

Retail Competition Percolating Through to Suppliers and the Use of Vertical Integration, Tying, and Vertical Restraints To Stop It

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Conventional wisdom presumes that a supplier in a monopolistic market, or in an oligopolistic market that is not perfectly competitive, has the power to charge a supra-competitive wholesale price. In contrast, this Article, elaborating on recent economic studies, shows that the supplier of an intermediate product may not be able to charge a supra-competitive wholesale price. The reason is that the supplier has an incentive to grant a marginal price concession to one buyer, at the expense of competing buyers, in exchange for a fixed payment. The statutory ban on secondary-line price discrimination helps the supplier commit to charging a supra-competitive wholesale price. This Article, however, exposes how buyer liability under this statutory ban erodes the effectiveness of the statute and fuels the supplier's urge to make concessions. The Article further demonstrates how vertical integration, tying and vertical restraints (particularly imposing minimum or maximum resale prices, selling to a sole buyer, designating exclusive territories to buyers, and using most-favored-customer clauses) can be used to remove the supplier's incentive to grant such concessions and thus restore the supplier's market power. The result is an anticompetitive explanation for vertical integration and vertical restraints that legal commentators, courts, and agencies have neglected. The Article also reveals an anticompetitive explanation for tying that the economics and legal literature and the case law have failed to identify. Moreover, the Article fills gaps in the current economics literature on maximum resale price maintenance by showing how imposition of maximum resale prices is anticompetitive even when it does not completely eliminate buyers' profits from sales. The Article additionally demonstrates how the supplier's incentive to grant concessions renders the "double marginalization" and "input substitution" efficiencies of vertical integration less important than conventionally thought. More antitrust concerns are raised when the supplier is contractually bound to enforce minimum resale prices or exclusive dealerships. Even if these restraints do not bind the supplier to enforce them, this Article, in contrast to recent economics literature,

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reveals that these restraints are anticompetitive, as they aid the supplier in developing a reputation for not making concessions.

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Introduction

Legal scholars, courts, and economists have traditionally held that suppliers are able to commit to setting prices for their products to maximize profits. They further assume that, if the supplier operates in a market that is not perfectly competitive, the supplier possesses the power to charge supra-competitive prices. A monopolistic supplier, for example, is assumed to be able to charge a supra-competitive monopoly price for its product. Even in a market with more than one, but only a few, firms (i.e., an oligopolistic market), conventional legal

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and economic analysis expects that suppliers enjoy the power to charge supra-competitive prices.¹

This conventional wisdom has brought with it overreaching policy implications regarding vertical integration (i.e., where a supplier and buyer are under joint control) and vertical restraints (such as a determination of the resale price the buyers are permitted to charge end consumers or the designation of an exclusive territory to each buyer). If a monopolistic or oligopolistic supplier has the power to charge a supra-competitive price that maximizes its profits, it has consistently been argued that vertical integration and vertical restraints involving this supplier are not anticompetitive. The reason, according to the standard account, is that the supplier can charge a supra-competitive wholesale price² even without integrating with one (or more) of its buyers and without imposing vertical restraints upon its buyers. Thus, the supplier's anticompetitive market power (i.e., the power to charge prices above its marginal cost)³ is manifested either with or without vertical integration and vertical restraints.⁴

Many scholars have likewise claimed that tying (i.e., conditioning the sale of one of the supplier's products upon the sale of another of the supplier's products) is harmless as long as it does not exclude the supplier's competitors. These scholars base their claim on the assumption that the supplier could exploit its market power even without tying.⁵

This Article challenges the conventional wisdom. Elaborating on recent economic studies, the Article shows that a supplier may not possess the market power it was previously thought to possess. Furthermore, the supplier can use vertical integration, various vertical restraints, and tying to restore its market power.

The following example illustrates why suppliers may not possess the market power they were traditionally thought to possess. Suppose a monopolistic supplier of Barbie dolls⁶ sells its Barbie dolls to two toy retailers, Toys "R" Us and Costco. Toys "R" Us and Costco sell the Barbie dolls to end consumers and compete with one another over these end consumers.⁷ Conventional economic and legal analysis has

1 This conventional wisdom will be portrayed in more detail *infra* note 8 and accompanying text and throughout Part II.

2 The term "wholesale price" is used for simplicity of exposition and refers to other forms of marginal pricing (i.e., pricing per unit bought or sold). For example, it also refers to royalties that buyers pay the supplier per unit sold to consumers.

3 The marginal cost is the cost of producing and supplying the marginal unit.

4 Particular examples illustrating this argument will be discussed *infra* Part II.

5 See *infra* Section II.F.

6 For the sake of simplicity and emphasis, it is assumed that the supplier faces no competition from other suppliers. We shall see in Section I.C that the substantive point made here is similar in the case where competing manufacturers exist.

