The Economic Theory of Vertical Restraints

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1. Abstract

Vertical relationships between manufacturers, wholesalers and retailers often involve complex contracting arrangments. These arrangements are broadly referred to as vertical restraints. This report provides a selective review of the economic theory on a subset of these vertical restraints. It explains how vertical restraints can be used to control for several externalities arising from the interactions between manufacturers, wholesalers and retailers. It also discusses to what extent these instruments need to be adjusted to take into account uncertainty and asymmetric information. Broadly speaking, vertical restraints can be efficiency-enhancing, but they may also have anticompetitive effects. Which of these effects dominates and which set of vertical restraints will be adopted depend critically on the informational environment and on the vertical and horizontal market structures. The report further makes an atempt to relate the theory to some of the current practices in the grocery industry.

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1. Introduction

Manufacturers and retailers often do not trade their goods through a simple linear pricing mechanism in which the retailers pay the manufacturers an amount proportional to the quantity bought. Instead they use a variety of complex contracts. In the literature of industrial economics, these contracts are often referred to as vertical restraints. Examples of vertical restraints include nonlinear pricing, quantity forcing, full-line forcing, resale price maintenance, territorial restrictions, exclusive dealing, partial exclusive dealing, tie-in sales, refusal to deal, and so on. Which set of vertical restraints will be used in practice depends on the market environment. This report provides a brief review of the economic theory of a subset of such vertical restraints and relates the theory to some of the common practices the grocery industry.

The economics literature on vertical restraints is extensive. In this literature there are various explanations for vertical restraints. They can be split into three broad categories: (a) Efficiency motives, (b) anti-competitive motives, and (c) rent-shifting motives. As I will discuss later on, vertical restraints can be efficiency-enhancing since they can help to eliminate some form of vertical externality in the manufacturer-retailer relationship as well as horizontal externality such as free-riding problems among retailers. But some of the vertical restraints can be anticompetitive since they may serve to eliminate competition either at the manufacture level or at the retail level and reduce consumers' choices and welfare. Which of these effects dominates and which vertical restraints will be adopted in a particular situation depend critically on the informational environment (e.g., on what can be observed and enforced by the manufacturers) and on the vertical and horizontal market structures. For instance, uncertainty about a vertical relationship environment may drastically affect the manufacturer's choice of vertical restraints. Many vertical restraints have been imposed on retailers by manufacturers while others have been imposed on manufacturers by retailers.

In what follows, I will organize my discussions on the theory of vertical restraints based on vertical and horizontal market structures. For each type of market structures I will also discuss the effects of uncertainty and asymmetric information on vertical restraints.bigskip

2. Linear Prices, Vertical Externality, and Vertical Restraints

In this section, I first discuss some of the key issues in the manufacturer-retailer relationship: Efficiency, vertical externality, incentives, risk sharing, and asymmetric information. To do so, I adopt a benchmark framework in which there is one manufacturer and one retailer and assume that the manufacturer has all the bargaining power over the retailer. I will discuss the impact of different market structures on vertical restraints in subsequent sections.

2.1. Vertical Externality

The simplest reason for a manufacturer to adopt vertical restraints is to control a form of vertical externality arising from a linear-pricing policy in the vertical relationship. To illustrate this basic vertical externality, consider first how an integrated manufacturer and retailer makes its choice of retail price in a simple environment where the market demand for a single product is deterministic and the marginal cost for each firm is constant. A retail price is selected to maximize the total profit of the manufacturer and retailer together. For the purpose of comparison, call this price as the optimal level of retail price and the resulting profit as the optimal level of profit. [1]

When the manufacturer and retailer are separated, the manufacturer, who has the bargaining power, has an incentive to implement the optimal retail price if possible. This cannot be done if the manufacturer uses a linear wholesale price policy. The wholesale price charged by the monopoly manufacturer is usually above its marginal cost. Given this wholesale price, the manufacturer would prefer the retailer to sell as many units as possible. However, the retailer, acting as a monopolist in the retail market, would charge a retail price above its own marginal cost including the wholesale price. This creates double markups as compared to a single markup in the case of an integrated monopoly. Consequently, the retail price under a linear wholesale pricing policy exceeds the level that maximizes the integrated profit and the total profit is below the optimal level. When making their pricing decisions the two independent firms ignore the effect of their individual markups on each other's profits, while the integrated monopolist internalizes such externality. This is often called vertical externality or double marginalization, particularly vertical pricing externality. [2]

The manufacturer has the incentive to use various instruments to minimize and possibly eliminate the distortion created by the above vertical externality. Vertical merger or integration is one way to eliminate the problem. However, a merger or integration may be costly and have side effects. The manufacturer has traditionally used other instruments such as a two-part tariff policy, resale price maintenance (RPM), and quantity forcing to eliminate the externality.

In the simple, deterministic environment mentioned above, a two-part tariff contract works as follows. The manufacturer sets a wholesale price equal to its marginal cost.

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[1] Note that this optimal price does not have to be socially optimal since the integrated firm has market power.

[2] The double marginalization problem is raised by Spengler (1950). It is similar to that of two monopolists that produce perfectly complementary goods (zinc and copper) first studied by Cournot (1838).

This induces the retailer to select a retail price equal to the optimal level. The manufacturer can use a franchise fee to extract all the surplus from the retailer. Alternatively, the manufacturer can achieve the optimal level of profit through a RPM policy. It sells the good at a wholesale price equal to the optimal level of retail price and imposes retail price maintenance at that level. The retailer makes zero profit and the manufacturer receives the optimal level of profit. A price ceiling or quantity forcing works in a similar way.

It is important to note that in this simple environment, the total surplus (i.e., consumers' surplus plus the two firms' profits) associated with the practices discussed above is unambiguously increased by the elimination of the double marginalization problem, since consumers pay a lower price and the total profit of the manufacturer and retailer rises. Therefore, these vertical restraints are welfare-enhancing, but they are also shifting the strategic rents from the retailer to the manufacturer.

As the environment becomes more complex, the manufacturer may have incentives to use different vertical restraints. For instance, when the manufacturer supplies several products that are imperfect substitutes and when the retailer has limited shelf spaces and can decide whether to carry the manufacturer's products and how many to carry, a simple brand specific two-part tariff contract may not be sufficient for the manufacturer to maximize its profits. As shown in Shaffer (1991), a multi-product manufacturer is able to use several strategies including full-line forcing, brand discounts, aggregate rebates, and maximum resale price maintenance to eliminate or minimize double marginalization and capture strategic rents from the retailer. The welfare implication in this case is similar to the one discussed above.

2.2. Risk Sharing

As discussed above, several vertical restraints can be used to solve the double marginalization problem in the simple, deterministic environment. I now discuss how these vertical restraints may work in more complex environments. Consider, for instance, an environment in which consumer demands and retail cost are random and the retailer is risk averse. In this case, RPM has two problems. First, it cannot achieve the *ex post*optimal level of profit, since the retail price needs to be fixed before the uncertainty is resolved and this retail price is not responsive to demand and retail cost conditions. Second, when the retail cost is uncertain, a risk averse retailer is unable to pass this uncertainty to final consumers and therefore bears too much risk. Quantity forcing has similar problems.

