



Market Power in Vertically Related Markets

Stéphane Caprice

► To cite this version:

Stéphane Caprice. Market Power in Vertically Related Markets. Humanities and Social Sciences. Université des Sciences Sociales (Toulouse 1), 2014. tel-02795984

HAL Id: tel-02795984

<https://hal.inrae.fr/tel-02795984>

Submitted on 5 Jun 2020

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UNIVERSITE TOULOUSE 1 CAPITOLE

SECTION ECONOMIE

Année 2014

HABILITATION A DIRIGER DES RECHERCHES
(présentée et soutenue publiquement le 20/05/2014 par)

Stéphane Caprice

Market Power in Vertically Related Markets

JURY :

Bruno Jullien, Directeur de Recherches CNRS, Rapporteur,

Patrick Rey, Professeur,

Louis-Georges Soler, Directeur de Recherches INRA, Rapporteur,

Lars Sørsgard, Professeur,

Mike Waterson, Professeur, Rapporteur.

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1 Introduction

Competition in vertical chains is complex and multi-dimensional. The functioning of vertical chains raises vertical and horizontal issues such as high and increasing levels of concentration at both the manufacturer stage and the retailer stage, and the nature of retailer-manufacturer interactions. Moreover, consumer behavior has changed : consumers increasingly prefer one-stop shopping, which impacts the retail competition, as well as the functioning of vertical chains.

Some of these aspects bear substantial consequences for weaker participants at the different stages of vertical chains. The rising bargaining power of large retailers and the use of so-called "unfair practices" create concerns for small and medium size manufacturers, and weaker retailers. While higher competition may translate into lower prices for consumers in the short-run, these practices also have implications for the overall sustainability of vertical chains over the long run. For example, some manufacturers and the weakest retailers may exit/leave the market, implying softer competition at the respective stages. Moreover, increasing bargaining power of the larger retailers may result in lower incentives to invest in product innovations.

The overall objective of this "habilitation" thesis is to address several aspects of competition in vertical chains, specifically in the food sector. This is based on theoretical research, which combines the tools of industrial organization, such as game theory and contract theory. My aim is to derive policy-relevant results.

The thesis is based on various articles, which are published in international and refereed journals. The main results and the relationships between the different articles are summarized. Ongoing research projects are also presented. I discuss the contributions to the existing literature, the main assumptions, the most important results and the limitations and extensions of the presented work.¹

¹I have deliberately chosen not to detail modeling notations used in the articles as they are fully available at the end of this document. The synthesis proposed here simply complements the reading of articles.

Note, some papers are not presented, here, as they are related to other topics (see Curriculum Vitae).

In the following, I have chosen to divide my past research into two chapters. First, I investigate the formation of industry surplus and its sharing according to various dimensions such as market power as well as policy changes in intermediate markets. Second, I focus on the buyer power of large retailers, where I address determinants of the buyer power and its implications for industry, such as sharing of rents, investment incentives. Finally, project and research perspectives are addressed in the third chapter.²

²Appendices include a detailed Curriculum Vitae and the full text of all articles defended here.

2 Industry surplus formation and its distribution along value chains

This chapter focuses on determinants, which affect the level of industry profit and its sharing along value chains.

Consider a bilateral monopoly. There are potential inefficiencies, due to, for example, double marginalization. But as long as tariffs are non linear (two-part tariffs in the simplest setting), double marginalization vanishes and industry profits sharing is not relevant concerning the efficiency of the vertical structure. The wholesale price then corresponds to the marginal cost of production, and transfers are made according to the bargaining power of each party, i.e., supplier and retailer. In such a situation, industry profits' sharing is independent of the industry profits' formation. A shift in power between the upstream and the downstream firm has only distributional implications, without changing either total welfare or consumer surplus. However, in many cases, industry profits' sharing matters with respect to the efficiency and the overall performance of the vertical chains.³

Sometimes, policy makers due to the lobbying of some parties, retail level or manufacturer level, exclusively focus on the sharing of the industry value. For example, policy makers in France have decided to give to more bargaining power to the suppliers with the objective to balance the bargaining power of the large retailers (Galland Law, 1996). Changes were on resale-below-costs laws. At the end, the Galland Law impacted the outcome of vertical chains, which translated into higher retail prices.⁴ The formation of the industry surplus and the distribution of its value are, thus, not independent.

³Note, if all contracts were feasible, industry profits' sharing would be disconnected from the efficiency of the industry (examples are given; see Inderst and Wey, 2003; Inderst and Shaffer, 2010). More generally, this point highlights that the nature of contract arrangements, which are used on intermediate markets is relevant for the analysis. This point is discussed.

⁴Allain and Chambolle (2011) show that resale-below-cost laws enable producers to impose industrywide price-floors to retailers. This mechanism suppresses downstream competition but also dampens upstream competition, leading to higher prices. Notice, price-floor may be more profitable for producers than resale price maintenance contracts.

In the following, the analysis is based on four research articles. At the end, I come up with some concluding remarks.

2.1 "Industry profits sharing" with regard to "inter-brand and intra-brand competition"

Caprice S. (2004), "Fidélité à la marque, fidélité à l'enseigne : une analyse des déterminants des rapports de force entre producteurs et distributeurs", *Economie Rurale*, Vol. 283-284, 72-105.

This article analyzes industry surplus sharing with regard to inter-brand and intra-brand competition. I show that there is an asymmetric link between competition at various stages and the distribution of industry profits along the chain.

According to the common view, depending on consumers' preferences for brands or stores, Steiner (1985) proposed a simple rule to determine the relative market power of producers and retailers : "If consumers are more disposed to switch brands within brand, retailers dominate manufacturers. Retail margins will be relatively high and those of manufacturers relatively low. When consumers are more disposed to switch stores within brand than brands within store, the above market power and margin relationships are reversed", (Steiner, 1985, pages 95-96).

Considering linear tariffs and public contracts with no renegotiation, Allain (2002) shows that the balance power between producers and retailers are inversely correlated with the relative degree of imperfect competition at the upstream and downstream level. It turns out that more competition downstream translates into more bargaining power upstream, larger margins and larger profits. Inversely, more competition upstream leads to larger profits downstream. Allain considers linear tariffs and assumes that contracts are public (with no renegotiation).

In contrast to Allain, I consider that the vertically related firms agree on two-part tariff contracts, which are secret. For example, the supplier survey conducted by the GfK Group (2007), on behalf of the Competition Commission, supports the use of complex non-linear supply contracts in the U.K. grocery market.⁵ Likewise

⁵See Competition Commission (2008).

empirical studies find evidence that manufacturers and retailers use non-linear supply contracts in the markets for bottled water in France (Bonnet and Dubois, 2010) and for yoghurt in the U.S. (Villas-Boas, 2007). According to contract arrangements, my results contradict some of widespread views.

The structure of the market under consideration consists of two suppliers supplying two retailers. The suppliers are differentiated by their products, while the retailers are differentiated by their retail service.⁶ The parameter α measures the degree of interbrand rivalry and, thus, how similar the products are perceived to be. When $\alpha = 0$, the products are viewed as independent, but as α increases (to 1) products become closer substitutes. The parameter β measures the degree of intrabrand rivalry, that is how similar retailers are perceived in services offered to consumers (location, convenience, etc.).

Market behaviour is characterized as a two-stage game. In the first stage, transfer prices are negotiated between each supplier and each retailer. I consider Nash-negotiation in secret and two-tariffs contracts in which a represents the bargaining power of suppliers and $(1-a)$ the bargaining power of retailers. In the second stage, the retailers compete simultaneously and independently by setting quantities in retail market to maximize individual profits.

The equilibrium condition corresponds to Cournot outcome with four products, where each retailer sells two products. The distribution of profits is based on the incremental contribution of the suppliers to overall profits of each retailer. Important, is the analysis of industry profits sharing according to α and β , and the bargaining power of suppliers a . Results are reported in the following table (expected results according to Steiner are in brackets) :

Players	Suppliers		Retailers	
Bargaining power	$\partial\pi/\partial\alpha$ interbrand	$\partial\pi/\partial\beta$ intrabrand	$\partial\pi/\partial\alpha$ interbrand	$\partial\pi/\partial\beta$ intrabrand
$a < 1/2$ (retailers)	" – " (–)	" – " (+)	" – " (+)	" – " (–)
$a > 1/2$ (suppliers)	" – " (–)	" – " (+)	" + " (+)	" – " (–)

⁶The inverse demands are linear functions of the quantities sold by retailers. See also Dobson and Waterson (1996a, 1997) for using those inverse demands.

With respect to the widespread view, more competition downstream translates into larger profits upstream and the reverse, more competition upstream leads to larger profits downstream. Here, the results are contrasted. First, if downstream competition is increasing, suppliers earn less. The result is related to the opportunism problem, which arises in secret contracting (Hart and Tirole, 1990). When downstream competition increases, industry profits are lower and incremental contribution of each supplier decreases as well. Thus, it is conceivable that suppliers can increase their profits when downstream competition is less severe. For example, if consumers are more captive with regard to retailers, because of loyalty rebate programs supported by retailers, suppliers also benefit from more downstream differentiation. Second, if upstream competition is increasing, the impact on retailer profits depends on retailers' bargaining power in the negotiations with the suppliers. For high bargaining power of retailers, retailer profits decrease as interbrand rivalry increases. When the bargaining power of retailers is high, they capture all the profits of the industry, it results that retailer profits decrease as industry surplus decreases as well. By contrast to earlier analyses, I show that intra- and interbrand rivalry are asymmetric in effects on supplier and retailer profits.

The analysis, I provide raises some issues. Because of secret contracting in non-linear tariffs, upstream margins are zero. Some papers such as, Kadiyali et al. (2000), Villas-Boas and Zhao (2005), Villas-Boas (2007) show the relevance of this result. Others papers show instead positive upstream margins (Bonnet and Dubois, 2010; Draganska et al., 2010; Bonnet et al., 2013). With respect to the results of these empirical analyses, zero margins upstream may be seen as one limitation of the model. The question is nevertheless opened. Another disputable feature of this setting is the absence of slotting allowances in equilibrium. This result is related to secret contracting in our setting.

The analysis I provide is interesting in many aspects. Even if the industry surplus formation is not considered, some implications could be derived for long run policies. More competition downstream does not necessarily translate into larger profits for producers to sustain investments of suppliers. In other words, incentives to invest at the upstream level might be reduced as downstream competition in-

creases. Similarly, retailers' incentives to invest do not only depend on downstream competition. Less competition at the upstream level translates into higher profits for retailers, which might enhance downstream incentives to invest.

2.2 How product lines matter

Avenel E. and S. Caprice (2006), "Upstream market power and product line differentiation in retailing", *International Journal of Industrial Organization*, 24, 319-334.

This paper examines the determinants of the product lines offered by competing retailers. By contrast to the literature on product line rivalry, which assumes that firms purchase their inputs from competitive fringes, we consider that retailers purchase goods from producers, which may enjoy some market power. Hence, upstream market power impacts on retailers' product line choices. In other words, equilibrium product lines will be different from the product lines that would be obtained with competitive supply on wholesale markets.

To highlight this point, we consider a model of vertical differentiation with two qualities and assume that the high quality is produced by a monopolist, while the low quality is produced by a competitive industry. Consumers are supplied by two identical retailers. Focusing on demand side aspects of product line differentiation, we assume that each variety is produced at constant marginal cost. In particular, there are no economies of scope. We determine the subgame-perfect equilibria of a multi-stage game in which the manufacturer first offers a contract to retailers, then retailers choose their product lines and, finally, compete on the final market "à la Cournot".