7 The analysis below also applies to other situations in which a supplier sells an intermediate product, such as the case of the supplier of an input used to produce another product that is then sold to end consumers. The analysis applies equally to cases with more than two stages in the vertical chain. Thus, for example, the analysis and conclusions apply equally to a manufacturer selling to wholesalers, who in turn sell to retailers.

assumed that the competition between the toy retailers does not affect the monopolistic Barbie doll supplier's ability to charge high wholesale prices: Because there are no competing suppliers, the monopolist can presumably set a high wholesale price per Barbie doll (i.e., the monopoly wholesale price) that maximizes its profits.⁸

But this standard analysis does not necessarily hold.⁹ To see why, suppose that, despite the competition between the toy retailers, the retailers are able to make profits from selling the Barbie dolls to end consumers. That is, the toy retailers are able to sell each Barbie doll for more than its marginal cost.¹⁰ If the supplier attempts to charge the monopoly wholesale price per Barbie doll (say, \$10) the supplier and one of the toy retailers might have an incentive to negotiate a secret deal.¹¹ The supplier could grant one of the retailers (say, Costco) a small wholesale price concession. The concession will give Costco a competitive advantage over Toys "R" Us, since Costco will now buy each Barbie doll for less. Costco can therefore cut the retail price of its Barbie dolls and steal business away from Toys "R" Us. Consequently, suppose Costco's expected profits from sales are predicted to rise by \$500, while Toys "R" Us's profits from sales are expected to diminish. Thus, Costco would be willing to pay the supplier a fixed payment of

8 Most economics literature dealing with vertical relations and vertical restraints makes this assumption. See, e.g., JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 169-203 (1988); Michael L. Katz, *Vertical Contractual Relationships*, in 1 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 655 (Richard Schmalensee & Robert D. Willig eds., 1989); Frank Mathewson & Ralph A. Winter, *An Economic Theory of Vertical Restraints*, 15 *RAND J. ECON.* 27 (1984); Janusz A. Ordover et al., *Equilibrium Vertical Foreclosure*, 80 *AM. ECON. REV.* 127 (1990); Martin K. Perry & Robert H. Porter, *Can Resale Price Maintenance and Franchise Fees Correct Sub-Optimal Levels of Retail Service?*, 8 *INT'L J. INDUS. ORG.* 115 (1990). In addition, legal analyses of vertical integration and vertical restraints make the same assumption, either implicitly or explicitly. See *infra* Part II.

One notable exception is the "countervailing power" theory, which hinges on the possibility that strong and large buyers may possess bargaining power that can countervail the monopolist supplier's market power. See, e.g., F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 528 (3d ed. 1990). But the point here regarding the supplier's inability to commit to a supra-competitive wholesale price is different, both analytically and with regard to the factual assumptions on which it hinges. In particular, as will be revealed shortly, my point does not depend on the buyers' being large or having any bargaining power whatsoever.

9 The economic studies that began questioning the conventional wisdom are Oliver Hart & Jean Tirole, *Vertical Integration and Market Foreclosure*, 1990 *BROOKINGS PAPERS: MICROECONOMICS* 205; R. Preston McAfee & Marius Schwartz, *Opportunism in Multilateral Vertical Contracting: Nondiscrimination, Exclusivity, and Uniformity*, 84 *AM. ECON. REV.* 210 (1994); Daniel P. O'Brien & Greg Shaffer, *Vertical Control with Bilateral Contracts*, 23 *RAND J. ECON.* 299, 305 (1992).

10 This will occur, for example, if the local branches of Toys "R" Us and Costco are at somewhat different locations. In such a case, each toy retailer can attract some consumers (those who are nearest the toy retailer in question) even if the other toy retailer is selling for a somewhat lower price. For a formal economic model illustrating this, see, for example, ANDREU MAS-COLELL ET AL., *MICROECONOMIC THEORY* 395 (1995), and TIROLE, *supra* note 8, at 279-80. Pricing above marginal cost is also predicted if, in the eyes of consumers, the toy retailers provide somewhat different services. *Id.*

11 Let us assume for now, as in O'Brien & Shaffer's model, that retailers are not aware of the wholesale prices their rivals paid. See O'Brien & Shaffer, *supra* note 9, at 229. As will be shown *infra* Section I.E, however, the same qualitative results remain even when after closing the contract with the supplier, retailers observe the wholesale prices their rivals paid.

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up to \$500 in exchange for such a wholesale price concession.¹² If the supplier's loss from the concession is below \$500, the supplier would agree to such a deal. As illustrated in Section I.A below, this is often the case.

In fact, for any wholesale price the supplier aims to set that is above the supplier's marginal cost of supplying the Barbie dolls, the supplier and a toy retailer will be able to raise their joint profits by negotiating a small wholesale price concession at the expense of the other toy retailer. Accordingly, from the very beginning the wholesale price will be equal to the supplier's marginal cost of supplying the Barbie dolls.