A two-part tariff based on marginal cost wholesale price also has its drawback when the retailer is risk averse. Under a two-part tariff contract the retailer, who receives the residual profit, bears too much risk and may not be willing to accept the contract. Therefore, the manufacturer may want to share some of the risk with the retailer. One way for the manufacturer to bear more risk is to increase the wholesale price and reduce the franchise fee. It works as follows. If the uncertainty is about the consumer demand, an increase in the wholesale price decreases the retailer's profit margin and hence reduces the retailer's risk. But the manufacturer has to use a lower franchise fee. If the uncertainty is about retail cost, an increase in the

wholesale price induces the retailer to increase the retail price and reduce the final sale, which in turn reduces the retailer's risk. In either case, the *ex post* optimal profit level cannot be achieved through a two-part tariff. The best that the manufactures can do is to share some risk with the retailer.

2.3. Incentive to Provide Services

The basic vertical externality may also arise when the retailer chooses nonprice instruments such as services in promotional activities. These services may include customer cards, free alterations, free delivery, credit, pre-sale information, sample of demonstration of products, recycling products, and so forth. Since these services can help improve the consumer's demand for the good, the manufacturer has an incentive to encourage the retailer to do so. However, there is a difference between the retail price and nonprice choices such as promotional services chosen by the retailer. It is relatively easy for the manufacturer to monitor the retail price and sale, so that RPM and quantity forcing contracts are generally enforceable. On the other hand, promotional services are often not observed or verified by the manufacturer. It can be difficult to enforce a contract that specifies the level of promotional services. The retailer may have a tendency to provide less services than the manufacturer would prefer. This divergence of interests between the manufacturer and retailer creates a retail moral hazard problem. Sometimes this is called vertical service externality or more generally vertical nonprice externality.

To solve this moral hazard problem in a simple environment, the manufacturer can simply use a two-part tariff with a wholesale price equal to its marginal cost and a franchise fee equal to the retailer's maximum residual profit. In this case, quantity forcing is also a sufficient instrument for the manufacturer to obtain the vertically integrated profit. [3] However, when the environment involves uncertainty and when the retailer is risk averse, a two-part tariff or quantity forcing does not work well. An optimal contract needs to balance a fundamental trade-off between offering incentives to the retailer to provide services and sharing the risk between the two parties.

In addition to the retailer's investments in services, sometimes the manufacturer also provides services such as product quality and brand advertising that may be difficult to measure precisely. This gives rise to a double moral hazard problem. In this situation, the manufacturer and the retailer tend to free ride on each other's services. There are three externalities arising from the retailer's choices of price and service and from the manufacturer's choice of quality. As shown by Romano (1994), the optimal contract that maximizes the manufacturer's profit generally entails resale price maintenance, either maximum or minimum RPM, depending on the balance of these three externalities. While the vertical pricing externality calls for a maximum retail price, the vertical servicing externality requires the opposite. The third effect comes from the interaction between the retailer's choice of service and the manufacturer's choice of quality. If these two choices are strategic complements in terms of increasing consumers' demand, there is a tendency toward using minimum RPM in the optimal contract. In this case, the manufacturer's choice of quality plays

[3] A formal argument for the sufficiency of quantity forcing is provided in Tirole (1988), on page 199.

a similar role to the retailer's choice of service. This effect works in the opposite direction if these two choices are strategic substitutes and vanishes in the neutral case.
Another solution to the double moral hazard problem, as discussed by Tirole (1988), is for both the manufacturer and retailer to contract with a third party. When they are risk neutral, this mechanism works as follows: The product is transferred through the third party. The third party pays the manufacturer according to a linear price and the retailer pays the third party according to a two-part tariff. [4] The third party here can be a wholesaler or a broker, although in practice wholesalers often provide other services such as distributing multiple goods and facilitating credit.

2.4. Asymmetric Information

A retailer often has more information about local demand or about its own efficiency in selling the product than the manufacturer. This is particularly true given the recent development of information technology such as check-out scanners. This informational asymmetry creates a well-known adverse selection problem. In particular, standard vertical restraints such as franchise fee contracts, quantity forcing, or RPM discussed above are insufficient to solve the adverse selection problem and achieve the integrated profit. In such situations the best that the manufacturer can do is to price discriminate across different types of retailers by offering a menu of prices based on a variety of instruments such as volume and quality by taking into account retailers' self-selection incentives.
For instance, Gal-Or (1991) shows that RPM can help to achieve the integrated profit when the retailer has private information only about the state of a linear demand curve. If the retailer has also private information about retail costs, the retailer generally earns information rents and the distortions in price and quantity cannot be corrected.
Blair and Lewis (1994) analyze optimal retail contracts for a monopoly manufacturer when both asymmetric information and moral hazard are present. They find that the optimal contract generally requires both RPM and quantity fixing. This is in contrast with the case of complete information in which either RPM, price ceiling, or quantity fixing is sufficient to eliminate the double marginalization problem. They further provide an example with a linear demand curve in which the optimal contract with RPM and quantity fixing is detrimental to consumer welfare. The reason is simply that quantity rationing is also imposed along with the price restriction when there is asymmetric information and moral hazard. Their analysis suggests that when examining price restraints it is important to consider quantity restraints as well.

2.5. Summary

When a manufacturer and a retailer are separated and when the retailer takes certain actions (retail price and services) that are not observable or verifiable in a court, there exists a fundamental vertical externality associated with linear wholesale

[4]Following Holmstrom (1982), the third party plays a role of breaking the budget. See Tirole (1988), page 199, for a detailed discussion.

prices. The manufacturer has private incentives to control for such an externality and often uses simple vertical restraints such as two-part tariff with a franchise fee, resale price maintenance, and quantity fixing to eliminate or minimize this externality. These instruments help to maximize the aggregate profit between the manufacturer and the retailer, but also shift some of the efficiency gain from the retailer to the manufacturer. Consumers are usually better off with the elimination of vertical externality. However, when the environment involves uncertainty and asymmetric information, the manufacturer often needs to adjust these standard vertical restraints in order to provide the retailer with high incentives to invest in promotional services, to reduce information rents that the retailer can earn and to share appropriate amount of risk with the retailer. In this case, privately desirable vertical restraints may not always be socially desirable.

3. Retail Competition and Horizontal Externality

3.1. Horizontal Externality

In this section I discuss the effect of retail (intrabrand) competition on vertical restraints. In addition to the vertical externalities discussed in the previous section, competition among retailers often introduces another type of externality. In choosing retail price and service level each retailer only considers its own profit and not the profits of other retailers. This creates a horizontal externality or sometimes a free-rider problem among retailers. In the presence of both vertical and horizontal externalities, a two-part tariff wholesale contract alone may not be sufficient to achieve the maximum profit of a fully integrated firm.