In this game of vertical contracting with downstream firms engaged in product line rivalry, the manufacturer chooses its contract offer in order to induce the product line that is most profitable to itself. Depending on cost and quality differentials between the two varieties of the good, this can be either head-to-head competition, complete differentiation or partial differentiation, that is, both retailers sell the low-quality good, but only one of them sells the high-quality good.

We show that strategic effects at work are different according to the product line rivalry chosen. For example, complete differentiation between retailers helps to distort industry sharing at the detriment of one retailer and at the joint benefit of the high-quality producer and the retailer, which is served. The supplier distorts the wholesale price away from the value that maximizes the profit of the industry in order to commit the supplied retailer to be tough in the final market. By contrast, head to head competition between retailers allows the high-quality producer to extract rents from both retailers. By committing to lower wholesale price, the high-quality producer induces tough competition between retailers instead of maximizing industry surplus. Commitment in lower wholesale prices reduces the rents left to the retailers.

Dobson and Waterson (1996b) consider a related issue, but they use a very different setting and it is difficult to compare their results with ours. Firstly, they do not consider vertical differentiation, but two-dimensional horizontal differentiation : products are horizontally differentiated, as well as retailers. Secondly, they consider linear pricing on the intermediate market, so that double-marginalization plays a central role in their paper. Firms can sign exclusive dealing contracts and then use monetary transfers. Thus there is a link between exclusive dealing and the resolution of the double-marginalization problem. In contrast, we assume that the manufacturer offers two-part tariffs, thus eliminating the double-marginalization issue and introducing rent-sharing effects. Moreover, the manufacturer cannot sign exclusive dealing agreements with retailers. If exclusivity emerges in our model, it is because one of the retailers refuses the contract offered by the manufacturer. Finally, Dobson and Waterson clearly focus on the antitrust aspects of exclusive dealing agreements, while we are primarily interested in the product lines offered by retailers.

Our analysis is interesting with respect to several aspects. First, we show that product line rivalry may interact with market power on intermediate markets : equilibrium product lines are different from the product lines that would be obtained with competitive supply on wholesale market. For example, assuming that firms purchase their inputs from competitive fringes, De Fraja (1996) shows that

firms prefer compete head-to-head in equilibrium.⁷ Second, our results differ from the widespread result, in which the manufacturer's profit is independent of the number of retailers supplied when retailers compete in homogenous goods. The number of retailers, at which the supplier sells the good is important for its profits : product line rivalry induced matters with regard to industry profits value and its sharing.

Introducing exclusive dealing contracts, as well as vertical integration is a possible extension of our model, we have considered in an earlier version of the paper. With regard to the analysis of Rey and Tirole (2007), our results are quite different under some aspects, as contracts in our setting are public.

2.3 Opportunism problem under bilateral oligopoly : incentive to promote downstream competition

Caprice S. (2005), "Incentive to encourage downstream competition under bilateral oligopoly", *Economics Bulletin*, 12(9), 1-5.

This paper examines the opportunism problem issue when an upstream firm, dealing with several downstream firms faces an alternative competitive upstream fringe.

Opportunism problem is a well-known problem.⁸ Consider the contracting problem of a monopolist supplier dealing with several firms that compete in an output

⁷De Fraja considers a multi-stage game in which firms first choose their product lines and then compete on the market. There are two pairs of varieties available to firms and it is examined whether firms prefer to operate on a segmented market, each selling one of the two pairs of varieties, or on an interlaced market, each selling one variety of each pair, which leads to tougher competition.

DeFraja's results are, however, related to the nature of competition. Champsaur and Rochet (1989) consider instead a model in which firms offer intervals of qualities to heterogeneous consumers and compete in prices. They show that in equilibrium it is not in the interest of a firm to offer a quality range that overlaps its competitor's quality range. Thus, product lines are completely differentiated. The issue of whether firms differentiate their product lines or compete head-to-head is also addressed in Gilbert and Matutes (1993) and Brander and Eaton (1984).

⁸See Rey and Tirole (2007) for a review of this issue.

market. As the upstream firm's customers compete with one another, their input demands are interdependent so each downstream firm cares about the terms that the supplier offers to all. Once the upstream firm has contracted with a downstream firm, it has an incentive to renegotiate other contracts to increase its profits at that firm's expense. This opportunistic behaviour reduces the upstream firm's profit since downstream firms will pay less for access to the input. Facing such a commitment problem, it is then not surprising that the upstream firm's profit is smaller, the more competitive the downstream segment is. In particular, it is well-known that the upstream firm's profit will decrease as the number of downstream firms competing in the output market increases. This opportunism issue is a key determinant of market structure as it influences the incentives of firms both to vertically merge and foreclose other firms.

However, upstream firms are rarely pure monopolists. They most often compete with other good or service suppliers. In the presence of another competitor, I show that an upstream firm faces both the previous commitment problem and a threat of losing sales to a rival supplier. In particular, I show that, under an upstream duopoly, where a dominant upstream firm competes with an alternative inferior (less efficient) supplier, the relationship between dominant upstream firm's profit and the number of firms competing in the downstream market depends on the strength of upstream competition (related to the cost of the second supplier). If upstream competition is strong, then it is possible that the dominant upstream firm's profit increases with the number of downstream firms. The standard result found in the literature is thus amended because there exists a rent-shifting effect that initially dominates the standard profit-reducing effect resulting of an increase in the number of downstream competitors. The intuition of this result is related to the outside options of the retailers. Consider the dominant upstream firm that negotiates with a retailer. The retailer's disagreement payoff is a decreasing function in the price at which it can buy from the alternative supplier, but also an increasing function of the number of downstream rivals. The larger this number, the lower the retailer's disagreement payoff (assuming downstream firms are substitute) and then the less concessions the dominant upstream firm should make.

Thus, the dominant upstream firm can extract more rents from the downstream level up to the point where the standard profit reducing effect resulting from an increase in the number of downstream competitors dominates.

In relation with the topic of this chapter, I have shown that the sharing of the industry surplus matters with respect to the incentive for excluding downstream firms. This analysis has some policy implications : the incentive to exclude downstream firms is more limited than the literature has suggested so far.⁹ Moreover, I show that the more competitive the upstream oligopoly is and/or the larger the size of the demand in final market, the larger the incentive to promote competition is. The threshold number of downstream firms becomes larger as the upstream competition strengthens and/or downstream demand increases.

This mechanism has been used by Inderst and Wey (2011) to explain that the upstream incentives to invest are larger when the low-cost supplier, dealing with several downstream firms, faces an alternative less efficient competitive fringe. Upstream investments are used to decrease outside options of downstream firms.

⁹Hart and Tirole (1990), in their bilateral oligopoly model setting in which a dominant supplier competes with an alternative supplier does not focus on the relationship between the dominant upstream firm's profit and the number of downstream firms. They consider instead the incentives to vertically merge. Incentives to merge are unchanged but, under vertical integration, this does not lead to complete exclusion of the non-integrated downstream firm.

Chemla (2003) has investigated the relationship between the dominant upstream firm's profit and the number of downstream firms in a related framework. He assumes a specific upstream cost and a different range of bargaining power between upstream and downstream firms. When an upstream firm has convex costs and downstream firms have non-negligible bargaining power there is a range over which dominant upstream firm's profit increases with the number of downstream firms. By contrast to Chemla, I examine this relationship in a simple setting closer to Hart and Tirole (1990) by introducing an alternative competitive upstream fringe. The dominant upstream firm has, thus, private incentive to preserve downstream competition.

2.4 The consumer effects of a ban on price discrimination in intermediate-goods markets

Caprice S. (2006), "Multilateral Vertical Contracting with an Alternative Supply : The Welfare Effects of a Ban on Price Discrimination", *Review of Industrial Organization*, 28, 63-80.

Antitrust authorities have been significantly concerned with price discrimination in intermediate-goods markets. For example, the Principal Act covering price discrimination in the United States, the Robinson–Patman Act, enacted in 1936, states that it is unlawful for a seller "to discriminate in price between different purchasers of commodities of like grade and quality".

There has been considerable back and forth in the academic literature about whether banning price discrimination on intermediate-good markets is good policy. The analysis, I propose, argues that banning price discrimination in intermediate-good markets might be welfare enhancing.

Bork's (1978) view was that price discrimination in intermediate-good markets is likely to be socially efficient and thus should not be proscribed. He suggested that price discrimination enables an upstream supplier to make selective price cuts to those customers over whom it has the least market power, price cuts that would not be profitable if price discrimination were not allowed (i.e., if all prices had to be lowered). Hence, under price discrimination, an intermediate-good supplier will lower the prices for some some buyers without raising prices to the remaining buyers. As a result, price discrimination leads to lower final-good prices from which the ultimate consumers benefit. A more recent theoretical literature identified welfare gains from forbidding price discrimination on intermediate-good markets (Katz, 1987; DeGraba, 1990; Yoshida, 2000). For example, in DeGraba's (1990) model, if the downstream firms have different marginal costs of production, the price-discriminating input supplier will charge the low-cost downstream firm a higher price than it charges the high-cost downstream firm, partially offsetting the cost advantage. Thus, price discrimination results in a smaller cost differential between downstream firms, which causes the lower-cost downstream firm to produce less

and the higher-cost firm to produce more than under uniform pricing. According to this literature, a ban of price discrimination benefits consumers in the short run and in the long run. More efficient firms receive benefits of a ban of price discrimination compared to their less efficient rivals, which leads to lower retail prices in the short run and restores incentives to invest and innovate for more efficient firms in the long run.¹⁰

A key assumption in the previous analysis is that downstream firms can observe their rivals' contracts even when price discrimination is feasible. In recent work, Rey and Tirole (2007) showed that banning price discrimination reduces social welfare. Unlike the papers cited in the preceding paragraph, which restrict attention to public contracts, Rey and Tirole considered secret offers; contract offers (and acceptances) are private information, the supplier's contract terms to one firm would not affect the rival downstream firms' retail prices or quantities. This gives rise to a severe opportunism problem that faces the upstream monopolist in Rey and Tirole and related work (see, e.g., Hart and Tirole, 1990; McAfee and Schwartz, 1994). A downstream firm cannot observe the quantities negotiated with its rival, so the supplier has an incentive to sell extra quantity at a discount to the other downstream firm. Anticipating these extra sales, each downstream firm is willing to pay less. Thus, the upstream firm may not fully exploit its monopoly power. Uniform pricing prevents such unilateral discounts and restores the supplier's

¹⁰The results of this literature have been questioned at least in two dimensions. First, an assumption in the above-cited literature is that suppliers offer linear wholesale contracts. Inderst and Shaffer (2009), consider a monopolistic supplier, which offers nonlinear contracts such as two-part tariffs when downstream firms are asymmetric. They find that discriminatory contracts increase allocative efficiency by favoring the more productive firms. In contrast, they show that a ban on price discrimination reduces allocative efficiency and can lead to higher wholesale prices for all firms. As a result, consumer surplus, industry profits, and welfare are lower. Second, according to Inderst and Valetti (2009), more efficient firms should have also more attractive alternative options. They show that the presence of a viable threat of demand-side substitution reverses some of the results, which come from this literature. For price discrimination, more efficient firms now receive a discount compared to their less efficient rivals. A ban on price discrimination benefits smaller firms but hurts more efficient, larger firms. It also stifles incentives to invest in innovate, reducing consumer surplus in the long run.

ability to leverage its monopoly power. As a result, a ban of price discrimination decreases consumer surplus.¹¹

Regarding the effect on consumer surplus, I show that some of these conclusions are reversed when the upstream firm faces competition rather than being a monopolist. As in Rey and Tirole (2007), I allow for nonlinear contracts in the form of two-part tariffs. The model involves two downstream firms and an upstream firm that faces a fringe of less efficient rivals.¹² In equilibrium, downstream firms do not purchase from this fringe but its presence puts competitive pressure on the low-cost supplier. Upstream competition leads to a bargaining effect, as mentioned earlier, in addition to the commitment effect in Rey and Tirole's analysis. A ban of price discrimination allows the low-cost firm to make a credible commitment to charge a low per-unit price. This low per-unit price reduces the profitability of buying from the alternative supplier. Reducing the profitability of downstream firms' outside option in this way allows the low-cost supplier to extract more surplus from the downstream firms through the fixed fee. This bargaining effect may swamp the commitment effect from Rey and Tirole's paper, so that a ban on price discrimination may actually cause prices to fall. In other words, the bargaining effect may be so strong that the low-cost supplier prices below marginal cost if price discrimination is banned. It implies that a ban on price discrimination tends to cause prices to fall when the cost difference between the suppliers is sufficiently narrow.