The supplier's difficulty in committing to charging its profit-maximizing wholesale price will be referred to below as the "commitment paradox." The supplier's commitment paradox dissipates its market power, even in cases when the supplier enjoys a monopoly position or is an oligopolist conventionally believed to possess market power. This prediction has found support in recent experimental economic studies.¹³

The commitment paradox is beneficial to consumers, as it encourages the supplier and retailers to cut prices. Moreover, by dissipating the supplier's market power, the commitment paradox is welfare-enhancing, as it helps remove the welfare distortions inherent in pricing above marginal cost. On the other hand, suppliers would like to utilize practices that eliminate the commitment paradox in order to restore their market power and raise their profits.¹⁴

¹² The supplier might have a similar urge to grant Toys "R" Us a concession after Costco has already received a concession, which would cause Costco to be suspicious of the supplier. Arguably, this might stand in the way of granting Costco a concession in the first place, since Costco might not agree to pay the supplier a fixed payment up front that would compensate the supplier for the concession. McAfee & Schwartz, *supra* note 9, at 219, demonstrate, for example, that when each retailer believes that the supplier is offering other retailers the same wholesale price as the supplier offered it, the supplier will not want to negotiate concessions. However, in our example the supplier and Costco can plausibly get around Costco's suspicion. For example, the supplier could agree to receive the fixed payment only upon proof (say, with the help of an independent accounting firm or third party examining Costco's invoices) that Costco indeed increased sales following the concession. Such an arrangement would reassure Costco that the supplier will not grant Toys "R" Us a concession that will make a mockery of Costco's cost advantage. The supplier, for its part, will also agree to the delayed fixed payment if it is confident enough that the concession will indeed raise Costco's sales. As shown *infra* Section II.A, buyer liability under the statutory prohibition of price discrimination makes such arrangements easier to implement.

¹³ *E.g.*, Stephen Martin et al., *Vertical Foreclosure in Experimental Markets*, 32 RAND J. ECON. 466 (2001). In Martin et al.'s simulation, students majoring in economics played the roles of a monopolistic supplier and two retailers. The results were striking. When the supplier's offers to the retailers were secret, the supplier, in most cases, could not commit to producing the monopoly quantity or charging the monopoly wholesale price. The supplier expanded output substantially and charged a considerably lower wholesale price than the monopoly wholesale price. On the other hand, when retailers were informed in advance what wholesale price their rival retailer was paying, or when the supplier was vertically integrated into retail, the supplier *could* and *did* commit to supplying the monopoly quantity and charging the monopoly wholesale price.

¹⁴ This effect will be demonstrated in more detail through a simple example *infra* Section I.A.

The commitment paradox creates striking legal implications for a whole array of antitrust policy issues. The statutory ban on secondary-line price discrimination, included in Section 1(a) of the Robinson-Patman Act,¹⁵ helps the supplier avoid the commitment paradox.¹⁶ The commitment paradox implies not only that the ban on secondary-line price discrimination is unwarranted, but also that in many cases, the statutory intent behind the ban would have been fulfilled without the ban. Even without the statutory prohibition, downstream firms¹⁷ might not have been injured, since due to the commitment paradox, wholesale prices would have been low for all downstream firms in the first place. However, this Article exposes the fact that, counterintuitive as it may seem, buyer liability under the statutory ban¹⁸ erodes the effectiveness of the statute and fuels the supplier's urge to make concessions.

Vertical integration also helps the supplier solve [AU: **can one “solve” a paradox? Other possibilities would be resolve, alleviate, or eliminate. global change recommended**]the commitment paradox.¹⁹ Moreover, the commonly cited “double marginalization”²⁰ and “input substitution”²¹ efficiencies of vertical integration turn out to be much less important than previously thought.²² That is, due to the commitment paradox, the anticompetitive effect of vertical integration is stronger, and its efficiencies weaker, than conventionally thought.

Additionally, the commitment paradox implies that imposition of minimum resale prices (“minimum rpm”), sole outlet, or exclusive territory arrangements which contractually bind the supplier to enforce

15 15 U.S.C. § 13(a) (2000) (“It shall be unlawful . . . to discriminate in price between different purchasers of commodities of like grade and quality, . . . where the effect of such discrimination may be . . . to injure, destroy, or prevent competition with any person who . . . knowingly receives the benefit of such discrimination . . .”).

16 See Daniel P. O'Brien & Greg Shaffer, *The Welfare Effects of Forbidding Discriminatory Discounts: A Secondary Line Analysis of Robinson-Patman*, 10 J.L. ECON. & ORG. 296 (1994).

17 “Downstream firms” are those that buy an intermediate product and either resell the same product (in the case of downstream retailers or wholesalers) or use it as an input in the production of a new product.

18 Section 1(f) of the Robinson-Patman Act declares it unlawful for a buyer “knowingly to induce or receive a discrimination in price which is prohibited” by the Act. 15 U.S.C. § 13(f) (2000).

19 See *infra* Section II.B.

20 The double marginalization efficiency stems from the idea that, without vertical integration, consumers suffer from two markups: The supplier charges a wholesale price above its marginal cost, and downstream firms add their own markup. Vertical integration is conventionally thought to eliminate the supplier's markup, since the supplier charges its downstream affiliate a wholesale price equal to the supplier's marginal cost.