To illustrate this point, I consider a simple environment in which there is one manufacturer and two retailers. I use the analysis provided by Winter (1993) to explain how the manufacturer may have to use other vertical restraints to neutralize the two types of externalities. Suppose that one manufacturer sells its product to two retailers at different locations and that consumers are heterogenous in their opportunity costs of time. The manufacturer initially chooses a wholesale price plus franchise fees. The retailers choose their retail prices and service levels. Here a greater service level lowers consumers' opportunity costs, especially the time costs, of obtaining a product. Examples of such services include a shorter cashier line, well organized inventory, prominent shelf space and informed staff.

In this simple environment, there is a tendency for retailers to overemphasize price competition and underemphasize service competition, relative to the optimal levels that maximize the fully integrated profits. If the manufacturer sets the wholesale price equal to its marginal cost, both the equilibrium retail prices and service levels would be too low. On the other hand, the manufacturer can choose a wholesale price such that the retail price is the optimal level, but service levels would still be too low. The retailers may have a tendency to free ride on each other's service. This means that a wholesale price alone is insufficient to achieve the optimal outcome. The horizontal externality created by retailers' choices of services can be eliminated through a number of vertical restraints. By imposing a retail price floor at the optimal

level, the manufacturer can ensure that the optimal retail price will be chosen. It can then adjust the wholesale price low enough to induce the retailers to choose the optimal levels of services. A fixed franchise fee can further be used to extract surplus from the retailers. Therefore, the optimal outcome can be achieved through a two-part tariff combined with a retail price floor.

Alternatively, the manufacturer can use closed territory distribution (or exclusive dealing) to achieve the same objective. By eliminating interretailer competition, awarding monopoly territories combined with a wholesale price equal to the manufacturer's marginal cost provides retailers with correct incentives to set both price and service.

What will be the welfare implications in this model? The manufacturer has a tendency to use vertical restraints to support a provision of services that is socially excessive. Winter (1993) provides some simulation results showing that the total welfare is for many parameter values improved if the manufacturer is prohibited from using the above vertical restraints. At the same time, he also argues that the simulation results may not be robust to the introduction of competition among manufacturers. This leads him to conclude that interbrand competition can be relied upon to provide a better mix of service and prices than antitrust intervention. A more general analysis on the welfare implication of vertical restraints in this context is needed.

The basic idea that the horizontal externality gives rise to a free-riding problem has been discussed in the early literature (see, for instance, Mathewson and Winter, 1984). Since retailers free ride on each other's service, the services are generally undersupplied. To encourage an adequate provision of services by retailers, competition must be reduced or eliminated. Thus, the manufacturer has the incentive to adopt competition-reducing vertical restraints such as RPM and exclusive territories.

The difference between the early literature and the analysis by Winter (1993) is that the latter develops an explanation of why the difference in consumers' tastes might arise. Winter (1993) also provides a simple, necessary and sufficient condition for vertical restraints within a large class of environments. He further points out that free-riding often leads to the condition, but is not necessary. Therefore, RPM and exclusive territories are adopted not necessarily for the reason of solving a free-riding problem. They are adopted to correct biases arising from both the vertical and horizontal externalities. Horizontal externality does not have to be the free-riding problem. [5]

3.2. Uncertainty, Risk Aversion and Asymmetric Information

Similar to the case of one retailer, in the presence of uncertainty and asymmetric information, standard vertical restraints used to correct vertical and horizontal

[5] A number of related issues such as monitoring costs of using RPM, the advantage of using territorial restraints over RPM, and cartel explanation of RPM have been discussed in Mathewson and Winter (1998). Kali (1998) extends Winter (1993)'s model to discuss the role of minimum advertized price programs in which a cooperative advertising subsidy is linked to agreeing not to advertise below a specified price. Bolton and Bonanno (1988) and Spiegel and Yehezkel (2000) study non-price restraints when retailers are vertically differentiated, where retailers' services may not generate the same type of free rider problems.

externalities have some drawbacks. They may not allow the efficient use of retailers' private information. They may not provide retailers with a sufficient amount of insurance when retailers are risk averse. Competition among retailers can help the manufacturer minimize these problems. It may also help improve the social welfare. In what follows, I use the analysis provided by Rey and Tirole (1986a, 1986b) to explain how retail competition can be used as an incentive device to improve the manufacturer's profit and consumer welfare when there are demand uncertainty and cost uncertainty.

Suppose that there are two types of uncertainty, demand and retail cost. Retailers first sign a contract with the manufacturer and then learn about the demand and retail cost, after which they choose their retail prices. For simplicity, the demand function is assumed to be linear. Consider three types of contracts: (i) competition, (ii) exclusive territories and (iii) RPM, each of which is combined with a two-part tariff. Under a number of assumptions about the environment, Rey and Tirole (1986a, 1986b) first show that when the retailers have no risk aversion, the manufacturer prefers exclusive territories to RPM or competition (the latter two are equivalent in this case), but the total surplus under competition exceeds that under RPM and exclusive territories.

They also show that when the retailers are extremely risk averse, the consumers and the manufacturer agree on the choice of vertical restraints. In particular, if there is only demand uncertainty, competition and RPM are equivalent and are preferred to exclusive territories. On the other hand, if there is only retail cost uncertainty, competition is preferred to exclusive territories, which is preferred to RPM.

Indeed, in the simpler environment with a linear demand curve and any degree of retailers' risk aversion, both the expected net consumer surplus and the aggregate welfare are higher under competition than under exclusive territories. [6]

3.3. Summary

There is a trade-off regarding retail competition. To minimize the free-riding problem in providing services among retailers, the manufacturer would like to use exclusive territories and RPM over competition. However, uncertainty about the environment can affect the choice of vertical restraints. When there are demand uncertainty and retail cost uncertainty and when the retailers are risk averse, competition among retailers may provide better insurance than exclusive territories and RPM and is often preferred by the manufacturer. In some special cases, competition yields higher consumer surplus and aggregate welfare than RPM and exclusive territories.

[6] A different type of uncertainty is discussed in O'Brien and Shaffer (1992). In their model, competing retailers do not know the contracts negotiated between the upstream manufacturer and the other retailers. This unobservability of contracts allows the manufacturer to engage in secret bilateral deals with selected retailers ex post, so as to shift profits away from rival retailers to the negotiatting parties. Vertical restraints may be used to avoid this type of opportunistic behavior of shifting rent.