The exact mechanism is closed to my previous articles (Caprice, 2005 ; Avenel and Caprice, 2006) and is related to the existence of downstream competition. Credibly committing to a low per-unit price for both downstream firms reduces

¹¹Similar idea has been developed in O'Brien and Shaffer (1994). Since each buyer ignores the effect on its rivals' profits, the seller does not fully internalize the dissipation in joint profits. Since lower marginal wholesale payments translate into lower retail prices, intervening in this process by forbidding intermediate product price discrimination can have adverse consequences.

¹²Note, contract offers are still private information but acceptances are public now. With secret discounts, a firm does not know the true wholesale price charged to its rival (inferring prices ex-post from a rival's market behaviour can also be problematic if there are exogenous firm-specific shocks). By contrast, demand-side substitution by an alternative supplier is easier to observe : thus, acceptance or rejection decisions are observable.

the value of the outside option of turning to the alternative, high-cost supplier. However, reducing the per-unit price also reduces the industry profit to be shared between the downstream firms and the low-cost supplier since the low per-unit price causes the downstream firms to be “too competitive.” The low-cost supplier balances desire to capture a larger share of the industry surplus (“pie”) with a low per-unit price against the reduction in the size of the “pie” to be divided. It is the same mechanism, which is used by Inderst and Shaffer (2011) for showing that countervailing power of large retailers leads to lower retail prices.¹³

The results of this paper are related to the literature cited above on the welfare benefits of banning price discrimination in intermediate-good markets (Katz, 1987; DeGraba, 1990; Yoshida, 2000). The underlying mechanism is, however different. For example, Katz (1987) considered a supplier and an asymmetric downstream duopoly, in which only the large firm can credibly threaten to integrate backward. The lower retail price is caused by an alignment of all input prices on the lower input price : the small firm benefits from the large firm’s bargaining power. By contrast, a ban on price discrimination does not require downstream asymmetries for prices to fall in my setting. The bargaining effect arises because the low-cost supplier tries to offset the reduction in its profits caused by the presence of an alternative supply. In addition, note the underlying mechanisms are completely different in the two papers since the upstream firm benefits from the ban on price discrimination in my model but not in Katz’s.

My results do hinge critically on the assumption that a breakdown in negotiation between the low-cost supplier and a customer is observable but not verifiable (in court), and therefore cannot be contracted upon. Assume instead that breakdowns in negotiations over wholesale contracts are verifiable as well as observable, and are therefore contractible (as do, for example, Inderst and Wey, 2003), I recover Rey and Tirole’s result such that a ban on price discrimination reduces social

¹³It should be emphasized that a ban on price discrimination is required for the bargaining effect to operate in our setting, because contracts are secret. In the absence of such a ban, the possibility of unilateral price discounts always drives the equilibrium per-unit price to the marginal cost of production.

welfare.¹⁴

Other limits can be highlighted. As argued by Inderst and Shaffer (2009), the case of unobservable contracts would not be ideal as a benchmark for an analysis of the welfare effects of price discrimination. In case of unobservable contracts, all downstream firms receive the same wholesale prices. It is true : the benchmark in the above analysis would predict the absence of discriminatory wholesale prices even when price discrimination is feasible, wholesale prices equal marginal cost. However, various reasons may lead to asymmetric wholesale prices, even if contracts are unobservable. Katz (1991) has identified several conditions (risk sharing, ex-ante asymmetric information) under which wholesale prices will exceed marginal cost even when contracts are unobservable and nonlinear contracts are feasible.¹⁵ Consider asymmetric downstream firms with regard to these conditions would lead to asymmetric wholesale prices when price discrimination is feasible. For example, in the presence of asymmetric information in retailing cost between the supplier and the retailers, wholesale prices above marginal cost helps to discriminate retailers by using the relationship between the quantity and the retailing cost to extract rents from low retailing cost retailers. Wholesale prices may also play a role in transferring surplus when there is demand or retailing cost uncer-

¹⁴In details, the supplier and one of the downstream firms, say D1, can write a contract specifying what they will do in the event of a breakdown in negotiations between the supplier and D2. If breakdown is a contractible contingency, different prices will be negotiated after a breakdown, and so the uniform price from the no-breakdown case will not affect breakdown values.

Another approach is to assume that all existing contracts are null after a refusal occurs, and thus renegotiated ; this has similar implications for the

welfare effects of a ban on price discrimination as does the assumption that breakdowns are contractible contingencies.

¹⁵Katz (1991) investigates some kind of intrinsic difference ex-ante between upstream and downstream firms, either because the downstream firm is better informed than the upstream firm at the contract stage, or because upstream and downstream firms have different attitudes towards risk in profits ; delegation through private contracts matters for selection reasons or for insurance reasons.

See also, Caillaud and Rey (1995) and Caillaud et al. (1995).

tainty or when retailers are risk averse and asymmetric in risk aversion (See Rey and Tirole, 1986, for an application with risk sharing in vertical settings). Extending the analysis to include these considerations would answer to this criticism; however, it is left for further research. Note, welfare comparisons accross regimes would be obviously more difficult.

2.5 Discussion and policy implications

The first lesson that can be drawn from the previous analysies is that no simple conclusion can be derived regarding the effects of market power in vertically related markets. For instance, price discrimination in intermediate markets may increase or decrease retail prices according to the context. We show that banning price discrimination in intermediate markets might be consumer welfare enhancing by contrast to Rey and Tirole (2007)'s result, when allowing for an alternative supplier. Contract arrangements also matter. If the suppliers can offer contingent contracts (assume breakdowns in negotiations are verifiable and contractible), industry monopolization is the equilibrium in the case of banning price discrimination, like in Rey and Tirole (2007). Non-contingent contracts (assume breakdowns are non-contractible) instead qualify their result. Moreover, some well identified predictions can be qualified, that is the case of the rule of Steiner (1985) with respect to industry sharing when we consider secret non-linear tariffs in intermediate markets, instead of public linear contracts.

The earlier economic analysis stresses the complexity of the evaluation of vertical restraints in interlooking relationships. However, the market structure and more specifically the extent of intra-brand competition between retailers is a crucial factor in the analysis of such relationships. In the papers discussed, intra-brand competition is used by upstream firms to reduce outside options of retailers, which is a pro-competitive effect. When intra-brand competition is limited, upstream firms do not distort the distribution of industry profits at their benefit. Improving downstream competition may well guarantee an increase of the total surplus. Besides, inter-brand competition is also important for the well-functionning of vertically related markets. In our settings, inter-brand competition exists and it is a

countervailing power in the hands of the retailers vis-à-vis the suppliers, which increases total surplus.

The earlier analysis shows also that the formation of industry surplus and its distribution along the value chains are strongly related. For example, in our analysis of the price discrimination in input markets, banning price discrimination may dampen competition or intensify competition in relation with rents' transfers : industry value and rent sharing should be considered together. For example, assume large retailers have more attractive alternative options. Forbidding price discrimination can make sense to induce a distribution of the industry profits, in favor of the suppliers to the detriment of the retailers. In this case, reinforcing the suppliers ensures "equal opportunities as regards industry profits sharing", which translates into lower retail prices. By contrast, in the case of less attractive alternative options, banning price discrimination helps to solve the opportunism problem and leads to higher retail prices. The upstream firm and the retailers, thus, benefit together from a ban of price discrimination to the detriment of the consumers.

Another point, which is important to underline in the vertical relationships, is the goal under which the changes with regard to competition policy are promoted. Typically, different combinations of vertical restraints will be used to deal with a particular combination of problems. For example, in Rey and Tirole's analysis, price discrimination in intermediate markets may lead to lower retail prices than uniform pricing. However, other vertical restraints may help the producer to solve the opportunism problem and maintain higher retail prices. Resale price maintenance is one example of such vertical restraints (see O'Brien and Shaffer, 1992). However, clear legal rules are required instead of case-by-case treatment by courts or competition policies. Such rules significantly reduce transaction costs and legal uncertainty even if some rules might be non-desirable in some cases.

3 Buyer Power : Determinants and implications

This chapter focuses on buyer power of large retailers and its implications for vertical chains and, at the end, for consumers. Antitrust authorities have identified several concerns arising from higher buyer power. One of those concerns relies on the impact on smaller buyers. A dominant buyer may cause a "waterbed effect" on other buyers : discounts won by a large buyer may trigger higher prices for small buyers. Another concerns relates to the price transmission of price concessions obtained by large buyers. Whether price concessions are passed through to the consumers is a famous debate.¹⁶ Some empirical analyses furnish evidence that retail prices are lower because of the influence of large retailers. Basker and Noel (2009) study pricing in the U.S. retail grocery sector based on store-level data for 2001-2004. They find that prices at competing grocer stores are reduced 1-2% when Wal-Mart enters the market. Haussman and Leibtag (2007) find similar evidence when national chains entered the retail grocery sector, prices in traditional supermarkets fell. These results are, however, related to the entry in retail market and do not help in assessing transmission of price concessions. Entry of large retailers favors competition and consumers are the beneficiaries of this competition.

Other concerns rely to the impacts on the upstream sector. Larger buyer power may induce the exit of the suppliers of medium or small size. The concentration of the upstream sector may also be reinforced because of an increasing downstream consolidation. It is also expressed in policy circles that suppliers respond to the exercise of buyer power "by under-investing in innovation and production" (FTC 2001, p.57).

There are, thus, several reasons to well understand the buyer power of large retailers and the potential mechanisms, which are related to higher buyer power. This chapter starts with a review of literature about the buyer power. The following

¹⁶The European Commission states in its Guidelines : "cost savings or other efficiencies that only benefit the parties to the joint purchasing arrangement will not suffice. Cost savings need to be passed on to consumers" (Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements (2011/C 11/01), paragraph 219).

analysis is based on three papers, which are related to this topic.

3.1 Buyer power, a review of the literature

It is widely recognized that, large buyers often obtain price concessions from their suppliers that are not available to small buyers. There are several explanations for this empirical regularity. The most obvious explanation is that sellers' cost may not increase in proportion with the quantities that different buyers purchase. Lower per-unit costs of serving large buyers may be due to scale economies in production, transaction, or logistics. This explanation applies to essentially any configuration of buyers and sellers, and does not require more discussion.