21 The input substitution efficiency refers to the case where downstream firms mix the supplier's input with other inputs to produce a new product. It is claimed that without vertical integration, if the supplier possesses market power, downstream firms will use an inefficiently low proportion of the supplier's input.

22 When downstream firms do not compete, the “double marginalization” and “input substitution” efficiencies are unimportant for other reasons. Although the commitment paradox does not exist without downstream competition, in such cases the supplier generally would prefer to eliminate its markup and share downstream profits through fixed franchise fees. See *infra* note 100.

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them are potentially more anticompetitive than such schemes unaccompanied by such a contractual obligation.²³ However, the Article reveals how restraints eliminating downstream competition can help solve the commitment paradox even when the supplier is not contractually bound to enforce them. Such restraints help the supplier develop a reputation for not making concessions.²⁴ Ironically, if these arrangements involve efficiencies in distribution that induce the supplier to enforce them, these efficiencies have anticompetitive side effects, which may well outweigh the efficiencies. This result stands in contrast to recent economics literature, which claims that the commitment paradox does not justify a prohibition of restraints eliminating downstream competition when the supplier is not contractually committed to enforcing them.²⁵

Resale price ceilings imposed by the supplier on downstream firms (“maximum rpm”) also might alleviate the commitment paradox. Recent economics papers claim that maximum rpm, coupled with royalties that eliminate downstream profits, can be used to solve the commitment paradox.²⁶ However, the supplier would rarely be willing or able to charge such royalties. Still, once we acknowledge the supplier’s prospects of developing a reputation for not making concessions, even conventional maximum rpm arrangements, which only *reduce* downstream profits and do not eliminate them, might be anticompetitive. They aid the supplier in developing a reputation for not making concessions by reducing the supplier’s short-term gain from granting a concession.²⁷ This result does not necessarily contradict *State Oil Co. v. Khan*,²⁸ which held that maximum rpm should be scrutinized under the rule of reason and is not illegal per se as previous cases had held. It does, however, challenge the idea the Supreme Court put forward in *Khan* that resale price ceilings generally tend to *reduce* resale prices.²⁹ That is, due to the commitment paradox, maximum rpm might cause resale prices to *rise*.

This Article reveals a new anticompetitive explanation for tying arrangements in which the supplier ties one product it sells to another product it sells. Tying arrangements, or “tie-ins,” can help the supplier develop a reputation for not making concessions. In many cases, the supplier will find it hard to develop a reputation for not granting concessions with regard to one (or more) of its products due to the product’s characteristics. On the other hand, the supplier might find it easier to develop a reputation for not making concessions in the sale of

23 Cindy R. Alexander & David Reiffen, *Vertical Contracts as Strategic Commitments: How Are They Enforced?*, 4 J. ECON. & MGMT. STRATEGY. 623 (1995).

24 See *infra* Sections II.C-D.

25 See Alexander & Reiffen, *supra* note 23.

26 Alexander & Reiffen, *supra* note 23; O’Brien & Shaffer, *supra* note 9, at 305, at 632-33.

27 See *infra* Section II.E.

28 522 U.S. 3 (1997).

29 *Id.* at 15-19.

other products it supplies. The supplier thus might possess “slack” reputation ability with regard to these other products. If the supplier ties the sale of the former kind of products with the sale of the latter kind, it could extend its reputation for not making concessions to both types of products.³⁰

Another interesting implication of the commitment paradox concerns “most-favored-customer” clauses that require a supplier who grants a wholesale price concession to one downstream firm to grant a similar wholesale price concession to competing downstream firms. Most-favored-customer clauses can also solve the commitment paradox, especially when coupled with practices that make wholesale price concessions transparent to downstream firms, such as having an independent accounting firm both audit the supplier’s sales and report to all downstream firms.³¹ Accordingly, most-favored-customer clauses might be anticompetitive too.³²

Notwithstanding the anticompetitive effects of vertical integration, vertical restraints and tying focused upon in this Article, these practices may include welfare-enhancing benefits. To the extent such benefits exist, they should be weighed against their anticompetitive effects. The purpose of the Article is not to argue for the per se illegality of these practices but rather to illuminate an anticompetitive effect that legal scholars, courts, and agencies have overlooked.

I. The Supplier’s Commitment Paradox: A Challenge to the Conventional Wisdom

A. *Why Does the Supplier Want To Make Concessions?*

Let us return to the Barbie doll example portrayed in the introduction. Recall that Costco would be willing to pay the Barbie doll supplier a fixed payment of up to \$500 for a small wholesale price concession, which would enable Costco to steal business from Toys “R” Us.

For simplicity, suppose first, as do the economic models that first identified the commitment paradox,³³ that the Barbie doll supplier and the toy retailers, Toys “R” Us and Costco, interact for only one

30 See *infra* Section II.F. In a different context, Bernheim & Whinston show that when two competitors compete in more than one market, cartels between them might be easier to sustain. In particular, if in one market, due to its characteristics, a cartel is easier to sustain than in the other market, the firms can use “slack” ability to sustain the cartel in the first market in order to make a cartel sustainable in the other market. See Douglas Bernheim & Michael D. Whinston, *Multimarket Contact and Collusive Behavior*, 21 RAND J. ECON. 1, 8-9 (1990).

