retail prices and welfare in free trade and autarky. The outcome strongly depends on the degree of differentiation between the two retailers (i.e., the value of b). The results are summarized below:

Proposition 3 *(i) If* $b \leq 0.67209$*, the equilibrium outcome is a non-foreclosure distribution arrangement under both autarky and free trade. In this case, autarky retail prices are higher than those in free trade; (ii) if* $0.67209 < b \leq 0.73205$*, both retailers are active in autarky, but only one is active in free trade. As a result, retail prices are higher in free-trade than in autarky; (iii) if* $b > 0.73205$*, only one retailer is active under both autarky and free trade, and retail prices are the same in autarky and in free trade.*

To show these results, compare autarky and free-trade retail prices. In Case (i), $(\widetilde{p}_i - \widehat{p}_i)$, as given by (5) and (8) respectively, gives:

$$c + \frac{(2-b)(1-c)}{4} - c - \frac{2(1-b)(1-c)}{4-b(2+b)} = \frac{(1-c)b^3}{4[4-b(2+b)]} > 0. \qquad (9)$$

That is, free trade creates more competition between retailers, leading to lower prices for consumers. The reason for this is the following: in autarky, each retailer internalizes the effect of his wholesale price on the manufacturer. Specifically, reducing the wholesale price means that the retailer has to compensate the manufacturer for lost sales to the rival retailer. This keeps wholesale prices high. In free trade, each retailer buys from only one manufacturer. There is hence no need to compensate him for any lost sales to the rival retailer. This makes it more attractive to lower the wholesale price in order to take market share away from the rival retailer.

In Case (ii), a non-foreclosure equilibrium prevails under autarky, but foreclosure occurs in free trade. Hence, computing $(\widetilde{p}_i - c - \frac{1-c}{2})$, free-trade retail prices are higher than those in autarky since:

$$c + \frac{(2-b)(1-c)}{4} - c - \frac{1-c}{2} = -\frac{b(1-c)}{4} < 0. \qquad (10)$$

Trade liberalization hence leads to a perverse effect on consumer prices. Instead of creating more competition, as one might expect, free trade ends up leading to a retail monopoly. The intuition for this surprising result is simple:

because trade liberalization would lead to tougher price competition if there were no foreclosure, each retailer has incentive to try even harder to foreclose his rival.

In Case (iii), there is foreclosure of one retailer under both autarky and free trade so that the retail price is equal to $c + \frac{1-c}{2}$ in autarky and in free trade.

Clearly, buyer power may have the exact opposite effect compared to what we typically the standard effects of free trade. Indeed Case (ii) is one where the concentration ratio in retailing is higher in free trade than in autarky at least as viewed by consumers. Although, in both cases, there is just one manufacturer selling, the distribution involves two retailers in autarky and only one of them in free trade.

Next, we examine how trade liberalization affects domestic social welfare. Social welfare is the sum of consumer surplus (CS), the two domestic retailers' profits (π_i) and the domestic manufacturer's profit (π_h):

$$W = CS + \sum_{i=1}^{2} \pi_i + \pi_h.$$

The following welfare results mirror the effect of trade liberalization on consumer prices:

Proposition 4 *Trade liberalization (i) raises social welfare if* $b \leq 0.67209$*; (ii) reduces social welfare if* $0.67209 < b \leq 0.73205$*; and (iii) leaves social welfare unchanged if* $b > 0.73205$.

Trade liberalization raises social welfare in Case (i) for the usual reason: it leads to tougher price competition, in this case between retailers, and hence a smaller deadweight loss. The fact that welfare falls in Case (ii) when contracts switch from non-foreclosure in autarky to foreclosure in free trade is due to the fact that the retail price increases as one retailer monopolizes the market in free trade. The result that domestic welfare remains unchanged in Case (iii) when only one retailer is active in free trade and in autarky is due to the fact that (a) retail prices and hence consumer surplus is unchanged, and (b) the active retailer's transfer of rents to the foreign manufacturer is just offset by the active foreign retailer's transfer of rent to the home manufacturer.