The literature has used various ways to generate size-related discounts.¹⁷

Inderst and Shaffer (2007) and Dana (2012) relate buyer power to the possibility, for a large buyer, to reduce the number of suppliers which it deals with. The idea is that, a large buyer, after a merger or the formation of buyers' alliance will no longer stock the goods of all previous suppliers, which increases the intensity of upstream competition.¹⁸

Snyder (1998) provides an explanation for why large buyers win discounts in a market with oligopolistic sellers and buyers of various size. Terms of trade are determined independently for each buyer. The main idea is that large buyers pay lower prices because the degree of tacit collusion that sellers can sustain is less for large buyers than for small buyers. In effect, sellers compete more aggressively for sales from large buyers than small buyers.

Katz (1987) models buyer power as a retailer's ability to integrate backwards by paying a fixed cost. Getting larger reduces the average cost of this alternative option and allows in this way the retailer to obtain a better unit-price from the supplier.¹⁹ Size may not only increase the value of a retailer's alternatives but also

¹⁷Other analyses, which are not related here focus on private label introduction. See for example, Gabrielsen and Sørsgard (2007).

¹⁸Baake and von Schlippenbach (2014) show that retailers improve their bargaining position in intermediate markets by using upfront payments and reducing the number of products they sell to final consumers.

¹⁹See also Sheffman and Spiller (1992).

reduces the suppliers' alternatives. When the negotiation breaks down with a large buyer, re-allocating production to the others buyers may be less valuable (Inderst and Wey, 2007). Similarly, if the supplier's cost is convex, then dealing with a larger retailer reduces the (average) avoidable cost that is at stake, which weakens the seller's bargaining position; the retailer thus benefits from its larger size. Use the Nash bargaining solution to characterize separate and simultaneous negotiations between the supplier and independent buyers of various size, size discounts arise as long as the firms' joint surplus is concave in the quantities purchased (Chipty and Snyder, 1999).

While there exists a large theoretical literature on the determinants of buyer power, pass through to consumers of price concessions won by large retailers remains problematic. Potential waterbed effects of buyer power lead also to ongoing discussions within the circle of the economics researchers. Theoretical foundations of this effect are given in Mathewson and Winter (1996), Majumdar (2005), Inderst and valletti (2011) and Mills (2013). By contrast, Chen (2003) demonstrates that as the dominant retailer gains more buyer power, the wholesale prices of fringe retailers decrease. In the following, the results I provide will complement this discussion.

3.2 Merger efficiency and welfare implications of buyer power

Bedre Ö. and S. Caprice (2011), "Merger efficiency and welfare implications of buyer power," ESMT (European School of Management and Technology) Research Working Papers, ESMT-11-07.

This paper analyzes the welfare implications of buyer mergers. We focus on the interaction between buyer power concerns and merger efficiency in a setup where one supplier with a non-linear cost function sells its product to two locally competitive retail markets : buyer merger arises between two independent downstream firms. We assume linear costs at the downstream level. If the merger enhances the efficiency of the merging parties, retailing costs are lower. In contrast, retailing

costs are higher if the merger reduces the efficiency.²⁰

As underlined before, two potential concerns arise due to higher buyer power : first, lower purchasing costs for powerful buyers might not be passed on to final consumers ; second, there might be waterbed effects, that is, lower tariffs for powerful buyers might be at the expense of higher tariffs for small buyers. Besides, when deciding whether to approve a merger, anti-trust authorities assess the efficiency gains from the merger against the possible anti-competitive effects of the merger.²¹ It is, therefore, important to understand how the effects of a downstream merger on efficiency interact with its potential anti-competitive effects, in particular, with effects affecting the purchasing terms in the upstream market.

We consider non-linear supply contracts, which appear to be widespread practices, and assume that retailers have all bargaining power. Without efficiency gains, we show that when the supplier's cost is convex, the buyer merger leads to size discounts for the merged entity, but these discounts are given through fixed transfers, and therefore have no impact on consumer prices or on the rival firms.²² However, when the merger generates some efficiency gains by lowering the marginal costs of the merging parties, we find that buyer power leads to “waterbed effects”, that is, it results in higher average tariffs for the firms, which are not involved in the merger (small firms). It also increases the total quantity in the final markets. As a result of an efficient merger, small retailers earn less. On the other hand, if the

²⁰Besides affecting purchasing terms in the upstream (input) market, a merger might enhance the efficiency of some or all merging parties in the downstream market because the firms learn from each others' management expertise (Farrell and Shapiro, 1990), improve their technologies by the diffusion of know-how, save costs from reallocating distribution across different stores, benefit from synergies, or save on costs of capital. In contrast, a merger might reduce the efficiency of the merging parties either because, for instance, communication would be more costly within a larger firm (Bolton and Dewatripont, 1994) or due to the conflicting organizational cultures (Weber and Camerer, 2003).

²¹See, for example, the EU Competition Law, Rules Applicable to Merger Control, 2010, pp. 186-187.

²²This result is in parallel with a statement in the European Commission Guidelines in the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements (2001/C3/02). See also European Commision, 2011.

merger deteriorates the efficiency of the merging firms, it could still be profitable due to the size discounts generated by the merger. In this case, we obtain the opposite results : a buyer merger leads to anti-waterbed effects for small retailers and decreases the consumer surplus. Due to the retail price decrease and the anti-waterbed effect, small retailers earn more.

We extend the analysis to the case of shared bargaining power between the supplier and retailers and show that the equilibrium quantities are the same as previously and that, only the distribution of equilibrium profits is different. In the case of efficient merger, small retailers still earn less. By contrast, small retailers earn more for a merger, which deteriorates the efficiency of the merging parties. Therefore, all results remain valid, except for one difference : when the supplier's cost is convex, an efficient (respectively, inefficient) buyer merger leads to anti-waterbed (waterbed) effects on small retailers if the supplier's bargaining power is sufficiently high. Notice, in the case of shared bargaining power between the supplier and retailers in non-linear tariffs, tariffs are used to share the incremental profits between the supplier and each retailer. As a result of an efficient merger, the incremental profit of each small retailer decreases : the reduction in its downstream gross profit and the increase of its cost contribution to the total upstream cost lead to lower incremental profit. If the supplier's bargaining power is sufficiently high, almost all of the incremental profit of each small retailer is captured by the supplier, which explains anti-waterbed effect for efficient merger. While small retailers pay less, they also earn less. By contrast, if the merger deteriorates the efficiency of the merging firms, incremental profit of each small retailer increases. It results that small retailers pay more, but also earn more. This result helps us to qualify the potential waterbed or anti-waterbed effects, which are underlined in the circle of policy makers. In particular, we thus demonstrate that the tariffs paid by the less powerful buyers are not relevant when the tariffs are non-linear ; it is instead the profits the small retailers get, which is undisputed.

When the cost function is concave, the merger decreases the final price because a merger, which reduces the efficiency is non-profitable.²³ The merging parties sell

²³Notice, when the upstream cost is concave, there exists no Nash equilibrium in pure strategies

more and, while anti-waterbed effects arise, small retailers earn less. Small retailers pay less regardless the bargaining power between the supplier and retailers : both the reduction in downstream gross profit and the decrease of cost contribution to the total upstream cost lead to lower tariffs.

Our analysis supports the first concern of antitrust authorities, lower purchasing costs for powerful buyers might not be passed on to final consumers. When supply contracts are non-linear, the merger's effect on efficiency is the only determinant for the consumer surplus, regardless the shape of the upstream cost. With regard to the second concern, which is related to potential waterbed effects, the analysis expresses doubts about the relevance of this notion, when supply contracts are non-linear. The analysis stresses instead the changes in the profitability of small retailers, resulting from a buyer merger. Notice, efficient buyer merger may be reinterpreted as a exit device by reducing the value of staying in the market for small retailers. Besides, the shape of the upstream cost function and the decrease or the increase of the tariffs for the small retailers are not relevant in this analysis, only efficiency or inefficiency of the buyer merger have implications for antitrust analysis. However, the shape of the upstream cost may help in the evaluation of a buyer merger. For any reason, it may be difficult to determine ex-ante the form and the magnitude of the merger-specific efficiencies that may arise. By contrast, the shape of the upstream cost function can easily be determined. It results that, if the upstream cost is convex, both inefficient and efficient buyer merger are possible and the effect on consumer surplus is uncertain. By contrast, if the upstream cost is concave, only efficient buyer arises and consumer surplus increases, at least in the short run.²⁴

Besides the results summarized above, our analysis would have interesting implications for retail markets supplied by the same manufacturer and where the merged entity is not active, which we refer to as *independent markets*. When the

if the retailers have all the bargaining power and make take-it-or-leave-it offers to the supplier (Segal and Whinston, 2003). We consider shared bargaining power between the supplier and retailers to avoid this problem of inexistence.

²⁴In the long run, efficient buyer merger may be detrimental by deteriorating the situation of small retailers inducing their exits from the downstream market.

upstream cost is convex, an efficient merger would lead to a higher retail price in each independent market through increasing the average tariff of each retailer in those markets. This means that, by contrast to the markets where the merged entity is active, waterbed effects lead to a higher retail price in all independent market and all retailer in those markets earn less.²⁵ The opposite result holds if the merger is inefficient, in which case the merger decreases the price in all independent market and retailers in those markets earn more due to an anti-waterbed effect. The same mechanism applies when the supplier has a concave cost, in which case anti-waterbed effect in those markets originates from the efficiency of the merger.

For the sake of simplicity we assume linear costs at the downstream level. If we consider non-linear retailing costs, a buyer merger would influence the efficiency of the merging parties due to the non-linearity of retailing cost. If each retailer has a concave cost (decreasing marginal costs), a buyer merger would improve the efficiency of the merging parties and we would obtain, in that case, the same qualitative results (analysis of an efficient buyer merger). If each retailer has a convex cost (increasing marginal costs), a buyer merger would deteriorate the efficiency of the merging parties and the opposite results holds (see the analysis of an inefficient buyer merger).

Extensions with upstream competition are left for the future (see, for instance, de Fontenay and Gans, 2007).

3.3 Buyer power from joint listing decision

Caprice S. and P. Rey (2012), "Buyer power from joint listing decision", Toulouse School of Economics Working Paper, 12-294.

Collective bargaining helps retailers to gain buyer power. The commonly recognized benefits of collective bargaining as mentioned earlier are the related economies of scale and the ability to make a joint listing decision (or more precisely, a joint delisting decision, as we will see below). While economies of scale clearly benefits to buyer groups, whether joint listing decisions do so is less clear.

²⁵See Mills (2010) for similar results.

The objective, here, is to explore when and how joint delisting decision can affect bargaining position of the buyer group, and whether larger buyer group benefits more of such joint delisting decisions.

We consider a model of vertically related markets à la Rey and Tirole (2007), in which manufacturers compete by simultaneous making secret offers. Upstream, a market leader faces a competitive fringe of less efficient suppliers; downstream, firms compete and use the suppliers' input to produce a homogeneous good. We allow a number of downstream firms to join forces in negotiating with the upstream leader : they create a buyer group, which selects suppliers on behalf of its members. More precisely, we focus on a listing rule where each group member can veto the upstream leader, in which case all group members turn to the fringe suppliers. We show that this rule enhances the bargaining position of the buyer group. Intuitively, transforming individual delisting decision into a joint boycott makes such a decision less harmful for a group member, since the other group members will also have to deal with the alternative, less efficient supplier. This, in turn, enhances the group members' bargaining position, by raising the value of their outside options.