31 In 1963 General Electric adopted such an auditing practice, coupled with a most-favored-customer clause, arguably to help GE commit not to lower the prices of its goods in the future. See TIROLE, *supra* note 8, at 85.

32 See *infra* Section II.G.

33 See, e.g., O’Brien & Shaffer, *supra* note 9.

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period.³⁴ The supplier's loss from granting the concession is attributable to two factors. First, the wholesale price which maximizes the supplier's profits from sales is, by assumption, \$10 per Barbie doll. If the supplier sells the Barbie dolls for any price below \$10 per unit, it must forgo some profits from sales. Second, to the extent that Toys "R" Us's transfers to the supplier are a function of its actual sales of Barbie dolls, Toys "R" Us's lost business will translate into lower transfers from Toys "R" Us to the supplier.

Let us consider the first factor, namely the fact that the supplier loses from lowering the wholesale price below the supplier's profit-maximizing wholesale price. In O'Brien & Shaffer's formal model, using quite reasonable assumptions, a small concession from the supplier to Costco would have a negligible effect on the joint profits of the supplier and the two retailers.³⁵ Still, even a small concession may enable Costco to cut its retail price and steal a considerable market share from Toys "R" Us.

As to the second factor contributing to the supplier's loss from the concession, a concession would still be worthwhile for the supplier, even in cases where toy retailers' transfers to the supplier are a function of their actual sales. Suppose, in the example above, that Toys "R" Us's payments to the supplier are a function of Toys "R" Us's actual sales. For instance, Toys "R" Us's contract with the supplier could provide that Toys "R" Us pay the supplier a fixed royalty for every Barbie doll Toys "R" Us manages to sell. When Costco receives a wholesale price concession (or a concession with regard to the royalty per unit Costco has to pay), cuts its retail price, and steals business away from Toys "R" Us, Toys "R" Us will sell fewer Barbie dolls and consequently pay fewer royalties to the supplier.³⁶

However, O'Brien & Shaffer show in a formal model, using quite general and reasonable assumptions, that even when the downstream firms' transfers to the supplier are a function of their actual sales, the commitment paradox still exists.³⁷ The intuition for their result, which is demonstrated more formally in the Appendix, is as follows. As we have seen, a small concession has a negligible effect on the joint profits of the supplier and the retailers. Accordingly, in the above-mentioned example, Toys "R" Us's loss from the concession equals \$500 (which was assumed to be Costco's gain from the concession). As long as Toys "R" Us makes positive marginal profits from sales (i.e., Toys "R" Us's retail price exceeds the sum of its marginal costs and its marginal transfers to the supplier), the supplier does not

³⁴ For example, suppose that Toys "R" Us and Costco sell Barbies only during Christmas, and the supplier sells them a bulk quantity of Barbie dolls before Christmas. Our purpose here is to ignore, for now, the supplier's ability to develop a reputation for not making concessions, which will be considered *infra* Section I.D.

³⁵ See O'Brien & Shaffer, *supra* note 9, at 303. O'Brien & Shaffer's formal result is illustrated in the Appendix.

³⁶ See McAfee & Schwartz, *supra* note 9, at 220.

³⁷ See O'Brien & Shaffer, *supra* note 9.

internalize all of Toys “R” Us’s losses from the concession, and hence the supplier’s loss from the concession is less than \$500. Since the supplier’s loss from the concession is smaller than Costco’s gain, the concession will be negotiated.

Thus, what drives O’Brien & Shaffer’s result is the assumption that retailers make positive marginal profits from sales.³⁸ As can be shown, if retailers do not make positive profits from sales, the commitment paradox disappears.³⁹ Intuitively, if the injured retailer makes no profits from sales, all the profits are transferred to the supplier. Therefore, it must be the case that the supplier internalizes all the losses a concession to one retailer caused rival retailers.

However, in practice it is highly unlikely that retailers do not make positive profits from sales. First, a retailer making marginal *losses* on sales (i.e., paying the supplier a marginal price exceeding the retail price net of the retailer’s own marginal cost) would probably stop selling. Second, it is highly unlikely that retailers make *zero* profits from sales (i.e., the case where marginal payments to the supplier *equal* the retail price net of retail marginal costs). In practice, a retailer would not want to operate where it expects to make zero profits from sales. Even if the supplier induces retailers to operate in such situations, by giving them a fixed payment (such as a slotting allowance, a “bonus,” or the like), the supplier would have to scrutinize carefully the behavior of these retailers by examining how they promote the supplier’s product, the shelf space they grant it, and the services they provide. Without such close scrutiny, retailers will not have an incentive to promote the supplier’s product, since they make zero marginal profits from selling it.⁴⁰ Such close examination of retailers’ behavior is not always feasible, however.