4. Competition among Manufacturers and Strategic Motives for Vertical Restraints

An additional consideration for vertical restraints arises when several manufacturers compete. In this case, there is a need to control for the actions of rival manufacturers. There are two extra effects to be controlled: a competition effect arising from manufacturers' choices of wholesale prices and a free-riding effect arising from their investments in manufacture-retail relationships.
The competition effect is a standard one. If the manufacturers sell the products themselves and set prices simultaneously, the equilibrium prices and profits would be too low as compared to the levels that maximize the joint profit, since there is a positive externality between their choices of prices. If they delegate price decisions to retailers who compete in Bertrand fashion, pure (intra-brand) price competition leads the retailers to charge retail prices equal to the wholesale prices set by the manufacturers and hence the same positive externality between wholesale prices is still present. Vertical restraints such as exclusive dealing or exclusive territories are often used to eliminate this type of positive externality and hence soften competition among manufacturers.
The free-rider problem arise when manufacturers make investments to increase sales or lower distribution costs of a retailer which may benefit rival manufacturers. Exclusive dealing can also be used to eliminate this free-rider problem.
However, the welfare consequences of exclusive dealing used to control for the free-riding and competition effects can be different. In what follows, I review the literature on the private incentives of exclusive dealing or exclusive territories as well as their social consequences in more detail. I divide my discussions into three situations: the first one corresponds to the case of a monopolistic retailer; the second refers to perfectly competitive retail markets; and the third deals with imperfect competition among retailers.

4.1. Monopoly Retailer

Exclusive dealing has generated a lot of debates since the late 70's. One view advanced by Bork (1978) states that exclusive dealing is welfare improving. To gain an exclusive dealing contract with a retailer, a manufacturer would have to use a low wholesale price to bribe the retailer. The retailer would accept the contract only when the reduction in wholesale price is more than compensated for the reduction in consumers' choices. This argument leads Bork to conclude that exclusive dealing can increase competition and benefit consumers.
On the other side of the debate, Comanor and Frech (1985) argue that exclusive dealing can be anticompetitive since it can be used by an incumbent manufacturer to deter entrants. In their model, there are two types of asymmetry between the incumbent manufacturer and entrants: a subset of consumers strictly prefer the incumbent's product and incumbent retailers have lower costs of resale than any new retailers. By signing exclusive dealing contracts with the incumbent retailers and by setting a limit price, the incumbent manufacturer is able to either deter the entrants or allow the entrants only serve the nondiscriminating consumers. As a

result, the consumers generally pay higher prices.

Mathewson and Winter (1987) provides an analysis of exclusive dealing that supports a middle ground between the positions of Bork (1978) and Comanor and Frech (1985). They recognize that exclusive dealing imposed by a dominant manufacturer eliminates its rivals from the market and therefore reduces actual competition and restricts consumers' choices. They also point out a beneficial aspect of exclusive dealing, that is, competition among manufacturers for the exclusive right to be selected by the retailer drives down the wholesale price which may in turn reduce the retail price and benefit consumers. As they emphasized, "potential competition replaces actual competition as the disciplining force in the market." The net effect of exclusive dealing may depend on the environment in which the firms compete.

Specifically, Mathewson and Winter (1987) consider an environment in which two manufacturers sell substitute goods to a large number of retailers, each of whom has a local monopoly over a subset of consumers. The manufacturers offer simultaneously wholesale contracts to the retailers, each contract specifies a wholesale price and possibly an exclusive dealing requirement. Consider the dominant manufacturer that can offer the largest exclusive retail profits at a zero-wholesale markup, probably this manufacturer has lower marginal cost or has an advantage in consumer's demand for its product. If exclusive dealing is used at all, the dominant manufacturer will win the competition. The profit for the dominant firm with exclusive dealing can exceed its profit level without it. Essentially, the asymmetry of demand for the products is necessary for the profitability of exclusive dealing.

Welfare in Mathewson and Winter (1987) model is affected by exclusive dealing in two ways. First, there is a negative effect since the selection of products in the market is reduced. Second, the retail price of the dominant firm may rise or fall with exclusive dealing. It rises when the demand for the products is very asymmetric. In this case, consumers' surplus is reduced and the increase in profits to the dominant firm cannot offset the total decrease in consumers' surplus, retail profits and the rival's profits. Therefore, the total surplus is reduced and there is a deadweight loss. On the other hand, even if the wholesale price and retail price of the dominant firm fall with exclusive dealing, the gain needs to be balanced with the negative effect of reduced product variety.

O'Brien and Shaffer (1997) extend Mathewson and Winter (1987)'s analysis to allow for nonlinear pricing in the wholesale market and find that market foreclosure equilibria exist, but they are Pareto-dominated (from manufacturers' perspective) by all nonforeclosure equilibria. Their analysis suggests that nonlinear pricing provides flexibility for manufacturers to extract surplus from a retailer and have the effect of reducing the incidence of market foreclosure. It also implies that manufacturers sometimes find nonlinear wholesale pricing a good substitute for exclusive dealing. [1]

[1]Bernheim and Whinston (1998) study a general class of contracting problems with two manufacturers and one retailer and illustrate that exclusive dealing contracts may be irrelevant, anticompetitive, or efficiency-enhancing, depending on the environment. Ramusen, Ramseyer and Wiley (1991) show that a monopoly incumbent may have incentives to sign a large number of exclusive dealing contracts to exclude an entrant, since there is a minimum efficiency scale that is necessary for the entrant to operate and since customers may not be able to solve their coordination problem. See also Krattenmaker and Salop (1986) on raising rivals' costs

4.2. Perfectly Competitive Retailers

The impact of the free-riding problem has been discussed in the paper by Besanko and Perry (1993). They consider three oligopolistic manufacturers who sell through perfectly competitive retailers and make investments to reduce retailers' marginal cost of selling the product. There exists a positive interbrand externality since brand-enhancing investments made by one manufacturer may benefit the brands of other manufacturers. Exclusive dealing helps to eliminate this externality and therefore increase a manufacturer's incentive to invest in its retailers. However, in equilibrium the manufacturers may not necessarily choose exclusive dealing, depending on the degree of the externality.

Besanko and Perry (1993) have shown the following results. (a) When the interbrand externality is weak, it is a dominant strategy for each manufacturer not to adopt exclusive dealing. (b) When such externality is strong, manufacturers may individually adopt exclusive dealing. In this case, exclusive dealing can be a dominant strategy and a prisoners' dilemma can arise. There may also be a mixed outcome in which one manufacturer adopts exclusive dealing and others do not. (c) For intermediate levels of the externality, mixed equilibria also arise. The welfare implication of exclusive dealing in this model is unambiguous. The total surplus when all manufacturers adopt exclusive dealing exceeds that in the other two cases in which one or none of the manufacturers adopt exclusive dealing. Therefore, in this setting exclusive dealing can help to solve the free-riding problem among the manufacturers and improve social welfare. [2]

4.3. Oligopoly and Strategic Motives for Vertical Restraints

When manufacturers are imperfectly competing at the upstream level and retailers are imperfectly competing at the downstream level, vertical restraints such as exclusive territories can be used to reduce downstream competition, but also soften upstream competition. That is, the manufacturers may adopt vertical restraints for strategic purposes. This insight has been illustrated by Rey and Stiglitz (1988, 1995).