If the home government liberalized trade unilaterally, these offsetting transfers by the foreign retailer to the domestic manufacturer would no longer take place. In this case, the foreign manufacturer receives a significant share of the industry profits in free trade. This is straightforward in the case of foreclosure: half the industry profit now goes to the foreign manufacturer to prevent him from accepting an exclusive contract from the rival retailer. When there is no foreclosure, the reason that the foreign manufacturer, like his domestic counterpart, receives a positive profit is that here, too, he has to be compensated for not signing an exclusive contract with the rival retailer. Hence the rather paradoxical result that despite buyer power free trade induces a significant shift of rents to the foreign manufacturer. In Case (i) where there is no foreclosure both under autarky and in free trade, this transfer of rents abroad more than offsets the positive effect of trade liberalization on consumer surplus. In Cases (ii) and (iii), the shift of rents to the foreign manufacturer comes on top of the fact that trade liberalization lowers consumer surplus or leaves it unchanged. Hence we obtain a clear result:

Proposition 5 *Unilateral trade liberalization unambiguously reduces domestic social welfare.*

4.2 Buyer versus Seller Power

The size of the rents accruing to the retailers and to the manufacturers is not the same whether it is the retailers or the manufacturers who have all the bargaining power. But this is not the main difference between seller and buyer power. In this section, we want to underline another key difference between buyer and seller power, namely that the equilibrium prices and consequently the competitive effects of free trade are different.

To see this, assume that the manufacturers have all the bargaining power and make take-it-or-leave-it contract offers to the two retailers. In autarky and thus in the presence of a single manufacturer and two retailers, manufacturer i sets wholesale price equal to

$$\bar{w}_i = c + \frac{b(1-c)}{2} \tag{11}$$

Equilibrium retail prices are:

$$\bar{p}_i = c + \frac{1-c}{2} \tag{12}$$

and the manufacturer uses the fixed fee to extract all profits from the retailers. Hence, the manufacturer's profit is equal to the overall integrated profit Π^m:

$$\bar{\pi}^m = \Pi^m \equiv \frac{(1-c)^2}{2(1+b)}. \tag{13}$$

As we see from the retail price, the manufacturer is able to completely monopolize the market. He does so by setting a high wholesale price that internalizes the competition between the retailers. Obviously then, the profit earned by the manufacturer is higher than in the foreclosure equilibrium with buyer power, since in the latter equilibrium only one retailer is active. It is also higher than in the non-foreclosure equilibrium. More significantly,

Proposition 6 *The autarky retail prices are higher under seller power than under buyer power.*

To show this, it suffices to compute $(\overline{p}_i - \widetilde{p}_i)$ as given by (12) and (5) respectively, which yields

$$c + \frac{1-c}{2} - c - \frac{(2-b)(1-c)}{4} = \frac{b(1-c)}{4} > 0. \tag{14}$$

Next, we examine retail prices under free trade. The case of manufacturers making offers to two retailers has been examined by Shaffer (1991). In Shaffer's paper there is a continuum of manufacturers. However, it is straightforward to show that his result also holds for the case of two homogenous manufacturers, one in each country. Moreover, the equilibrium retail prices that Shaffer obtains are the same that we compute for the non-foreclosure equilibrium under buyer power. The reason for this has to do with the fact that in the non-foreclosure equilibrium—just like in Shaffer (1991)—each retailer buys from a single manufacturer, so that equilibrium wholesale prices maximize the joint profit of a retailer/manufacturer pair given the equilibrium price(s) of the other pair(s). However, the rents are shared differently between retailers and manufacturers, with manufacturers obtaining a positive share under buyer power and zero profit under seller power.

If free trade leads to a foreclosure equilibrium under buyer power, then retail prices must obviously be higher than under seller power. Hence:

Proposition 7 *If* $b \leq 0.67209$, *the free-trade retail prices are the same under buyer and seller power; but if* $b > 0.67209$, *buyer power leads to higher retail prices in free trade than seller power.*

A strong conclusion emerges from comparing Propositions 6 and 7:

Proposition 8 *The pro-competitive effect of free trade (as compared to autarky) is unambiguously greater under seller power than under buyer power.*

This is the case because, as compared to seller power, buyer power tends to lead to more price competition in autarky (the two retailers are active despite a single source of supply) but not in free trade where price competition is either as intense as under seller power (when both retailers are active) or less intense when one of the retailers is foreclosed.