Moreover, in order to charge retailers royalties that eliminate downstream profits, the supplier needs to know the retailers’ cost structure. Royalties for any given quantity sold by retailers must be adjusted to equal the resale price net of retailers’ costs of reselling that particular quantity. To assume suppliers possess that kind of

38 What matters is a retailer’s *marginal* profits and *not* its *total* profits. If retailers pay the supplier a fixed payment (e.g., a franchise fee) that is not a function of actual downstream sales, it would not affect the analysis. Even if the fixed payment is large and leaves retailers with overall losses, the commitment paradox would still exist as long as retailers, after “sinking” the fixed payment, make profits from marginal sales. In fact, when retailers pay the supplier fixed fees that are not a function of their actual sales, the commitment paradox is even stronger. After the supplier receives the fixed fee, the supplier’s desire to make concessions at the expense of the retailer that has paid the fixed fee is more obvious than in the case discussed in the text, where retailers’ transfers to the supplier *are* a function of their actual sales.

39 A resale price ceiling imposed by the supplier should accompany royalties that eliminate downstream profits from sales. Otherwise, retailers might charge arbitrarily high resale prices, since they do not make profits from sales anyway. Thus price ceilings (maximum rpm), coupled with royalties that eliminate downstream profits, might be anticompetitive. *See infra* Section II.E.

40 One way the supplier could overcome this problem is by conditioning the fixed payment it pays retailers upon retailers’ reaching a pre-specified target of sales. However, the supplier might have inferior information as to the level of demand downstream and as to what the appropriate target would be.

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information is unreasonable. Indeed, many empirical studies and case studies show that downstream firms in various industries make positive marginal profits from sales.⁴¹ Therefore, the commitment paradox is potentially important in many industries.

As O'Brien & Shaffer show in their formal model, illustrated in the Appendix, the same intuition applies to any wholesale price the supplier aims to set which is above the supplier's marginal cost of supplying the Barbie dolls. For any such wholesale price, the supplier and a toy retailer will be able to raise their joint profits by negotiating a small wholesale price concession at the expense of the other toy retailer. According to this reasoning, the wholesale price from the very beginning will be equal to the supplier's marginal cost of supplying the Barbie dolls.⁴²

B. Competition Among Downstream Firms

In order for the supplier's commitment paradox to arise, the downstream firms to which the supplier sells must compete with one another. If downstream firms do not compete with one another, there is no joint incentive on the part of the supplier and a downstream firm to negotiate a wholesale price concession. In the above-mentioned example, suppose Toys "R" Us and Costco did not compete with regard to Barbie dolls, because one of them sells such dolls only to institutions and the other sells them only to individuals or because the same firm owns them both.⁴³ None of the toy retailers will be induced

41 See Patrick J. Kaufmann & Francine Lafontaine, *Costs of Control: The Source of Economic Rents for McDonald's Franchisees*, 37 J.L. & ECON. 417 (1994) (finding downstream profits from sales to exist in McDonald's franchises); Francine Lafontaine, *Agency Theory and Franchising: Some Empirical Results*, 23 RAND J. ECON. 263 (1992) (showing that downstream firms make positive profits in Business Format Franchising). See also Francine Lafontaine, *How and Why Do Franchisors Do What They Do: A Survey Report*, in FRANCHISING: PASSPORT FOR GROWTH AND WORLD OF OPPORTUNITY 18 (Patrick J. Kaufmann ed., 1992) (finding that 115 of 117 franchisors in the survey either used fixed royalties or decreasing royalties that leave downstream firms with considerable profits from sales); Francine Lafontaine & Kathryn L. Shaw, *The Dynamics of Franchise Contracting: Evidence from Panel Data*, 107 J. POL. ECON. 1041 (1999) (using data from 3,625 franchising firms between the years 1980 and 1992, finding that royalty rates usually are constant over time and have an average rate of only 6.4% of sales, again leaving franchisees with considerable profits from sales); Kabir C. Sen, *The Use of Initial Fees and Royalties in Business-Format Franchising*, 14 MANAGERIAL & DECISION ECON. 175, 183 (1993) (examining a sample of 1046 franchises and finding the mean royalty rate to be only 5.36% and the maximum royalty rate to be 50%, meaning that all franchisees in his sample are left with considerable profits from sales); Richard L. Smith II, *Franchise Regulation: An Economic Analysis of State Restrictions on Automobile Distribution*, 25 J.L. & ECON. 125, 129 (1982) (finding downstream profits from sales to exist in car dealerships).

42 The wholesale price will equal marginal cost from the beginning, since for every higher wholesale price proposed during negotiation, the supplier and each retailer will always negotiate a concession. In other words, any wholesale price above the supplier's marginal cost is not an equilibrium price. Accordingly, while the profitability of concessions drives this equilibrium, concessions do not occur in equilibrium.

43 The same result would arise where downstream prices are fixed, either by a regulatory agency or by some form of cartel among the downstream firms. An effectively implemented vertical restraint may also eliminate downstream competition. The latter will be discussed in Sections II.C-D.

to offer any fixed payment or other type of transfer that would make a wholesale price concession worthwhile to the supplier: There is no competing toy retailer from which any of the toy retailers can steal business by lowering retail prices.