The basic idea is as follows. Suppose that two manufacturers supply two substitute goods. As discussed above, there is a positive externality between the manufacturers' choices of prices. If they delegate price decisions to retailers who compete in Bertrand fashion, the same externality between wholesale prices is still present. Any mechanism that allows the manufacturers or retailers to raise retail prices should benefit the manufacturers. One such a mechanism is for the manufacturers to assign exclusive territories to their retailers. This arrangement eliminates intra-brand competition. And each retailer enjoys some monopolistic power over a fraction of the final demand and tends to charge a price higher than

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by an incumbent firm offering exclusive dealing contracts.

[2]Besanko and Perry (1994) analyze the foreclosure implications of exclusive dealing in a model with two manufacturers selling differentiated brands through spatially differentiated retailers. They find that exclusive dealing often reduce social welfare.

that without exclusive territories. In turn, the wholesale prices would also be higher than that without exclusive territories. The manufacturers can then use franchise fees to extract surpluses from their exclusive retailers. [3] [4]
Exclusive territories in Rey and Stiglitz's model generally result in higher prices and profits but lower consumers' surplus and total surplus.

4.4. Summary

When manufacturers compete, there are usually two extra effects that need to be controlled. One is a competition effect arising from manufacturers' choices of wholesale prices and the other is a free-riding problem arising from manufacturers' investments in manufacture-retail relationships. Both effects can be minimized or eliminated by adopting exclusive dealing or exclusive territories. But the welfare consequences in these two cases can be different. Exclusive dealing used to eliminate the free-riding problem is often efficiency-enhancing. When it is used to reduce competition at the upstream level, exclusive dealing can be anticompetitive.

5. Retail Power and Vertical Restraints

As I discussed in the previous sections, most of the modern industrial organization literature on vertical restraints focuses the types of vertical restraints imposed on retailers by manufacturers. One reason for such a focus might be that manufacturers traditionally had more bargaining power than retailers. However, it seems that in the past three decades, the technology has changed. Retailers in many industries have become bigger in sizes (e.g., chain stores, big-box stores) to utilize economies of scale and scope in distribution and to reduce consumers' shopping costs. They have been well equipped with information technology that helps to control inventory more efficiently and collect consumer information for better pricing decisions. Retailers have also started to develop in-house brands so that they do not completely rely on upstream manufacturers' supplies. These changes may have helped retailers increase their bargaining power over suppliers. The retailers with bargaining power are also likely to impose vertical restraints on manufacturers. Examples of these restraints include slotting allowances, listing fees, upfront payments, exclusive supply, refusal to stock (or delisting), minimum supply levels, and minimum advertising requirements. [5] The question is whether these restraints are efficiency-enhancing and/or anticompetitive.

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[3] Based on a similar argument Tan and Yuan (2001) show that when there are several manufacturers, each of which supplies a group of complemetary products, but the products across groups are imperect substitutes, they have incentives to divide their complementary product lines into several independent divisions. Independent decision making by different divisions generates a negative externality that can offset some of the positive externality between the manufacturers' choices of prices. As a result, the prices and profits of the firms increase with the divisionalization, but the consumers' surplus and total surplus fall.

[4] This strategic motive to delegate price decisions to an exclusive agent has empirical support from a recent study by Slade (1998) in the context of retail gasoline markets.

[5] For more discussion on the shift of bargaining power from manufacturers to retailers and for a more complete list of vertical restraints imposed on manufacturers by retailers, see a recent report entitled "Competition in Retailing" prepared for the Office of Fair Trading by London Economics, September 1997, Research Paper #13.

The economics literature on the role of buyer bargaining power and associated vertical restraints is sparse. The role of buyer power has first been addressed in an early book entitled *American Capitalism: The Countervailing Power* by Galbraith (1952). In this book, he argues that large retail organizations such as the major chain store operators are able to exercise countervailing power over their suppliers to lower wholesale prices and are willing to pass these savings to their customers. This leads him to conclude that retailers' countervailing power is socially desirable. However, Galbraith does not explain why retailers would have incentives to pass cost-savings to consumers.

In a recent paper, Chen (2001) provides a formal model to illustrate that an increase in the amount of countervailing power possessed by a dominant retailer can lead to a fall in retail price for consumers. However, he also illustrates that total surplus does not always increase with the rise of countervailing power because of the possible efficiency loss. Chen further argues that the presence of fringe competition can be crucial for countervailing power to benefit consumers.

Two related papers that discuss the role of countervailing power are von Ungern-Sternberg (1996) and Dobson and Waterson (1997). They find that increased concentration at the retail level can lead to higher prices for consumers. [6] However, a recent study by Ellison and Snyder (2001) provides empirical evidence that substitution opportunities, rather than buyer power, may account for lower drug prices among chain pharmaceutical firms and HMOs.

Shaffer (1991) formally analyzes the role of slotting allowances in an environment in which perfectly competitive manufacturers compete for limited shelf spaces at the retail level and in which duopolistic retailers choose which manufacturer to buy from but compete in retail prices. He finds that both slotting allowances and resale price maintenance (RPM) can arise in equilibrium and that they can be served as a strategic tool in dampening competition in the retail market. Both practices reduce total surplus as compared to marginal cost wholesale pricing. Slotting allowances yield even lower total surplus than RPM.

The basic idea is as follows. Slotting allowances impose a positive fixed cost on a manufacturer. Since the manufacturer must earn nonnegative profits, its wholesale price must be then above the marginal cost of production. A higher wholesale price in turn induces the retailer to choose higher retail price, which induces other retailers to raise their retail prices. Committing to positive slotting allowances allow retailers to reduce positive externality in their pricing decisions. [7] Retailers who sign such slotting allowances contract not only benefit directly from upfront payments but also indirectly from the reduced downstream price competition. Therefore

Another attempt to understand the impact of retail bargaining power is further illustrated in a recent paper by Marx and Shaffer (2001). They analyze a vertical contracting relationship between a upstream monopoly supplier and two downstream firms (retailers). The type of contracts specifies three elements: a wholesale price, a fixed fee to be paid if a positive quantity is ordered, and an upfront payment when the contract is signed. When both downstream firms have bargaining power and make contract offers, Marx and Shaffer show that the

[6] For more discussions on retail market power along this line, see Dobson and Waterson (1996).

[7] This committment effect is similar to that in Rey and Stiglitz (1995) and in Tan and Yuan (2001).

equilibrium outcome requires only one downstream firm, the firm with the larger stand-alone monopoly profit, selling the monopolist's product and receiving an upfront payment from the monopolist. This equilibrium leads to exclusion. The retailers in this model do not use their bargaining power to negotiate lower wholesale prices, instead they negotiate upfront payments from manufacturers. They do not necessarily pass the benefits of upfront payments to consumers, at least in the short-run. As a result, consumers may pay higher prices and have less choices than they otherwise would. Therefore, retail bargaining power combined with upfront payments may not be socially efficient.