5 Conclusions

Opening up markets to the forces of international trade has traditionally been seen as a policy tool capable of unleashing pro-competitive forces and inducing domestic industries that are imperfectly competitive to become competitive and more efficient. In essence, opening a country to international trade allows for rents to be re-allocated to the more efficient (and innovative) firms within an industry and ultimately to consumers. Typically in such a situation, the pro-competitive effects of freer trade are thought to be large not only because barriers that distort trade are being eliminated, but also because market power gets diluted with freer trade and firms become more efficient. The intellectual underpinning of the above process is of course linked to the Schumpeterian creative destruction process, and this process has surely been present in several freer-trade experiments. However, when manufacturers become more efficient and make rents in the process, the rents are not always dissipated by other equally or more efficient manufacturers. There are other agents ready to capture a share of these rents if they have an opportunity to do so. This is the case, in particular, for retailers, wholesalers and other intermediaries especially once they become unavoidable agents in the process of reaching consumers.

This paper has started to look at the implications of the existence of such intermediaries when they have market power. We obtain some surprising results. First, under some circumstances the rents existing at the manufacturer level in autarky can be completely captured by manufacturers once free trade is introduced even if additional sources of supply are available in free trade and even if there is (imperfect) competition among retailers. Hence buyer power does not necessarily mean that retailers capture the rents generated by trade liberalization. Second, price competition can be lower in free trade than in autarky because an equilibrium in which some retailers are foreclosed may be easier to sustain in free trade than in autarky. Thus, in these cases, it is not consumers who ultimately earn a large share of the rents associated with freer trade, not even the retailers with market power, but rather the manufacturers.

The role of buyer power may help explain why competitive and welfare gains from economic integration seem to have been sometimes significantly lower than expected. Even if other channels may explain such a discrepancy (see for instance Mercenier and Schmitt, 1996), the role of buyer power is worth examining in the context, for instance, of the disappointing impacts associated with the 1992 Common Market experiment.

It is important to keep in mind that the present paper does not propose a theory of buyer power in an international context since buyer power in our model is exogenous: the retailers have all the bargaining power irrespective of the trade environment. It only spells out the implications of the existence of buyer power in an international context. This is of course a first step, one that already produces interesting results that differ substantially from those associated with seller power. Thus the present paper has nothing to say with respect to the idea that buyer power might be a by-product of freer trade. It should be clear, however, that if it is true that trade liberalization is an important element in the emergence of buyer power, then our main conclusions would *a fortiori* hold.

6 Appendix

Proof of Proposition 1

The joint profit of retailer i and the manufacturer when the rival retailer offers contract (T_{-i}^N, w_{-i}^N) is equal to:

$$\begin{aligned}\pi_i^N(w_i^N, w_{-i}^N) \equiv\ & (p_i(w_i^N, w_{-i}^N) - w_i^N)q_i(w_i^N, w_{-i}^N) \\ & + (w_i^N - c)q_i(w_i^N, w_{-i}^N) + (w_{-i}^N - c)q_{-i}(w_i^N, w_{-i}^N)) + T_{-i}^N.\end{aligned}$$

Using the linear demand specification, this can be rewritten as:

$$\begin{aligned}\pi_i^N(w_i^N, w_{-i}^N) =\ & \frac{\left(2 - b - b^2 - (2-b^2)w_i^N + bw_{-i}^N\right)^2}{(4-b^2)^2(1-b^2)} \\ & + (w_i^N - c)\frac{\left(2 - b - b^2 - (2-b^2)w_i^N + bw_{-i}^N\right)}{(4-b^2)(1-b^2)} \\ & + (w_{-i}^N - c)\frac{\left(2 - b - b^2 - (2-b^2)w_{-i}^N + bw_i^N\right)}{(4-b^2)(1-b^2)} + T_{-i}^N,\end{aligned}$$

where the first term is retailer i's profit, the second term the manufacturer's profit from selling to retailer i (both gross of retailer i's fixed transfer), and the third term is the manufacturer's profit from selling to the rival retailer $-i$. Taking the derivative with respect to w_i^N yields retailer i's best-response function:

$$w_i^N = \frac{1}{4(2-b^2)}[(2-b-b^2)(b^2+(4-b^2)c) + 4bw_{-i}^N]. \tag{15}$$

Setting $w_i^N = w_{-i}^N$ due to the symmetry of the retailers, we can solve for the equilibrium wholesale prices.