We show that our insights apply to other types of downstream competition, such as Bertrand competition with differentiated products, where retail prices are strategic complements, instead of strategic substitutes.

In our model (where secret contracting implies that the marginal input price always reflects the upstream marginal cost), the better bargaining position of buyer group does not lead to lower prices for consumers. This is in line with the concern voiced by antitrust authorities. Furthermore, by contrast to another concern of antitrust authorities, the formation of buyer groups has no impact, here, on other purchasers : the equilibrium contracts are bilaterally efficient and the outside options of small retailers are unchanged.

The source of buyer power that we identify originates directly from the competition in retail markets. While for the sake of presentation we focused on a buyer group only composed of firms that compete in the same downstream market, the analysis applies as well to "hybrid" buyer groups, where some members are on separate markets while others compete in the same market. It is however the presence

of competition in the group that enhances a given member's bargaining position. Thus, prospective members benefit more from joining a group in which the number of direct competitors is the largest. Similarly, it is the closest competitors that gain most from joining forces in their negotiations with suppliers.

We also study the implications of our analysis for upstream investment incentives. As in Inderst and Wey (2011), downstream competition tends to induce suppliers to over-invest in productivity, since this reduces downstream firms' outside options and thus allows the suppliers to obtain a bigger share of the industry profit. As in their paper, we also find that increasing the size of the buyer group can exacerbate this over-investment incentive; however, when the buyer group already involves a large proportion of the downstream firms, increasing its size further tends to eliminate the above mechanism (indeed, if all downstream firms join the buyer group, their outside option is no longer affected by the supplier's own productivity), which reduces investment incentives. This is in line with the concern, frequently expressed in policy circles.²⁶

One of the main contributions of this paper is to focus on the bargaining power that buyer groups confer to firms that compete in the same downstream market. Earlier approaches mainly focus on "pure" buyer power, in the sense that group members only interact on the buying side. Dobson and Waterson (1997) and von Ungern-Sternberg (1996) consider instead "full mergers", in which the downstream firms not only join forces as buyers, but also eliminate competition between them as sellers. Our approach is novel in this sense : the members of buyer groups are and remain competitors in the same downstream market.

3.4 How one-stop shopping behaviour translates into higher retail prices

Caprice, S. and von Schlippenbach, V. (2013), One-Stop Shopping as a Cause of Slotting Fees : A Rent-Shifting Mechanism. *Journal of Economics & Management Strategy*, 22 : 468-487.

²⁶See, also, Inderst and Wey (2007), and Battigalli et al. (2007), in which this concern is discussed.

The development towards powerful retailers has been favored by consumers' preference for one-stop shopping. Due to the increase in both the requirements in professional life and the wish of spare-time activities, time has become more and more scarce. We show that taking this consumer preference for one-stop shopping explicitly into account, leads to higher retail prices.

Growing opportunity costs of time favors the economization on shopping time (Carlson and Giesiecke, 1983), followed by an increasing tendency towards one-stop shopping in consumer's behavior. That is, consumers prefer to bundle their purchases in order to reduce their shopping costs instead of wasting time by shopping at different stores (Dellaert et al., 1998). By bundling their demand for goods into different categories in a main trip, which they may then complete with smaller top-up trips in particular periods of time, consumers realize economies of scope and economies of scale. According to a survey realized by the UK Competition Commission (2000, pages 24-26), about 70% of consumers evince one-stop shopping behavior in spending about 80% of their weekly expenditures on fast-moving consumer goods on a weekly main trip.²⁷ It results that a substantial part of weekly grocery purchases made by a consumer are realized in a single trip to one retailer. By consequence, the shopping basket includes items from various product categories as well as multiple items from the same category. This implies that the purchased decision of a so-called one-stop shopper depends on the price for the whole shopping basket rather than individual product prices. By this, products offered at a retail outlet, that are initially independent become complements. That is also the case for substitute goods.²⁸ For example, Dubé (2004) shows that, for some product categories such as carbonated soft drinks, ready-to-eat cereals, canned soups, and cookies, consumers regularly purchase multiple products from the same category.

We consider a three-party negotiation framework, in which a monopolistic re-

²⁷Smith (2007) empirically investigates consumer shopping behavior and supermarket choice and shows "one-stop" shopping behavior even if one-stop may coexists with "two-stop" shopping behavior (See also, Schiraldi et al., 2011).

²⁸See Stahl (1982, 1987) and Beggs (1994) for an early account of consumer shopping behavior and the related positive demand externalities.

tailer sequentially negotiates with two suppliers.²⁹ Negotiations are in two-part tariffs and observable. Higher retail prices result from a rent-shifting mechanism among the different parties into the negotiation process. Slotting fees may emerge at the equilibrium.³⁰

Suppliers' products are either independent, that is, belonging to different product categories, or substitutes, that is, belonging to the same product category. We show that the wholesale price negotiated with the first supplier is always upwards distorted, compared to the wholesale price, which maximizes the industry surplus, if the goods are initially independent. This is also true in the case of initial substitutes if the goods are sufficiently differentiated. In other words, we get in this case that the first wholesale price is upwards distorted as long as the complementary effect resulting from one-stop shopping behavior outweighs the original substitution effect.³¹ A higher wholesale price for the first good reduces the demand for the two goods offered by the retailer. As a consequence, the second supplier contributes less to the joint profit with the retailer, enabling the retailer and the first supplier to extract a rent from the second supplier. This mechanism, which applies across categories or within a category for sufficiently differentiated goods induce higher retail prices. Furthermore, to compensate the retailer for the higher wholesale price, the first supplier has to pay a slotting fee when its bargaining power vis-à-vis the retailer is low. Slotting fees may thus emerge in the first negotiation as a result of a rent-shifting mechanism, which is to the detriment of the second supplier, that does not pay any slotting fee.

Our findings account for some interesting features. First, retail prices decrease if the retailer has strong bargaining power -at least vis-à-vis the second supplier-

²⁹The sequentiality of negotiations, instead of simultaneousness can be justified as the retailer and the first supplier benefit from shifting rents from the second supplier (See Marshall and Merlo, 2004 and Möller, 2007, who investigate this choice). Moreover, this timing "is often what one observes in reality given that not all manufacturer-retailer contracts are in effect for the same length of time" (Marx and Shaffer, 2010, p.582).

³⁰Neglecting consumer one-stop shopping behavior, Marx and Shaffer (1999) show by contrast below-cost pricing arises in intermediate good markets and retail prices decrease as it allows the first supplier and the retailer to extract rent from the second supplier.

³¹Notice, the second negotiation is efficient.

as strong bargaining power results in a less distorted wholesale price in the first negotiation. Second, we show that the retailer prefers to negotiate first with a less powerful supplier in order to extract rent from the more powerful supplier. Accordingly, if the retailer decides about the order of negotiations, retail price increases are more likely to occur. Lastly, banning slotting fees limits retail price increase. Under a ban of slotting fees, the wholesale price in the first negotiation is less distorted and retail prices are lower. Because the wholesale price is the only instrument the retailer and the first supplier can use to divide their joint profit and to extract rent from the second supplier, the extraction of rent becomes more costly. It results that the distortion of the wholesale price in the first negotiation is limited.

This paper contributes to the literature on the strategic use of contracts in vertically related industries, inducing higher retail prices. For example, Shaffer (1991) shows that slotting fees can constitute a facilitating mechanism for softening competition in downstream markets.³² Note, into all this literature, results critically depend on the observability of contracts and the players' commitment to the contracts. In the case of simultaneous negotiations or secret contracting, the retailer purchase the efficient quantity of any product, inducing retail price decrease in our setting (Bernheim and Winston, 1985). Add something, see Caillaud and Rey (1995). Besides, our results are restricted to the assumption of two-part tariffs. This assumption implies that there are only two instruments available to control three objectives, that is, the maximization of the overall joint profit, the division of surplus between the first supplier and the retailer, and finally the extraction of surplus from the second supplier (Marx and Shaffer, 2007 and 2008). Accordingly, distortion arises both on and off the equilibrium path. Consider more general contracts, which will allow for different payments on and off equilibrium, the retailer and the first supplier will be able to fully disentangle the three objectives; the wholesale price negotiated with the first supplier will never be distorted in a such framework. The same consideration holds if the contract with the first

³²This literature traces back seminal papers such as Bonnano and Vickers (1988) and Rey Stiglitz (1988, 1996).

supplier is contingent on the quantity purchased from the second supplier. However, such contracts require that the first supplier is enable to verify the quantity negotiated with the second supplier, which is rather difficult and quite costly, in reality.³³

To sum up, our analysis emphasizes that one-stop shopping behavior may cause retail price increase. Results are obtained in a sequential three-party negotiation framework. This relation will merit to be investigated empirically.

³³Moreover, contingent contracts may be difficult to enforce in courts.

4 Project and research perspectives

In addition to wireless extensions suggested in the synthesis above, my current work and research projects can be articulated around three axes.

First, the emergence of increasingly large retailers has changed the degree of competition at the retail level. Some large retailers may face little or no competition in some geographic areas. Moreover, several outlets in a given area are often parts of the same group of retailing. This implies both a limited choice set of consumers in buying goods as well as restricted alternatives for manufacturers to reach final consumers, which may change the extent of market power at the different stages. I will focus on downstream competition in customer catchment areas.

Second, as underlined earlier, consumers increasingly prefers one-stop shopping. Large retailers have responded to this change by developing large multi-product outlets.³⁴ However, consumers may be one-stop shoppers or multi-stop shoppers. Understanding the consumer perception of different formats is thus crucial to complete the analysis of downstream competition. Moreover, one-stop shoppers or multi-stop shoppers should have an impact on the value of vertical chains. I am well interested in how shopping behavior (one-stop shopping or multi-shop shopping) impacts vertical relationships.

Lastly, as in many sectors, firms in the agro-food sector (farms, suppliers, retailers) are embedded in a complex institutional setting in which societal expectations with respect to product quality, environmental protection, local development play an increasing role. Both the development and the perspectives of the agro-food sector depend on local institutional conditions, including market prices, factor costs, subsidies and policy requirements (standards concerning product quality etc.), which influence the relative profitability and sustainability of the agro-food sector. But, surprisingly, policy makers do not take into account strategic behavior of firms at different stages. As a keystone, input prices are not typically determined at "the margin" by the interaction of upstream firms' supply functions and downstream firms' demand functions. Upstream firms and/or downstream firms

³⁴Notice, focusing on the agro-food sector, most of policy markers continue to consider the sector as multiple independent product chains, leaving the retailers to coordinate those chains.

have market power. A better integration of strategic behavior of firms in the cost-benefit analysis of public policies should be proposed.

The introduced axes are based on ongoing research (Caprice and DeMouzon, in progress ; Caprice and Shekhar, in progress ; Caprice et al., 2014). In the following, I summarize the main results and propose some developments. Lastly, I make some concluding remarks.

4.1 Competition in the retail sector

As stressed above, competition at the retail level is quite limited. To highlight this point, I analyze in a joint project with Olivier de Mouzon the Herfindahl-Hirschman Index (HHI) for the French retail sector. Thereby, we divide France into various local areas, defined as a radius around each store. Some preliminary results with regard to the distribution of HHI are presented here.