6. The Role of Wholesalers

Trade between manufacturers and retailers often involve wholesalers. However, there is a lack of economics literature on wholesale markets. In this section, I provide some preliminary discussions on the role of wholesalers.
Broadly speaking, wholesalers play two major roles in facilitating trade between manufacturers and retailers: distribution and credit facilitation.

6.1. Economies of Scale and Scope in Distribution

Manufacturers may not have enough economies of scale to distribute large volumes of goods directly to retailers. Similarly, the retailers may not have enough economies to accept large volumes of goods. Wholesalers are able to buy goods from several manufacturers and distribute a bundle of different goods to retailers. The extent of wholesalers' involvements in the grocery trade can be characterized as follows.
First, there are a few manufacturers that trade directly with retailers, with the exception that some retailers may belong to buying groups and receive additional discounts from manufacturers. In this case, the manufacturer is responsible for the shipping as well as billing of the goods. In some instances, the manufacturer has the additional responsibility of stocking the retailer's shelves and is likely to own or control the shipping services. Most manufacturers who deal in this manner often handle goods that are fairly homogenous and use the direct relationship with the retailers to ensure that their goods are well positioned on the retailer's shelves. Furthermore, the manufacturer is able to attain some economies of scale by enough retail density to supply. This often happens in the trade of milk, potato chips or snacks, and soft drink.
In the past two decades, there has been a trend for most stores to reduce backroom space and increase retail space. Advances in informational systems have allowed for more just in time inventories. Furthermore, warehouse or club stores have simply eliminated their backrooms. At one point, there were a lot of small warehouses owned by wholesalers in Vancouver. These warehouses allow small businesses to save on shipping by picking up the goods themselves.
Second, some manufacturer would sell goods directly to a retailer, but only if the retailer's wholesaler guarantees the payment. In this case, the goods are shipped to the retailer but invoiced to the wholesaler. This practice is often called "drop shipped" in the trade. The wholesaler then adds a markup to the total amount of the

invoice or an "upcharge" and bills the retailer. The upcharge varies among retailers, usually depending on the volume bought and on the location of the retailers. By constantly dealing with retailers, wholesalers have better information about the retailers and act as credit facilitators to deal with manufacturers. This practice seems to be declining.

Third, a large number of manufacturers sell their goods directly to wholesalers, who in turn ship these goods in smaller volumes to retailers. The manufacturers offer a list price to the wholesalers and the wholesalers provide the wholesale list price to the retailers and add their mark-up. The wholesalers also charge a fixed fee or listing fee per product (or UPC code) to the manufacturers. In addition to the mark-up of the wholesale listing price, the wholesalers also earn an upcharge to the retailer as well as some advertizing allowances.

Fourth, wholesalers often use listing fees to screen out manufacturers whose goods may have low demand. Even when a manufacturer is willing to pay the listing fees, wholesalers may still want to discontinue its goods if a threshold volume of sales cannot be reached. Listing fees may be waived for goods that are very popular. Outside financial concerns, manufacturers may refuse to sell to wholesalers who cannot buy enough volume of goods.

Credit ratings on wholesalers are available and this information can be purchased from a third party. Often, manufacturers would offer their goods at below their list price or that the goods are on "deal". During the deal period, the wholesaler would also drop its wholesale list price and most retailers would pass on the lower price. Note that this price is not the regular sale price advertised, but is in-store sale prices only. For any advertised price, the manufacturer would have to buy advertizing space in the retailer's flyer.

In the past decade, manufacturers have started to use wholesalers more often than dealing with retailers directly or simply use wholesalers as credit facilitators. The typical wholesale relationship depends on a constant flow of goods between all three parties. That is, the wholesaler will not carry more inventories than necessary unless the retailer has already ordered the goods. The manufacturer is usually responsible for any unexpected inventory in the wholesaler's warehouse. However, when the manufacturer wants to stimulate the demands of its good such as advertising a sale price, the normal flow of goods will be interrupt. At this point, the manufacturer ensures that the retailer has enough inventories to supply the retailer during the sale period. The manufacturer will deal directly with the retailer. With an agreed upon price and quantity, the retailer will make its order to its wholesaler and pay the wholesale list price. The retailer then claims the difference between the agreed upon price and the wholesale list price from the manufacturer. Sometimes, manufacturers would contract retailers to put their goods on sale in order to avoid being de-listed by their wholesalers. Retailers also have the option to advertise a good without the manufacturer's cooperation. Since the retailer can buy the goods through the wholesaler, the manufacturer loses control of the goods.

6.2. Wholesale Credit Facilitation

In various instances, manufacturers are reluctant to sell their goods directly to

retailers since there is credit risk. Goods are typically sold from the producer and delivered to retailers before any payment is made. More often, the producer finances the retailer and does not require payments for a period of time. Since bankruptcy laws in Canada and in the U. S. treat suppliers with unpaid goods as unsecured creditors, manufacturers tend to be wary of new retail operations. Instead, the manufacturers rely on existing wholesalers to supply retailers since these wholesalers tend to be established businesses with reputation such that credit ratings can be obtained on them. New wholesalers often have to pay cash on delivery (C.O.D.), similar to payment terms that new retailers faced in dealing with their wholesalers.

The produce market is a good example to illustrate this credit process. Since the barriers to entry are relatively low for a produce retailer, bankruptcy rates among this type of businesses tend to be relatively high. Produce wholesalers have to worry about the liability in supplying a new produce retailer. A simple solution is to demand C.O.D. on all goods delivered. However, transaction costs for this type of payments tend to be high unless handled by the wholesaler's delivery personnel. But then, this produces another liability, as there are no assurance that the personnel may return the money to the wholesaler. Furthermore, goods are often returned to the wholesalers by the retailers as produce quality may be varying depending on the season. Instead, the wholesalers often limit the amount of goods shipped to the retailer, charge a higher price, and relatively short time to pay the goods. The retailer responds by buying from several wholesalers, which reduces the risk for each wholesaler. Over time, a stable retailer can start to receive lower prices and lower terms to pay. Furthermore, the delivery personnel can provide some information regarding the retailer's operation to the wholesaler.

C.O.D. is often reserved for retailers whose business is observed to be failing. Note that this type of transaction is typically different from other types of transactions where the seller receives the funds before the buyer takes possession of the seller's goods. With international operations, buyers obtain letters of credit from a bank authorizing the bearer to receive funds from one of its foreign branches. Upon receiving the letter of credit, the suppliers will release the goods to the buyer's shipper, who then delivery the goods to the buyer. With kidnappings, funds are paid in advance before the hostages are released. With auctions on the Internet, the buyers must pay the seller before the goods are delivered.