In such a case, if a toy retailer were to receive a wholesale price concession, its profits would rise if the toy retailer either passed on the price concession to consumers and increased sales or kept the retail price as high as before and pocketed the reduction in the wholesale price. But the toy retailer's increased profits would not be at the expense of the other toy retailer, because the toy retailers do not compete with regard to Barbies. The increased profits would be purely at the expense of the supplier, which would be selling the dolls for less than its profit-maximizing wholesale price. This is precisely why the supplier will not agree to such a wholesale price concession. Accordingly, when there is no competition among downstream firms, the supplier is able to commit to charging a supra-competitive wholesale price, as the conventional wisdom assumes.

1. Downstream Capacity Constraints

Even if downstream firms compete with one another, and one of those firms receives a concession, that firm must have the capacity to serve all the buyers that will flow to it when it cuts its retail price. Therefore, when all downstream firms are capacity-constrained, the supplier is better able to commit not to grant concessions. Consequently, the supplier might prefer that its downstream buyers operate in smaller facilities, since their capacity constraint would help the supplier solve the commitment paradox.

Interestingly, an empirical study of gasoline retailing finds that totally independent gasoline retailers, with which the refiner experiences the least control over retail prices,⁴⁴ have considerably less capacity than stations that are subject to more scrutiny from the refiner.⁴⁵ This result is consistent with the point made above. The more control the refiner has over retail prices, the weaker its commitment paradox, since the supplier could use its control over retail prices to overcome the commitment paradox. One way the supplier can do so is by eliminating downstream competition. When stations are independently owned, and the refiner has less control over retail prices, the refiner could still avoid the commitment paradox by making sure the independent stations it works with are capacity-constrained.

C. Multiple Suppliers

The commitment paradox also may dissipate market power short

⁴⁴ Andrea Shepard, *Contractual Form, Retail Price, and Asset Characteristics in Gasoline Retailing*, 24 RAND J. ECON. 58, 62 (1993).

⁴⁵ *Id.* at 67-68.

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of monopoly power. For example, if the Barbie doll supplier from Section I.A faces (imperfect) competition from a Cindy doll supplier, conventional industrial organization analysis predicts that they both can charge prices exceeding their marginal costs provided that consumers view Cindy dolls as somewhat different from Barbie dolls.⁴⁶ If these suppliers sell through toy retailers which are in competition with one another, however, the suppliers may face the same commitment paradox faced by the monopolistic Barbie doll supplier: They will be induced to grant one toy retailer a concession at the expense of the other. Accordingly, the suppliers may be compelled to charge wholesale prices well below their profit-maximizing wholesale prices.

D. *Can the Supplier Develop a Reputation for Not Making Concessions?*

An obvious question arising from the preceding analysis is whether the supplier can somehow avoid the commitment paradox by developing a reputation for not making wholesale price concessions. If the Barbie doll supplier succeeds in developing a credible reputation as one who never grants wholesale price concessions, neither toy retailer would suspect that the supplier would grant concessions to the other. In such a case, toy retailers will agree to pay the supplier the monopoly wholesale price at the outset and will not try to negotiate concessions. In some industries, it may be feasible to develop such a reputation.⁴⁷ In many other industries, however, such a reputation cannot be developed successfully.⁴⁸ In particular, two factors harm a supplier's prospects of developing such a reputation. First, the reputation can be developed only if downstream firms' threat of retaliation for a concession granted to a rival downstream firm is credible, and that might not be the case. Second, even if credible, such a threat might not suffice to deter the supplier from making concessions. I shall discuss these two factors in detail in Sections I.D.1-2 below.

The claim that suppliers might be able to develop a reputation for not granting concessions resembles, in many respects, a claim that tacit cartels among competitors might be stable due to competitors' fear of a price war. Cartels among competing firms have been shown to be

⁴⁶ A supplier facing few competitors is also conventionally expected to possess market power if the location of its facility is important to downstream firms buying from it and is somewhat separated from the locations of other suppliers' facilities. *See, e.g., TIROLE, supra* note 8, at 282-85. Finally, if suppliers' facilities have constrained capacity, suppliers are again expected to have the power to charge a price above their marginal costs. *TIROLE, supra* note 8, at 211. In the latter case, however, suppliers do not face the commitment paradox, since they do not possess the capacity needed to grant concessions and expand output.

⁴⁷ *See* Michael Hardt, *Market Foreclosure Without Vertical Integration*, 47 *ECON. LETTERS* 423 (1995).