According to the French competition authority, markets should be classified as follows : "It is unlikely that an operation will raise horizontal competition issues in a market where the HHI after the merger will be less than 1,000. These markets normally do not require an in-depth investigation. It is also unlikely that the Commission will determine the existence of horizontal competition issues, when the HHI at the end of the operation is between 1,000 and 2,000 and the delta is less than 250, or when the HHI at the end of the operation is higher than 2,000 and the delta is less than 150. For vertical or conglomerate mergers, it is unlikely that an operation will raise competition issues if the HHI after the operation is less than 2,000".³⁵ Note, this also corresponds to the merger guidelines of the European Commission.

Relying on the individual outlets, about 35% of consumer catchment areas exhibit a HHI larger than 2,000. However, when considering the retailing group as

³⁵See French Competition Authority (2010), p.14.

In a similar manner, the American competition authorities, in its new merger control guidelines classifies markets into three types : low-level concentration when the HHI is less than 1,500, concentration at an intermediate level when the HHI is between 1,500 and 2,500 and highly concentrated when the HHI is over 2,500.

reference, more than 95% consumer catchment areas show a HHI larger than 2,000. Those preliminary results are obtained for supermarkets (consumer catchment area of 10km radius).

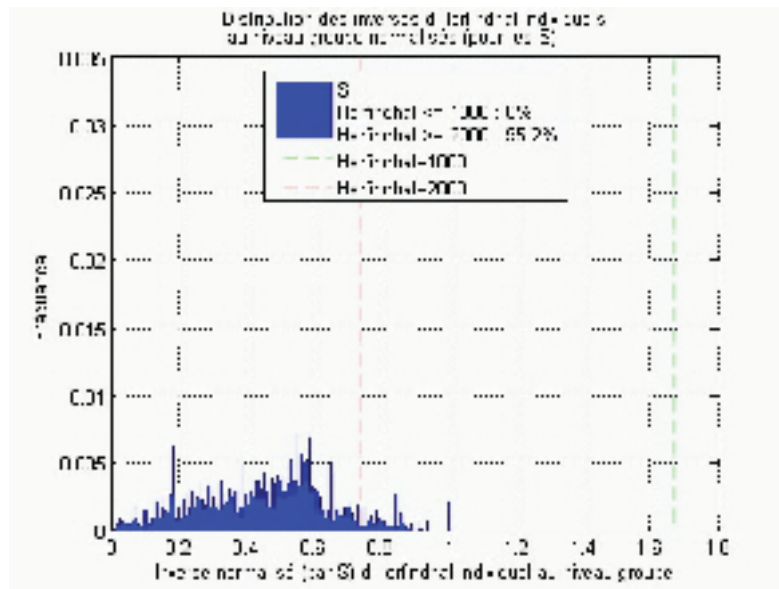


Figure 1 : Retailing group HHI

In the French food retailing sector, most of the stores of retailing groups are "affiliated" and/or "independent". Such stores are operated by independent shopkeepers who affiliate to a franchisor group (such as Carrefour, Casino or Auchan) or to a buying group (such as Leclerc, Système U or Intermarché). Although normally, the affiliated stores are independent in terms of pricing and buying decisions, we show that the degree of competition and the choice of consumers in terms of products in almost all customer catchment areas is problematic.³⁶ Moreover, as underlined before, in Caprice and Rey (2012), the formation of those retail groups enhances the outside options of retailers and, thus, improves their bargaining power. Note, we do not investigate the outside options of suppliers with regard to

³⁶In February 2010, the French competition authority (Autorité de la Concurrence) started proceedings at its own initiative in the food retail sector to assess retail competition in consumer catchment areas. Our preliminary results go in the same direction.

this retail structure.

In addition, and as noticed by the French Competition Authority (2010), barriers to entry in grocery sector are high. "Affiliated stores", as defined earlier are often captive from their retail group due to numerous clauses included in their agreements and status, which prevent them from moving to another retailing group. Various regulations constraining the creation of new stores, including frequent appeals against planning permissions and other administrative decisions, create many difficulties for opening new stores. The relative scarcity of land and estate suitable for large stores installments are other barriers of entry.

We recently observe other changes in retail sector. Consumers are more and more interested in new distribution channels such as short food supply chains such as alternative food networks, direct delivery, e-commerce or specialized cooperative shops of local producers. Large retailers also promote e-commerce and a new offer of local products is, often available in almost all outlets of the large retailers. The literature offers many reasons of possible barriers to entry of those new channels of retailing. Coordination problems might arise at the retail level as well as the supplier level since suppliers have to incur fixed costs due to some specific investments (Rasmusen et al., 1991 ; Segal and Whinston, 2000 ; Fumagalli and Motta, 2006, 2008). Moreover, entry of new distribution channels triggers the intensification of competition, which dissipates the industry surplus (Comanor and Rey, 2000). The existence of barriers to entry for those new channels should also be addressed.

4.2 Shopping costs and their implications

So far, the focus of antitrust authorities was mainly on the exclusion of small retailers, with regard to the consolidation of large retailers. For example, this issue has been discussed by the UK Competition Commission with regard to the competition between convenience stores and large multi-product stores (Competition Commission, 2008, p. 67-68). However, the attitude of antitrust authorities with regard to inter-format competition among retailers is quite ambiguous. The German competition authority (Bundeskartellamt), for example, has been of the opinion that the degree of competition between discounters and other retail for-

mats is rather limited (Bundeskartellamt : Edeka/Plus, 2008 ; Edeka/Trinkgut, 2010). In contrast, the German Monopolies Commission has recently argued that inter-format competition is not as limited as often suggested, but rather vivid (German Monopolies Commission, 2012).

By taking into account shopping costs of consumers in grocery purchases, Chen and Rey (2012) sheds a new light on policy debates in the retail industry ; while so far the debates have mainly focused on the exclusion of small retailers, their analysis point out another argument, which is related to the exploitation of different retail channels, i.e. larger and smaller retail outlets. The existence of both channels allows a screening of consumers with respect to the extent of their shopping costs. The large retailers could be seen as offering a larger basket of goods at one place, while the small retailers could be seen as competitive speciality shops. Both retailers are competing for consumers. In their setting, consumers can decide between buying the entire shopping basket from one large retailer (one-stop shopping) or buying one good, "the competitive good" from the smaller rivals (and buying the other good from the large retailer). While the presence of smaller rivals may generate a competitive pressure, it also allows the large retailer to discriminate consumers with respect to their shopping costs. Loss leading by the large retailer on the competitive segment arises on equilibrium. Chen and Rey argue that this set-up should enrich the modeling choices that are available to practitioners, with respect to many applications for competition policy. Their paper serves as the departure point for the research I am conducting with Shiva Shekhar.

We consider an asymmetric retail industry as Chen and Rey's paper where two products are offered by a large retailer, which faces, on one of the two goods (the competitive segment) a fringe of smaller retailers but more efficient rivals. Consumers are heterogeneous in shopping costs : they can choose between buying the two goods from the large retailer (one-stop shopping) or buying the competitive good from the smaller rivals (and buy the other good from the large retailer). We extend the analysis by allowing for an upstream stage. While Chen and Rey's paper has been motivated by loss leading in the retail industry, our analysis focuses on price transmission in a vertical setting. Our main research questions are how

shopping costs affect the countervailing power of the large retailer and how price discounts obtained by the large retailer impacts retail prices in presence of shopping costs.

We assume that the competitive segment is provided by a monopolist supplier, whereas the other good is manufactured by a competitive fringe. The monopolist supplier can sell the good to the smaller, more efficient retailers, or the large retailer to benefit from a larger demand due to one-stop shopping, or both to discriminate consumers with respect to their shopping costs. Offers in contracts to the large retailer are in two-part tariffs, while the smaller retailers buy at linear price.

Preliminary results show that the wholesale price of the competitive good exceeds marginal cost of production to dampen intra-brand competition between both retail channels and maximize industry surplus, loss leading at the retail level still arises in equilibrium; furthermore, the fixed fee in the two-part tariff contract with the large retailer is such that the monopolist supplier extracts all the industry surplus minus the monopoly profit on the other good, which is the outside option of the large retailer.

Then, we account for countervailing power of the large retailer by assuming that it has an access to an alternative supply for the competitive segment. This alternative supply is formed by a competitive fringe of less efficient suppliers. This implies that in case of refusal of the large retailer, smaller retailers and the large retailer are still in competition on the competitive segment. Here, selling the good to both retailers and pricing the good at a lower marginal price to the smaller retailers allows the low-cost supplier to decrease the outside option of the large retailer. Inducing more competition between the larger retailer and the smaller retailers through lower wholesale prices makes less attractive for the large retailer to switch to an alternate source of supply. In other words, the low-cost supplier takes advantage of a larger slice from a smaller pie.³⁷ However, the opposing result may also arise. In dampening the competition on the competitive segment, the low-cost supplier increases the share of multi-stop shoppers in the total demand, which leads to an increase of the industry surplus. In this case, the low-cost supplier

³⁷See for example, Montez (2007) for this mechanism.

takes advantage of a smaller slice from a larger pie. We show that the second configuration arises for high countervailing power of the large retailer.³⁸ Slotting allowances might also be observed on equilibrium when the wholesale price offered to the large retailer, to dampen competition on the competitive segment is greater than the cost of the alternative supply -high-cost suppliers-.

This work in progress helps to better assess the impact of large retailers on consumer prices. Against the common wisdom that countervailing power of large retailers leads to lower retail prices, we show that consumer prices may increase as a result of a better outside option of retailers. The rent-shifting mechanism, we exhibit, leads to higher retail prices when the large retailer has high countervailing power. Selling to both retail channels as a screening device allows the upstream industry for extracting better terms from the retail industry. Retail prices are, thus, higher and consumer surplus decreases.³⁹

Taking into account consumer shopping costs in the analysis of vertical relation is an interesting and seemingly important way of research I would like to continue. Other applications could be found.

For example, with regard to new distribution channels, local public policies are more and more interested in promoting local distribution channels, known as short food supply chains. Consumers have search costs in relying these short food supply chains. Important, the dimension of shopping costs is often neglected in

³⁸When the low-cost supplier and the alternative supply of the large retailer are equally efficient, the above rent-shifting mechanism leads to relatively high intermediate prices and the industry surplus is maximized. In case of a refusal of the large retailer, the smaller retailers are not active and the large retailer gets the monopoly profit on the two goods; all consumers are one-stop shoppers. Acceptation of the large retailer instead allows multi-stop shopping behaviour of consumers, which helps the low-cost supplier to extract the benefits of discrimination among the consumers, while the large retailer has the monopoly profit with regard to one-stop shoppers, on the two goods.

³⁹As slotting allowances can emerge on equilibrium, our results also imply that a policy of banning the use of slotting allowances would lead to lower retail prices for consumers. The reason is that in some cases, slotting allowances by allowing profit transfers to the large retailer help to dampen downstream competition and a policy of banning the use of it will increase consumer surplus.

the analysis of local authorities. As underlined earlier, large retailers in providing a new offer of local products have well understood this dimension. This dimension has also been integrated by some specific speciality shops as outlets specialized in organic goods. While this dimension could be ignored, under some aspects, in long chains of supply by leaving the retailers to coordinate the offer of goods by providing a large basket of goods, the promotion of the short chains should integrate this dimension. More generally, public policies should be more sensible to the mechanisms of markets.

4.3 Strategic behavior of firms and implications for public policies

In the last decades, upstream firms face increasingly high fixed costs due to public regulations. This is particularly true for the food industry, in which public regulations have been tightened to ensure the quality of products and services. Food scares—such as the periodical outbreaks of foodborne illness caused by pathogens⁴⁰—have fueled public concern about food safety.⁴¹ In addition, the number of ISO certifications—either publicly required or voluntarily implemented—has grown exponentially in recent years. Examples are given in food chains (ISO 22000), but also in many sectors.