The non-exclusive equilibrium exist provided that the joint profit of the manufacturer and both retailers in the non-foreclosure equilibrium exceeds the joint profit of a single retailer-manufacturer pair, i.e., $\Pi_i(\tilde{w}_i^N, \tilde{w}_{-i}^N) + (p_{-i}(\tilde{w}_i^N, \tilde{w}_{-i}^N) - \tilde{w}_{-i}^N)q_{-i}(\tilde{w}_i^N, \tilde{w}_{-i}^N) - T_{-i}^N \geq \frac{(1-c)^2}{4}$. This is satisfied if $b \leq 0.73205$.

Proof of Lemma 1

Suppose that retailer $-i$ offers an exclusive contract to both manufacturers. Note that he has to offer both manufacturers the same payment, since otherwise retailer i would find it easier to convince the manufacturer receiving the less advantageous deal from retailer $-i$ to sell to him. The best deal that $-i$ can offer the manufacturers is to set the wholesale price equal to the manufacturers' marginal cost and to pay each manufacturer a fixed fee equal to half the monopoly profit that he earns. Now we have to check the best response of retailer i. Obviously, he cannot offer more than retailer $-i$ if he were to make offers to both manufacturers. But we have to check if retailer i could profitably make an offer to just one manufacturer j.

With retailer $-i$ setting a wholesale price $w_{-i}^E = c$ and retailer i a wholesale price of w_i, profit maximizing retail prices are:

$$p_i = \frac{(2 - b - b^2 + 2w_i + bc)}{4 - b^2} \quad \text{and} \quad p_{-i} = \frac{(2 - b - b^2 + 2c + bw_i)}{4 - b^2}. \tag{16}$$

The joint profit of retailer i and the single manufacturer j hence is

$$\Pi_{i,j}(w_i, c) = (p_i(w_i, c) - c)\frac{(2 - b - b^2 - (2 - b^2)w_i + bc)}{(4 - b^2)(1 - b^2)}. \tag{17}$$

Maximizing this joint profit over w_i yields as solution

$$w_i = \frac{1}{4(2 - b^2)}[b^2(2 - b - b^2) + c(8 - 6b^2 + b^3 + b^4)], \tag{18}$$

and the resulting joint profit is equal to

$$\Pi_{i,j} = \frac{(1 - c)^2(1 - b)(2 + b)^2}{8(1 + b)(2 - b^2)}. \tag{19}$$

Is this profit higher than half the monopoly profit that retailer $-i$ could offer in an exclusive deal with both manufacturers, which is equal to $\frac{(1-c)^2}{8}$? We have to check whether

$$\frac{(1-c)^2(1-b)(2+b)^2}{8(1+b)(2-b^2)} - \frac{(1-c)^2}{8} = \frac{(1-c)^2(1-b-b^2)}{4(2-b^2)(1+b)} > 0 \tag{20}$$

This is the case, if $1-b-b^2 > 0$ or $b < \frac{1}{2}\sqrt{5} - \frac{1}{2} = 0.61803$. Hence for $b < 0.61803$, a retailer will find it profitable to break his rival's exclusive deal with both manufacturers and thereby escape being foreclosed. For $b \geq 0.61803$, there exists an equilibrium in which one of the retailers does not sell. In this foreclosure equilibrium, the active retailer transfers all of his profits to the two manufacturers. If he did not, his rival would outbid him and establish a monopoly himself.