Banks usually do not have the economies to offer retail loans relatively to wholesalers (or manufacturers). Similar to credit cards issuers, wholesalers typically post the price of their loans in advance. Wholesalers can offer a higher line of credit to retailers than banks and credit card companies, probably due to informational advantages. Wholesalers will also demand personal guarantees and collateral (i.e., store shelvings) from retailers. Costco has arranged with Amex to provide credit to small businesses using Amex small businesses. bigskip

7. The Grocery Industry

The grocery industry in Canada and the U.S. has gone through major changes in the past thirty years or so. On the technology side, there is increased economies of scale and scope to operate larger stores and carry more products. The recent development of information technology such as check--out scanners helps grocery retailers to manage information about consumers' preferences and inventory more efficiently. This allows the retailers to develop more effective strategies to price discriminate across consumers.

On the demand side, there often exists product complementarity. The asymmetry of cross-product externality allows grocery retailers to carry many products and more likely to use loss-leader selling strategies. Bigger store operations that offer a variety of products also help consumers to save transportation costs since most consumers can finish their shopping on one trip within a week.

As the technology in retailing and consumers' shopping behavior evolve, the market structure in the grocery industry has also been transformed. More retail concentration may have caused a shift of bargaining power from traditionally dominant manufacturers to newly large retail chain stores, and possibly from consumers to these retailers. In what follows I discuss some of these changes based on limited amount of information available. [1] I also discuss a number of practices often observed in the grocery industry that may potentially have anticompetitive impacts.

7.1. Recent Development in the Grocery Industry

7.1.1. The Development of House Brands

In the past, retailers developed house branded products which were usually of low quality and sold at low prices relatively to well known brands. House brands often allowed retailers to earn more from consumers who were not brand-conscious. However, these customers were also price-sensitive. Hence, a high cost retailer would have an incentive to create a house brand in order to compete against a low-cost retailer.

In the early 80's, retailers started to expand the concept of house brands as a way to bargain against manufacturers. The trend came from the U.K.. House brands were created to be equal in quality to brand names. To further differentiate different quality of house brands, some retailers developed two types, low and high, of quality for each category. Examples include No Name and President Choice (from the Western Group). By doing so, the retailers could learn more information about upstream manufacturers' costs. Some of the manufacturers with low market shares became subcontractors to these retailers. For example, Cott cola (purchased syrup from Royal Crown) was already being sold in retail stores, but was not much of success. Later, as the manufacturer of No Name and President Choice cola for the Western Group, Cott company's market share rose significantly. By owning the rights to the

[1] For more evidence on recent development in Canadian grocery retailing, see Wen (2001).

brand, the retailers were able to eliminate some vertical externalities and share the efficiency gains with the manufacturers/subcontractors. Even some of the brand names became subcontractors in producing house brands. The emergence of house brands by large retailers rises an issue of whether these retailers may enhance their exercise of market power. Larger retailers play a dual role as a downstream customer of traditional manufacturers and as a competitor of these manufacturers. This is a case of a partial integration arrangement between manufacturing and retailing and deserves more detailed investigation.

7.1.2. Retail Information

Historically, retailers had more information about the local demand than manufacturers while the manufacturers had more information about the overall national demand. Manufacturers were often willing to buy shelf space as a way to advertise. However, the development of scanner technology has allowed both the manufacturers and the retailers to gain the same type of aggregate information. Independent data-collecting firms offer to collect scanner data and sell these to retailers and manufacturers. Retailers would not agree to release these information unless they can benefit from doing so. Hence, retailers have again a further advantage by having the availability of national information. Just as important, in cooperative agreements between retailers and manufacturers, the availability of this information allows for verification. For instance, category captains often use A.C. Nielsen data to justify shelf space. An additional complexity is the use of loyalty cards, which often helps retailers.

7.1.3. Vertical Partnership and Category Management

In the past, the sheer number of products in retail stores prevented building vertical partnerships between retailers and manufacturers. Third parties, such as wholesalers and food brokers, have emerged to address the vertical externality. However, the implementation of information systems has high fixed costs and requires economies in trade to offset costs. These economies have essentially created barriers to entry and eliminated small manufacturers, retailers, and distributors. With vertical partnerships, the effect of vertical externality has been minimized in exchange for increasing concentration in the markets for retail, distribution, and production.
The manufacturer and retailer often have incentives to form a vertical partnership. For example, Wal-Mart is willing to share information with P&G and other manufacturers, in order to increase efficiency in distribution and production. Category management is a particular form of vertical relationships in which previously confidential information is shared between manufacturers and retailers to cut costs in distribution and increase the margins of both parties.

7.2. Certain Practices in the Grocery Industry

In this subsection, I discuss a selective number of practices that are often observed

in the grocery industry and that may potentially have anticompetitive effects.

7.2.1. Loss-Leader Selling and Predatory Pricing

One type of pricing strategies that grocery retailers often use is loss-leader selling. Retailers may offer low prices on one or more frequently purchased products, sometimes these prices are so low that the retailers make losses on these products. However, this strategy may help retailers to create an image of low price sellers, and potentially attract more consumers to visit their stores. This group of consumers may in turn purchase other products that are not on sale. The retailers expect to make high profit margin from selling those products that can help offset the losses on the targeted group of products. Loss-leader selling seems to have distorted price signals, but rational consumers would have anticipated the consequences of this strategy.

Another argument for using loss-leader selling is that an increase in sales on a targeted group of products can often stimulate demands for other products. For instance, suppose that there are two products, A and B and that more consumption of A increases the demand for B, but may not be the other way around. That is, there is an asymmetric cross-product externality. When this externality is strong, even a profit-maximizing retailer may want to price product A low, maybe even below its marginal cost, to push up the sale of A. The monopolist makes a high profit-margin from selling B to cover the loss from selling A. This profit-maximizing strategy occurs even when there is no competition. A small retail store may choose this strategy as well. In general, when the demands for multiple products are interdependent, even a monopolistic seller may cross-subsidize, depending on the relative sizes of the price elasticities of these products. [2]

This illustrates that it can be difficult to argue that loss-leader selling generally harms the competitive process. However, when a dominant retailer, or a retail chain that enters a new geographic market, prices most of its products below some measures of costs so that it makes losses from selling these products, there might be a concern of predatory pricing. This issue needs to be analyzed on a case-by-case base.

7.2.2. Slotting Allowances, Pay-to-stay Fees, and Listing Fees

Slotting allowances are lump-sum payments made by manufacturers to retailers for new product introduction. They are often related to shelf space. As discussed in a report on the FTC workshop on slotting allowances and other marketing practices in the grocery industry, there are potential procompetitive benefits and anticompetitive harms of using slotting allowances. Potential benefits may include (i) shifting risk of product failure from retailers to manufacturers and (ii) providing a screening device for retailers to carry products with high quality. [3]

[2]Moreover, as Hendricks, Piccione and Tan (1997) show, a monopoly firm that operates in several markets with complementary goods may have a strong incentive to price low on the market where there is an entrant since otherwise its profits in the other markets would be reduced.