The compliance with those standards induce significant additional costs for the upstream producers, tracing back to the need of (supplementary) quality control technologies such as product inspection and testing, process controls and various

⁴⁰In May 2011 a major outbreak of Shiga toxin-producing *Escherichia coli* occurred in Germany, which resulted in about 4,000 ill people and in the death of more than 56 people (see EFSA Journal 2013, 11(1), 3025).

⁴¹For example, to foster the integrated management of foodborne hazards from farm-to-fork, the U.S. enacted the mandated use of the Hazard Analysis and Critical Control Points (HACCP). The HACCP system identifies specific hazards and measures for their control to ensure the safety of food along the entire production process (for a detailed discription, see the Codex Alimentarius of the FAO/WHO).

In the European Union, the implementation of the HACCP system became mandatory for food industries in 1995 (EU Directive 93/43).

audits. In particular, extra labor has to be employed to manage the daily tasks of documentation (Bain and Busch 2004).⁴² Note, these additional production costs are only incurred if production actually takes place, without depending on the total quantity produced (Antle 2000). In other words, producers bear substantial *inframarginal* or *fixed operating costs* when complying with the more and more demanding public or private (quality) standards.

The economic consequences of fixed production costs have been largely neglected in the costs-benefit analyses of those public policies. In the relevant literature, input prices are typically determined “at the margin”, i.e. by the interaction of upstream firms’ supply functions and downstream firms’ derived demand functions. Even when bargaining between vertically related firms is considered, contractual outcomes rely on the firms’ “marginal contribution” to the bilateral surpluses (Inderst and Shaffer, 2009). More generally, these approaches remain salient about the question of how fixed production costs are shared across the vertically related firms and their impact on contracting terms and market outcome.⁴³

In a joint project with Vanessa von Schlippenbach and Christian Wey, I show that fixed costs are not innocuous and matter with regard to industry outcome. In particular, we demonstrate that downstream cartelization may arise in presence of upstream fixed costs. We consider a vertical structure with a perfectly competitive upstream structure that delivers a homogenous good to a differentiated retail duopoly.⁴⁴ We assume that the upstream firms make take-it or leave-it offers to the retailers. When considering two-part tariff contracts,⁴⁵ we show that sufficiently

⁴²The food safety related expenditures, in particular for implementing HACCP systems, amount to approximately 1% to 7% of the production value (cf. Ragasa et al. 2011).

⁴³Otherwise, upstream fixed cost are regarded as innocuous with regard to market outcome. Consider an upstream monopolist, which delivers to an oligopolistic retail sector, upstream fixed costs do not affect the market outcome as long as some industry profits’ sharing allow to cover the upstream fixed costs. The same holds for fixed costs borne by an oligopolistic upstream sector, which supplies a common retailer.

⁴⁴This corresponds to the observed structure in many markets. Food industries, for example, are characterized by a large bunge of upstream firms producing almost homogeneous goods, which they deliver to more and more concentrated processors or retailers (OECD 1998; EU 1999; FTC 2001).

⁴⁵Upstream firms might also offer simple linear tariff contracts to the retailers. Both cases

high fixed costs may enable the retailers to monopolize the market and, thus, to considerably raise the downstream prices to the detriment of consumers. This is due to the fact that the retailers select a common supplier that internalizes all externalities and, thus, maximizes the industry profit.⁴⁶

These anticompetitive effects of two-part tariff contracts are in line with the findings of Shaffer (1991). In a similar industry structure but without considering any fixed costs at the upstream level, he shows that the competing upstream firms charge a wholesale price above marginal costs as to soften downstream competition and redistribute the rents to the retailers via a negative fixed fee (slotting allowance). But, importantly, in contrast to Shaffer (1991), in which industry monopoly outcome can never be sustained, here, industry cartelization might be an equilibrium. Moreover, as we show, our results do not depend on the nature of downstream competition.⁴⁷

In sum, our results imply that the costs of compliance with either public regulations or private standards are often underestimated.⁴⁸ This is due to the fact that the potential strategic effect of upstream fixed costs has been neglected so far. The benefits from public regulations for consumer protection purposes or private standard initiatives must be balanced against the actual costs of regulation including the compliance costs as well as their price-raising potential in downstream

are considered in the paper. This mirrors the observation that in some industries simple linear contracts are used, while in others trade is based on more complex contracts.

⁴⁶Thereby, the retailer's incentive to deviate with an alternative supplier in order to free-ride on the contract of the rival retailer remains an issue. However, higher fixed costs reduce the retailers' incentive to deviate since the deviating retailer has to bear the entire fixed costs of the alternative supplier. As a consequence, monopolization of the downstream industry can be an equilibrium for sufficiently high fixed costs.

⁴⁷In contrast to Shaffer (1991), where the anticompetitive effect of two-part tariffs relies on Bertrand competition with differentiated retailers, we show that in our set-up similar insights apply to Cournot competition, where downstream output decisions are strategic substitutes.

⁴⁸Using simple linear demand, we show that cartelization of the downstream industry due to upstream fixed costs may lead to an increase of more than 50% of retail prices, when the competition between retailers is tough. In other words, our work points out that the impact of those public policies might be misleading because of strategic behavior of firms.

markets.⁴⁹

Some product markets in the agro-food sector such as the egg market would be an interesting application. As in our setting, the upstream production sector is quite competitive. Moreover, the upstream industry has faced many regulatory changes (2003, 2013) and is exposed to a higher input price volatility (e. g. feed of hens).⁵⁰

Our results also imply that upstream fixed costs, which result from some regulations as consumer protection policies are not less worrisome than other changes in marginal costs as suggested by the literature. It is interesting to underline that, in our setting, rising marginal cost lead to higher retail prices without changing the intensity of downstream competition. In contrast, upstream fixed costs may enable the monopolization of the market. Accordingly, the costs of regulations such as consumer protection policies which imply some fixed upstream cost are less clear than expected. The analysis also provides some interesting discussion, with regard to the impact of input price volatility on retail prices in agro-food sector. While policy makers often focus on this price volatility as a critical determinant of higher retail prices, our analysis shows that fixed costs might also matter in increasing retail prices. Thus, fixed costs are surely more worrisome than expected.

Generally, those results show that the magnitude of effects of public policies

⁴⁹Other contributions of our paper are related in the paper. While the literature on vertical contracting mainly focus on contracting managements to explain industry monopolization (Inderst and Shaffer, 2010 ; Rey and Whinston, 2013), we provide another explanation based on exogenous fixed costs.

Our paper also contributes to the small literature that deals with food safety standarts in food supply chains (as examples, see : Giraud-Héraud et al., 2006 ; Bazoche et al., 2005 and von Schlippenbach and Teichmann, 2012). This literature deals mainly with the question how those private standards are chosen. In contrast, we take the existence as well as the adoption of either public or private standards as given in order to consider the implications of the associated compliance costs for the contracting in the food sector and, finally, consumer prices.

⁵⁰Nilsen et al. (2013) study upstream merger for this market in Norway. They find that upstream merger has no effect on consumer prices, but leads to higher average prices from the downstream to the upstream firms. Taking into account changes in regulation in this sector would be an interesting extension.

are quite different once strategic behavior of firms are taken into account. In a similar vein, Bonnet and Requillart (2013) provide an application to the soft drink market. They evaluate the impact of alternative tax policies with regard to sugar content by taking into account the strategic response of both manufacturers and retailers. The methodology is applied to the French soft drink market. Their results show that ignoring strategic pricing by firms leads to a misestimation of the impact of taxation by 15% to 40% depending on the products and the tax policy implemented.

In our analysis, fixed costs are related to some public interventions, certification, and so on. Those changes are exogenous. At the same time, private agro-food standards are also increasingly shaping up agriculture. Considering those changes in costs as the result of strategic decisions of firms is a research avenue, which is left for the future.

4.4 Concluding remarks

Despite main advances, some progress should be made in order to understand the functioning of vertical chains. First, a better integration between theory and applications has to be achieved. This "habilitation" thesis offers some guiding principles for thinking about the value of industry profits and how some features affect its value and its sharing along vertical chains. Further empirical investigations will allow us to get a better understanding of the relevance of contracts, which are considered, but also the scope of factors we investigate (such as the competitiveness of retail industry, the scope of shopping costs).

The call for a unified treatment does not solely apply to theory and applications. In our discussion about public policies, which translate into fixed cost for upstream firms, we claim that public policies should take into account strategic behavior of firms in their conceptual framework, because potential monopolization of the downstream market may arise. The background of public policies and antitrust authorities exhibits a remarkable dichotomy between the treatment of vertical chains, in which the "market interface" approach⁵¹ is largely viewed as acceptable

⁵¹An exposition of the "market interface" can be found in, for instance, Sherer and Ross

and others in which the market power in vertical chains is underlined. Antitrust authorities may offer some guiding principles for public policies such as, when market power in vertical chains may affect potential benefits with regard to the public policies changes.

Moreover, it would be desirable to broaden the scope of analysis in several directions. Complex forms in retail industry have emerged, and corresponding theoretical frameworks should be developed. Retail industry is governed by large retailers, which offer a large range/broad of products at the same location. Such organization can result in economies of scale, as recover fixed retail costs on more products, and/or offer one-stop shopping facilities. Shops may be run as "product category by product category" or as one entity, which maximizes profits on all categories. This dichotomy raises interesting questions about the extent of retail competition between retailers. Competition "product category by product category" seems to be more severe. By contrast, competition with regard to all products allow to benefit from some complementarities between the product categories, which helps to decrease downstream competition (see Chen and Rey, 2012). Dobson and Waterson (2005) considers that retailers may operate nationally or on a local basis according to market conditions. They model this by allowing local market differences, with retail markets differing by their size and the number of players present. They show that competitive conditions exist under which uniform pricing nationally can raise chain-store profits instead of practising local price discrimination. Similar analysis could be conducted by considering that stores may be run as "product category by product category" or as one entity, which maximizes profits on all categories.

Chain-stores now dominate most areas of retailing. But, most importantly, retailers offer several shops in the same area (supermarket, hypermarket and/or convenience stores). While those stores seem to be run independently, the question of competition between them is opened. In Caprice and Rey (2012), we assume that

(1990), and Blair and Harrison (1993); see also Inderst and Shaffer (2009). The interface market presumes that upstream and downstream firms interact via a market interface and thus remain anonymous to each other. Consider this approach leads to perfect pass-through of upstream cost changes at the retail level. This seems to be the predominant view in current public policies thinking.

they are in competition. They can also operate on an dependent basis. Competition authorities might be concerned about any pricing policy that dampen competition locally. Equally, authorities may be concerned about price discrimination, which results from different shops in the same area. Several shops in the same area may allow to exploit different consumer groups. Allowing for those alternative price behaviors for chain-stores would be interesting question for the future.