Proof of Lemma 2

Suppose first, by way of contradiction, that each retailer buys strictly positive quantities from both manufacturers. The wholesale price of retailer $i = 1, 2$ that is accepted by both manufacturers in equilibrium thus has to maximize the joint profit of retailer i and the two manufacturers given the wholesale price offered by rival retailer $-i$:

$$\begin{aligned}\bar{w}_i = \arg\max_{w_i}\{&(p_i(w_i, w_{-i}) - w_i)q_i(w_i, w_{-i}) + (w_i - c)q_i(w_i, w_{-i}) \\ &+ (w_{-i} - c)q_{-i}(w_i, w_{-i})) + T_{-i}\}.\end{aligned}$$

In addition, transfers to the manufacturers must be such that each manufacturer weakly prefers accepting the non-exclusive contracts from both retailers. It is easy to show that these wholesale prices exceed marginal cost (see the derivation of (4)). Now consider the following deviation by retailer i: offer a wholesale price $w_i = \bar{w}_i - \varepsilon$ to manufacturer j only and adjust the transfer to j so as to keep his profit unchanged. This deviation must raise i's profit, since he does not compensate manufacturer $-j$ for the profit reduction he incurs due to the decline in shipments to retailer $-i$. Hence retailer i will only offer a contract to one manufacturer. Next, similar arguments show that a retailer will not buy from both manufacturers, if the rival retailer buys from only one, and that the two retailers will not buy from the same manufacturer.

Proof of Lemma 3

Suppose a non-foreclosure equilibrium exists. Then it necessarily must be the case that retailer i and manufacturer j together earn at least as much as they could if they foreclosed retailer $-i$ while compensating manufacturer $-j$ for not selling to retailer $-i$:

$$\pi_i^{NF} + \pi_j^{NF} \geq \pi_i^m - \hat{\pi}_{-j}, \tag{21}$$

where $\hat{\pi}_{-j}$ is the compensation payment. Note that $\hat{\pi}_{-j} \leq \pi_{-j}^{NF}$, since there is no need to pay f strictly more than he would have earned in equilibrium. In other words, the joint profit obtained by retailer i and manufacturer j must be no less than the joint profit they obtain under foreclosure net of the compensation payment. Using the definition of total profit in the non-foreclosure equilibrium, this inequality can be transformed into

$$\pi_{-i}^{NF} \leq \Pi^{NF} - \pi_i^m + (\hat{\pi}_{-j} - \pi_{-j}^{NF}). \tag{22}$$

Since $\hat{\pi}_{-j} \leq \pi_{-j}^{NF}$, this inequality implies that a retailer's non-foreclosure profit cannot exceed his contribution to total industry profit. Individual rationality implies $\pi_i^{NF} \geq 0$ and hence a necessary condition for a non-foreclosure equilibrium to exist is:

$$\Pi^{NF} \geq \pi_i^m - (\hat{\pi}_{-j} - \pi_{-j}^{NF}) \geq \pi_i^m. \tag{23}$$

The condition that $\Pi^{NF} \geq \pi_i^m$ can be rewritten as:

$$\frac{4(1-b)(2-b^2)(1-c)^2}{(1+b)(4-2b-b^2)^2} - \frac{(1-c)^2}{4} \geq 0. \tag{24}$$

This inequality holds provided that $16(1-b)(2-b^2)-(1+b)(4-2b-b^2)^2 \geq 0$, or $b \leq 0.67209$.

Next, note that we can write this sum as:

$$\pi_h^{NF} + \pi_f^{NF} = \Pi^{NF} - \pi_1^{NF} - \pi_2^{NF} \tag{25}$$

Using (22), we obtain

$$\pi_h^{NF} + \pi_f^{NF} \geq \Pi^{NF} - (\Pi^{NF} - \pi_2^m + (\hat{\pi}_h - \pi_h^{NF})) - (\Pi^{NF} - \pi_1^m + (\hat{\pi}_f - \pi_f^{NF})).$$

Simplifying and re-arranging, we have

$$\hat{\pi}_h + \hat{\pi}_f \geq \pi_1^m + \pi_2^m - \Pi^{NF}.$$

Since it must be true that $\pi_1^m + \pi_2^m - \Pi^m > 0$, where Π^m is total integrated monopoly profit, and $\Pi^m \geq \Pi^{NF}$, it follows that $\pi_1^m + \pi_2^m - \Pi^{NF} > 0$ so that

$$\hat{\pi}_h + \hat{\pi}_f > 0.$$

Finally, since $\hat{\pi}_f \leq \pi_f^c$ and $\hat{\pi}_f \leq \pi_h^c$, we have

$$\pi_h^c + \pi_f^c > 0.$$

Proof of Proposition 2

We want to show that the following complete contract offer of retailer i constitutes an equilibrium strategy:

- $w^N_{i,j} = \hat{w}_i$, $w^N_{i,-j} = 0$,
- $T^N_{i,j} = \pi_i(\hat{w}_i, \hat{w}_{-i}) - \Pi^{NF} + \frac{1}{2}(\pi^m_1 + \pi^m_2)$, $T^N_{i,-j} = 0$,
- $w^E_{i,j} = w^E_{i,-j} = c$,
- $T^E_{i,j} = T^E_{i,-j} = \frac{1}{2}\left(\pi^m_1 + \pi^m_2 - \Pi^{NF}\right)$.

Note that it is a best response for each manufacturer to accept the non-exclusive offer given that the rival manufacturer accepts this contract. In particular, each manufacturer is indifferent between accepting this contract and accepting an exclusive contract from one of the retailers. Retailer i earns exactly his contribution to overall profit in the non-foreclosure equilibrium, namely $\Pi^{NF} - \pi^m_{-i}$. This is weakly greater than the profit i could earn by having both manufacturers sell exclusively to him, which cannot be higher than $\pi^m_i - \left(\pi^m_1 + \pi^m_2 - \Pi^{NF}\right)$.

Proof of Proposition 4

Consider first the case of foreclosure. In this case, there is one active retailer so that consumer surplus is

$$CS = \frac{q_i^2}{2}$$

where $i = 1$ or $i = 2$ depending on which retailer is active. In autarky, $CS^{Aut}_F = \frac{(1-c)^2}{8}$, $\pi_i = 0$ and $\pi_h = \frac{(1-c)^2}{4}$. Hence $W^{Aut}_F = \frac{3(1-c)^2}{8}$ provided $b > 0.73205$. In free trade, foreclosure leads to $CS^{FT}_F = CS^{Aut}_F$, $\pi_i = 0$ and $\pi_h = \frac{(1-c)^2}{4}$ since the home manufacturer earns half the monopoly rents on domestic sales (the other half is earned by the foreign manufacturer) and the home manufacturer earns half the monopoly rent generated abroad. Thus, free-trade domestic welfare is equal to $W^{FT}_F = \frac{3(1-c)^2}{8}$ provided that $b > 0.67209$.

Consider next the non-foreclosure equilibrium. In this case, consumer surplus is

$$CS = q_1 + q_2 - \frac{1}{2}(q_1^2 + q_2^2) - bq_1q_2 - p_1q_1 - p_2q_2$$

since both retailers are active. In autarky, $CS_{NF}^{Aut} = \frac{(2+b)^2(1-c)^2}{16(1+b)}$ and $\sum_{i=1}^{2} \pi_i + \pi_h = \frac{(4-b^2)(1-c)^2}{8(1+b)}$ provided that $b \leq 0.73205$. In free trade and provided that $b \leq 0.67209$, $CS_{NF}^{FT} = \frac{(2-b^2)^2(1-c)^2}{(1+b)(4-2b-b^2)^2}$. According to the equilibrium contracts, the rents accruing to the domestic manufacturer and the two retailers are equal to Π^{NF}, since the share of the rent earned by the foreign manufacturer in the home country is equal to the share of the rent earned by the home manufacturer in the foreign country.

The comparison between free trade and autarky is now immediate. Consider each case separately. When $b > 0.73205$, the welfare gains from going from autarky to free trade are

$$W_F^{FT} - W_F^{Aut} = \frac{3(1-c)^2}{8} - \frac{3(1-c)^2}{8} = 0.$$

When $0.67209 \leq b \leq 0.73205$, the welfare gains are

$$W_F^{FT} - W_{NF}^{Aut} = \frac{3(1-c)^2}{8} - \frac{(2+b)^2(1-c)^2}{16(1+b)} - \frac{(4-b^2)(1-c)^2}{8(1+b)} < 0.$$

Finally, when $b < 0.67209$, the welfare gains are

$$W_{NF}^{FT} - W_{NF}^{Aut} = \frac{(2-b^2)^2(1-c)^2}{(1+b)(4-2b-b^2)^2} + \frac{4(1-b)(2-b^2)(1-c)^2}{(1+b)(4-2b-b^2)^2} - \frac{(2+b)^2(1-c)^2}{16(1+b)} - \frac{(4-b^2)(1-c)^2}{8(1+b)} > 0.$$

References

[1] Basker. Emek and Pham Hoang Van, 2005, Putting a Smiley on the Dragon: Wal-Mart as Catalyst to US-China Trade, University of Missouri, mimeo.