[3]See Sullivan (1997) for more discussions.

Potential harms of slotting allowances may include (a) exclusion of small manufacturers, (b) reduced innovation and product variety, and (c) reduced competition in the retail market, all of which may lead to increased consumer prices. As I discussed in Section 5 of this report, slotting allowances may be used as a strategic tool in dampening competition in the retail market, which can reduce total surplus (Shaffer, 1991). The general analysis of exclusive dealing discussed in Sections 3 and 4, such as the argument in Mathewson and Winter (1987), can be applied to analyze the exclusionary effect of slotting allowances. A dominant manufacturer may use slotting allowances to gain exclusives of retailers. Barriers to entry are increased and entry can be deterred or marginalized. Without sufficient competition in the manufacturing market, the dominant manufacturer can charge high wholesale prices which might be passed through to consumers in the form of high retail prices. Therefore, slotting allowances may raise rivals' costs and create, enhance or maintain market power, which can result in consumer harms. If the efficiency benefits of slotting allowances are not significant, the exclusives are anticompetitive.

It should be noted that even if the entrants are allowed to compete for exclusives, the dominant manufacturer has an advantage. The exclusive right is typically worth more to a dominant incumbent than no exclusive is worth to an equally efficient entrant since the monopoly profit exceeds the total duopoly profits. [4]

As suggested by the FTC report, the basic economic analysis of anticompetitive exclusion arising from slotting allowances can take three steps. In the first step, analyze whether the practice considered harms competitors. If so, move to the second step to check whether the practice is likely to harm competition in markets in which disadvantaged manufacturers seek to compete. If anticompetitive harm is likely, the analysis goes to the third stage to check whether the practice generates any procompetitive benefits that might offset potential anticompetitive harms.

Pay-to-stay fees are fixed payments made to retailers by manufacturer for keeping their existing products on the shelf for further period of time, commonly for one year. The potential benefits of pay-to-stay fees are lower than those of slotting allowances, but potential harms are rather similar for both types of practices.

Listing fees are payments made by manufacturers to wholesalers. These payments are not necessarily one time and may continue after a fixed period of time. As discussed in Section 6 of this report, there are often economies of scale and scope in distributing grocery products. Wholesalers provide listing services that allow manufacturers and retailers to exchange information about product availability and prices. Listing fees are charged for this type of listing services. An additional role of listing fees is for wholesalers to screen out manufacturers whose goods may not have good sales. Even when a manufacturer is willing to pay listing fees, wholesalers may still want to discontinue to list its goods if a threshold volume of sales cannot be reached. Listing fees may be waived for goods that are very popular.

7.2.3. Exclusive Dealing and Other Restrictive Contracts

[4] See Krattenmaker and Salop (1986) for more discussions on this issue.

As discussed in sections 3 and 4 of this report, exclusive dealing contracts may have both procompetitive benefits and anticompetitive harms. Procompetitive benefits of exclusive dealing often come from the elimination of horizontal externality including free-rider problems. It is therefore important to evaluate whether horizontal externality or free-rider problem is significant in retail grocery businesses.
Exclusive dealing contracts may have exclusionary effects which can harm competition, reduce innovation and product variety, and increase consumer prices. These effects can be analyzed using the same three-step approach as I outlined above.
It is important to note that certain forms of restrictive contracts may lead to partial exclusion and also have anticompetitive effects. [5] Examples include (i) contracts based on a specific percentage share of retail shelf space, (ii) contracts based on previous market shares, and (iii) incentive contracts that induce retailers to purchase a large amount of certain product category from a dominant manufacturer. [6]

7.2.4. Seeking Support from a Supplier to Match a Rival Retailer's Price

This practice often occurs when there is a dominant retailer competing against a small retailer or a new entrant. The dominant retailer often receives volume discount from the manufacturer. However, the small retailer may have lower retail costs and other advantages over the dominant retailer. When the small retailer lowers its price on one product, the dominant retailer either competes by lowering its own price as well, or asks the manufacturer to practise a number of strategies including reducing the wholesale price, offering more volume discounts, or refusing to supply to the small retailer. If the manufacturer refuses to help, the dominant retailer may threat not to carry this product and other products from the manufacturer.
This practice can be exclusionary since it may either raise the rival retailer's costs or exclude the rival completely. Some of our early discussions on exclusionary practices can be used to analyze this practice.
Note that the FTC had a related case in 1996, alleging that Toys "R" Us used its power as the largest retailer of toys to enlist major toy manufacturers to engage in a partial boycott of warehouse club stores that sell a number of products at very low markups. Toys "R" Us had argued that the club stores were free-riding on its promotional activities. However, the FTC found that Toys "R" Us had entered into both unlawful vertical arrangements with toy manufacturers and unlawful horizontal arrangements among toy manufacturers and that these arrangements had hurt consumers. The FTC eventually ordered Toys "R" Us to stop its practices. [7]

[5] A recent article by Tom, Balto, and Averitt (2000) argues that market-share based discounts and related incentive contracts may often produce partial exclusitivity and should be judged according to the same economic principles that govern complete exclusive dealing arrangements.
[6] Dominant airline firms sometimes offer incentive override commissions to a travel agent based on the travel agent's market share target. Both the European Commission and the Competition Bureau of Canada have adopted the principle that for domestic markets, travel agent compensation schemes should be based on sales volume and not be directly or indirectly tied to travel agent loyalty.
[7] See Tom, Balto, and Averitt (2000) for more discussions on this case.

8. Conclusion

Vertical relationships between manufacturers, wholesalers and retailers often involve complex contracting arrangements. These arrangements are broadly referred to as vertical restraints. In this report, I have provided a brief review of the economic theory on a subset of these vertical restraints. I have explained how vertical restraints can be used to control for vertical externality arising from the interaction between manufacturers and retailers and for horizontal externalities arising from the interactions among manufacturers as well as among retailers. I have also discussed to what extent some of standard vertical restraints need to be adjusted to take into account uncertainty and asymmetric information in the contracting environment. [1]
My preliminary conclusion is that broadly speaking, vertical restraints can be efficiency-enhancing as they can often help to solve the double marginalization problem at the vertical level and the free-riding problem at the horizontal level, but some of these vertical restraints can also have anticompetitive effects since they may be used to reduce competition both at the upstream level and at the downstream level. Which of these effects dominates depends critically on the informational environment, such as on what can be observed and enforced by the parties involved, and on the market power both at the upstream level and at the downstream level. The implication for competition policy enforcement is that these vertical restraints should be examined under the "rule of reason."
I have also made an attempt to relate the theory to some of the current practices in the grocery industry. This is rather incomplete. More work needs to be done along this line .

[1]Ferris (2001) provdes a survey of the economics literature on vertical restraints that is complemetary to my report. He also discusses policy aspects of vertical restraints that have been considered by several countries.

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