More generally, consumer behavior has changed as well as retail industry. Increased time preference of consumers and their affinity towards one-stop shopping is one of the main dimensions. I show that this characteristic of consumer behavior really impacts the value of vertical chains. In particular, "one-stop shopping" may explain a part of higher prices in agro-food sector at least by two mechanisms. First, substitute goods may evolve into complementary goods due to one-stop shopping; inter-brand competition is affected (Caprice and von Schlippenbach, 2013). Second, intra-brand competition may evolve into less competition as long as some consumers are multi-stop shoppers (Caprice and Shekhar, 2014, in progress). In any case, one-stop shopping behavior impacts intra- and inter-brand competition. This characteristic raises new questions with regard to vertical chains as intra- and inter-brand competition are affected. This characteristic is also relevant for upstream consolidation. Consolidation at the upstream level is often between firms, which supply independent commodities, but these commodities are connected as long as they are sold in the same shops. Shopping costs may thus change the face of vertical contracting in case of upstream consolidation. The research community is, in large part, behind the curve in terms of addressing these emerging questions.⁵² Another relevant change in consumer behavior is the demand for local products; examples are given in short food supply chains. Most of analysis I conduct are relevant for long chain of products, in which suppliers and retailers interact on large volumes. The introduction of short food supply chains may change the face of grocery sector, in developing alternative retailing channels. More generally, the entry of new actors raises new questions in terms of market exclusion. For example, in-

⁵²To my knowledge, few papers have focused on shopping costs in vertically related markets (except, von Schlippenbach and Wey, 2011 and Johansen, 2012).

cumbent firms may deter entry to avoid the dissipation of industry rents (Comanor and Rey, 2000). We leave these and other fascinating issues for further research.

To finish, one of my main ambitions of my research agenda is to bring more theoretical results at the interface of the econometric analysis. Strong results are interesting with regard to policy recommendations. To communicate and interpret research results on these issues, outside the academic community is another challenge I would like to adress in the future.

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6 Annexes

6.1 Annex 1 : Curriculum Vitae

Stéphane CAPRICE

CV April 2014

Toulouse School of Economics
GREMAQ, INRA
Manufacture des Tabacs, MF426
21 allée de Brienne
31000 Toulouse, France

Phone: 0033 5 61128578
Fax: 0033 5 61128520
e-mail: caprice@toulouse.inra.fr

Education

2000 Ph.D. in Economics, University Panthéon-Sorbonne (Paris I),
Title: « Contributions à l'analyse de la puissance d'achat dans les relations verticales :
interactions stratégiques et marques de distributeurs »,
Ph.D. Committee, Michel Moreaux, Anne Perrot (advisor), Vincent Réquillart, Patrick
Rey and Antoine Soubeyran.

Main areas of research

Industrial Organization, Vertical Restraints, Competition Policy.

Positions

2007- Researcher, Toulouse School of Economics (GREMAQ, INRA)
2000-2007 Researcher, INRA ESR, Toulouse

Visiting positions

2011- Deutsches Institut für Wirtschaftsforschung (DIW), Berlin (5 months)
2003-2005 Economics Department, Warwick University, Coventry (23 months)

Grants and honors

2013-2016 ANR-DFG Grant (Toulouse coordinator, 480.000 euros)
 "Competition, Bargaining in Vertical Chains", CBVC
 ALISS-INRA, University of Rennes (CREM), Toulouse School of Economics, University
 of Düsseldorf (DICE)
2009-2011 ANR-DFG Grant (French coordinator, 440.000 euros)
 "Market Power in Vertically Related Markets", MPinVRM
 Ecole Polytechnique, Toulouse School of Economics, DIW (Berlin), Humboldt
 University (Berlin)
2006 Best Paper by a Younger Scholar, International Industrial Organization Society, for
 "Multilateral Vertical Contracting with an Alternative Supply : The Welfare Effects of
 a Ban on Price Discrimination", in *Review of Industrial Organization*

Research

Publications

- "One-stop Shopping as a Cause of Slotting Fees: A Rent-Shifting Mechanism", with V. von Schlippenbach, *Journal of Economics & Management Strategy*, 2013, 22(3), 468-487.
- "Competition Policy in a Concentrated and Globalized Retail Industry", with V. von Schlippenbach, *Applied Economics Quarterly*, 2008, 54(3), 183-202.
- "Is competition or collusion in the product market relevant for labour market ?", with F. Berges-Sennou, *Louvain Economic Review*, 2008, 74(3), 273-298.
- "Upstream market power and product line differentiation in retailing" with E. Avenel, *International Journal of Industrial Organization*, 2006, 24(2), 319-324.
- "Multilateral vertical contracting with an alternative supply: The welfare effects of a ban on price discrimination", *Review of Industrial Organization*, 2006, 28(1), 63-80.
- "Incentive to encourage downstream competition under bilateral oligopoly", *Economics bulletin*, 2005, 12(9), 1-5.
- "Le rôle de la formation continue sur la mobilité professionnelle : quelle différenciation spatiale ?", with E. Cahuzac and C. Detang-Dessendre, *Formation-Emploi*, 2005, 89, 47-63.
- "Fidélité à la marque, fidélité à l'enseigne : une analyse des rapports de force entre producteurs et distributeurs", *Economie Rurale*, 2004, 283-284, 3-15.
- "Relations verticales entre producteurs et distributeurs : puissance d'achat et marques de distributeurs", with F. Berges-Sennou, *Economie Rurale*, 2003, 277-278, 192-205.
- "Les relations verticales", with J. Philippe, in "Concurrence et réglementation", Ed. A. Perrot, Economica, *Collection Economie et Statistique Avancées*, 1997.

Working papers and works in progress

- "Supplier Fixed costs and Retail Market Monopolization", with Vanessa von Schlippenbach and Christian Wey, mimeo, 2014.
- "Buyer Power from Joint Listing Decision", with Patrick Rey, Discussion Paper, TSE (Toulouse School of Economics), WP 12-294, 2012.
- "Collusion and downstream entry in a vertically integrated industry", with E. Avenel, Discussion Paper, CREM (University of Rennes), WP 2012-08, 2012.
- "Merger Efficiency and Welfare Implications of Buyer Power", with Ö. Bedre, Discussion Paper, DIW (Deutsches Institut für Wirtschaftsforschung, Berlin), DP 1144.
- "A gatekeeper retailer: good for consumers, bad for rivals", with Ö. Bedre, mimeo, 2010.
- "Non-linear supply contracts and the effects of size discounts on retail prices", with Ö. Bedre (in progress).
- "Buyer mergers and upstream competition", mimeo, 2009.

Non-refereed journal articles and articles in the Press

- “La loi LME, un cadeau pour les grandes enseignes”, L’expansion, n°759, 2011.
- “Les relations entre producteurs et distributeurs, une analyse économique et économétrique de mécanismes inflationnistes sur les prix de détail”, with C. Bonnet, C. Chambolle and P. Dubois, INRA Sciences Sociales, N°5-6, 2006.
- “L’analyse économique des marques de distributeurs”, with F. Bergès-Sennou, INRA Sciences Sociales, N°3, 2001.

Invited Seminars and Conference Presentations (2007-2014)

“Supplier Fixed costs and Retail Market Monopolization”

Titled, “Ambiguous Effects of Consumer Protection Policies”

Workshop OCAD, Toulouse, 2014

Seminar DICE, Düsseldorf, 2014

“Buyer Power from Joint Listing Decision”

Workshop on Vertical Restraints, BECCLE, Bergen, 2013

Workshop Competition, Bargaining, in Vertical Chains, Düsseldorf, 2013

Transparency of Food Prices (TRANSFOP) conference, Toulouse, 2013

Seminar ALISS, Paris, 2012

Jornadas de Economia Industrial (JEI), Murcia, 2012

Seminar Agricultural Food and Industrial Organization, Toulouse, 2012

“Collusion and Downstream Entry in a Vertically Integrated Industry”

Competition and Regulation European Summer School and Conf. (CRESSE), Chania, 2012

Seminar ALISS, Paris, 2011

“Gatekeeper retailer: Bad for competitors, Good for consumers”

Workshop Market Power in Vertically Related Markets, Berlin, 2010

“Consumer Shopping Costs as a Cause of Slotting Fees: A Rent-Shifting Mechanism”

Updated, “One-Stop Shopping as a Cause of Slotting Fees: A Rent-Shifting Mechanism”

Seminar DIW, Berlin, 2011

Workshop Market Power in Vertically Related Markets, Berlin, 2010

Seminar Antitrust and Economy, University of Minho (NIPE), 2010

Jornadas de Economia Industrial (JEI), Madrid, 2010

Association of Southern European Economic theorists (ASSET), Alicante, 2010

“Inefficient buyer merger to obtain size discounts”

Updated, “Merger Efficiency and Welfare Implications of Buyer Power”

Seminar Information Society and Competition, DIW, Berlin, 2009

Workshop Market Power in Vertically Related Markets, Toulouse, 2009

European Association for Research in Industrial Economics (EARIE), Ljubljana, 2009

“Non-linear supply contracts and the effects of size discounts on retail prices”

Association of Southern European Economic theorists (ASSET), Bogazici, 2009

“Buyer mergers and upstream competition”

Seminar Economic Theory, Milan, 2008

Seminar Market Power in Input Markets, Berlin, 2008

Seminar Agriculture and Food Industrial Organization, Toulouse, 2007

Seminar Economic Theory, Alicante, 2007

International Industrial Organization Conference (IIOC), Savannah, 2007
European Association for Research in Industrial Economics (EARIE), Valence, 2007
Association Française de Sciences Economiques (AFSE), Paris, 2007
Seminar Industrial Organization, University of Warwick, 2007

PhD Committee:

Borja Mesa Sanchez, 2011, “Essays on Industrial Organization”, invited by Joel Sandonis and Ramon Fauli-Oller (University of Alicante, Spain).

Master Thesis Advisor:

Shiva Shekhar, 2013, “Vertical Relations and Shopping Behaviour”; Phd Student DICE (Düsseldorf).

Refereeing

Economic Journal (EJ)
International Journal of Industrial Organization (IJIO)
Journal of Economics & Management and Strategy (JEMS)
Journal of Industrial Economics (JIE)
Review of Industrial Organization (RIO)
The Manchester School
Economics Bulletin (EB)
European Review of Agricultural Economics (ERAE)
Review of Agricultural and Environmental Studies
International Journal of Agricultural Resources, Governance and Ecology (IJARGE)
Journal of Industry, Competition and Trade (JICT)
Metroeconomica, International Review of Economics
Evidence and Policy

Department/University Service

Workshop organizer, “Market Power in Vertically Related Markets”, Toulouse School of Economics, 16-17 March, 2009 and 28-29 June 2012.
Agricultural Food and Industrial Organization, Seminar organizer, Toulouse School of Economics, 2008-2009, 2009-2010, 2012-2013, 2013-2014.
EARIE Conference (European Association for Research in Industrial Economics), member of the organizing committee, Toulouse School of Economics, 4-6 September, 2008.
EEA-ESEM Meeting (European Economic Association-European Meeting of the Econometric Society), member of the organizing committee, Toulouse School of Economics, 2014.

Teaching

2005-2012	Ecole Nationale d’Aviation Civile (ENAC), Toulouse Industrial Organization
2007-2010	University of Tianjin (China), in coop. with Ecole Nationale d’Aviation Civile (ENAC) Basics in economics

6.2 Annex 2 : Papers

- Caprice S. (2004), "Fidélité à la marque, fidélité à l'enseigne : une analyse des déterminants des rapports de force entre producteurs et distributeurs", *Economie Rurale*, Vol. 283-284, 72-105.
- Avenel E. and S. Caprice (2006), "Upstream market power and product line differentiation in retailing", *International Journal of Industrial Organization*, 24, 319-334.
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- Bedre Ö. and S. Caprice (2011), "Merger efficiency and welfare implications of buyer power," ESMT (European School of Management and Technology) Research Working Papers, ESMT-11-07.
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