[2] Clarke, Roger; Stephen Davies; Paul Dobson and Michael Waterson, 2002. *Buyer Power and Competition in European Food Retailing.* Edward Elgar, Cheltenham.

[3] Chen, Zhiqi, 2003, Dominant retailers and the countervailing-power hypothesis, *RAND journal of Economics* 34, 4, 612-625.

[4] Dobson, Paul; Roger Clarke; Stephen Davies and Michael Waterson, 2001, Buyer Power and its Impact on Competition in the Food Retail Distribution Sector of the European Union, *Journal of Industry, Competition and Trade* 1:3, 247-81.

[5] Dobson, Paul and Michael Waterson, 1997, Countervailing Power and Consumer Prices, *Economic Journal* 107, 418-30.

[6] Economist, 2006, Opening up the big box, February 25, 80.

[7] Feenstra, Robert and Gordon Hanson, 2004, Intermediaries in Entrepôt Trade, *Journal of Economics and Management Strategy* 13, 1 3-35.

[8] Fishman, Charles 2006, *The Wal-Mart Effect.* (New York: Penguin Press).

[9] Galbraith, J. Kenneth, 1952 *American Capitalism: The Concept of Countervailing Power,* Houghton Mifflin, New York.

[10] Gereffi, Gary, 1999. International Trade and Industrial Upgrading in the Apparel Commodity Chain, *Journal of International Economics* 48, 1 37-70.

[11] Inderst, Roman and Christian Wey, 2004. Buyer Power and Supplier Incentives, mimeo.

[12] Konzelmann, Suzanne; Frank Wilkinson; Charles Craypo and Rabih Aridi, 2005. The Export of National Varieties of Capitalism: The Cases of Wal-Mart and IKEA. Centre for Business Research, University of Cambridge, WP 314.

[13] Marx, Leslie and Greg Shaffer, 2004. Upfront Payments and Exclusion in Downstream Markets, mimeo.

[14] Mercenier, Jean and Nicolas Schmitt, 1996, On Sunk Costs and Trade Liberalization in Applied General Equilibrium, *International Economic Review* 37, 3, 553-71

[15] Rey, Patrick, Jeanine Thal and Thibaud Vergé, 2005. Slotting Allowances and Conditional Payments, mimeo

[16] Raff, Horst and Nicolas Schmitt, 2005, Endogenous Vertical Restraints in International Trade, *European Economic Review* 49, 1877-89.

[17] Raff, Horst and Nicolas Schmitt, 2006, Exclusive Dealing and Common Agency in International Markets, *Journal of International Economics* 68, 485-503.

[18] Rauch, James, 1999. Networks versus Markets in International Trade, *Journal of International Economics* 48, 17-36.

[19] Rauch, James, 2001, Business and Social Networks in International Trade, *Journal of Economic Literature* 39, 1177-1203.

[20] Rauch, James and Robert Feenstra, 1999. Introduction to symposiumon 'Business and social networks in international trade', *Journal of International Economics* 48, 1 3-6.

[21] Richardson, Martin, 2004, Trade Policy and Access to Retail Distribution, *Review of International Economics* 12, 4, 676-88.

[22] Scherer, F.M., 1997, Retail Distribution Channel Barriers to International Trade, ESRC Working Paper.

[23] Smith, Hedrick, 2004, Who calls the Shots in the Global Economy? www.pbs.org/wgbh/frontline/shows/walmart/secrets

[24] von Ungern-Sternberg, Thomas, 1996, Countervailing Power Revisited, *International Journal of Industrial Organization* 14, 507-20.