⁴⁸ In their experimental study, although they allowed for repeated interaction between the supplier and retailers, Martin et al. did not find evidence that such a reputation would likely be developed. *See* Martin et al., *supra* note 13, at 479.

sometimes stable even without communication among the firms and without the use of practices that help firms commit not to undercut the cartel's price.⁴⁹ A firm might be deterred from undercutting the cartel price (thereby developing a "reputation" for not cheating the cartel) because it realizes its competitors will retaliate and a price war will occur in future periods. Still, the threat of a price war does not always deter a firm from cheating on the cartel. Firms sometimes need to use practices that facilitate cartels in order for the cartel to succeed.⁵⁰

The point made in this Article is analogous. Suppliers might *sometimes* solve their commitment paradox via their reputation and without using vertical integration, vertical restraints, or tying. In many other cases, however, suppliers need vertical integration, vertical restraints, or tying to solve the commitment paradox, since without using these practices, they will not be able to develop a credible reputation for not making concessions. A number of scholars acknowledge practices facilitating cartels to be anticompetitive in spite of the fact that cartels *sometimes* are stable even without such practices.⁵¹ This Article similarly argues that vertical integration, vertical restraints, and tying are anticompetitive because they improve the prospects of the supplier's solving its commitment paradox.

1. Downstream Firms' Threats Might Not Be Credible

A reputation for not making concessions cannot be developed unless the injured downstream firms can somehow retaliate in response to a concession granted to their competitors.⁵² If downstream firms cannot threaten credibly to "punish" the supplier for granting concessions, it will be very difficult for the supplier to commit credibly to not granting them. After all, as we have seen, if the supplier attempts to charge a wholesale price above its marginal cost, it can make a profit by granting a concession.⁵³

49 See TIROLE, *supra* note 8, at 240.

50 See *id.* at 241; SCHERER & ROSS, *supra* note 8, at 235-75.

51 See SCHERER & ROSS, *supra* note 8, at 235-75; TIROLE, *supra* note 8, at 241; sources cited *infra* note 152.

52 Such retaliation could take the form of terminating the relationship with the supplier, buying less from the supplier and more from its competitors, granting the supplier less attractive shelf space, and so on. Hardt assumes that, once downstream firms realize that the supplier has granted a concession, they retaliate by agreeing to pay no more than the supplier's marginal cost in future periods. See Hardt, *supra* note 47.

53 It might be asked whether strong retailers able to retaliate in such a manner could not be able to force the supplier to charge them a wholesale price equal to the supplier's marginal cost in the first place, not in response to the supplier's commitment paradox but simply in virtue of their bargaining power. However, if the supplier charges all retailers a wholesale price above the supplier's marginal costs, all retailers would be better off than if the supplier charged all of them a wholesale price equal to the supplier's marginal costs. The reason is that the supplier would elect a wholesale price that would induce retailers to charge higher retail prices that maximize the joint profits of retailers and the supplier (as stated *supra* Section I.A). The retailers need the supplier to inflate the retail price indirectly because competition between them (and the illegality of retailer cartels) do not allow them to do so themselves. When fixed fees can be transferred between retailers and the supplier, retailers' bargaining power does not affect wholesale prices but rather affects these fixed fees, while, as mentioned above, the wholesale

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A threat of retaliation on the part of downstream firms will not always be credible, however. First, retaliation might be too painful to the retaliator. Suppose, in our example, the supplier grants Costco a concession at the expense of Toys “R” Us. Suppose further that Toys “R” Us finds out about the concession and wants to retaliate against the supplier (say, by terminating its relationship with the supplier or preferring the Cindy supplier). The supplier might offer Toys “R” Us an even greater concession at Costco’s expense. Toys “R” Us would then face a choice between retaliating (causing harm not only to the supplier but also to itself) and receiving an even greater concession from the supplier, which would raise Toys “R” Us’s profits. Toys “R” Us’s incentive to choose the latter course of action considerably weakens the credibility of its threat. Of course, if downstream firms’ threats of retaliation are not credible, the supplier will not be deterred from granting concessions. Knowing this, downstream firms will not agree to pay a supra-competitive wholesale price at the outset. Second, if the supplier is dominant in its market, Toys “R” Us may have very little leverage to harm the supplier in any way, given its reliance on the supplier’s business.

Third, Toys “R” Us might not be able to observe the concession to Costco. In such a case, of course, Toys “R” Us cannot threaten to “punish” the supplier, because it is unaware of the concession. Toys “R” Us may be able to infer that Costco has received a concession from the fact that Costco cut its resale price. Costco’s price-cut could also be explained, however, by other factors, such as a reduction in Costco’s other costs or a reduction in the demand for Costco’s services. Furthermore, in more complex cases than this one, where there are several stages in the vertical chain, tracing a manufacturer’s price concession that has been passed down the vertical chain may be even more difficult. In cases where Toys “R” Us is not certain if the supplier indeed granted a concession to Costco, it would be hard for Toys “R” Us to retaliate credibly, since it would have to retaliate every time Costco cuts its retail price regardless of the cause. Retaliation in such a great number of cases would be harmful to Toys “R” Us. Therefore, Toys “R” Us’s threat of retaliation is less credible.

Finally, if there are several downstream firms, each may try to take a “free ride” on the other downstream firms’ efforts to discipline the supplier. Since such acts of discipline often harm the punishing downstream firm as well as the supplier, each downstream firm would prefer that the other downstream firms discipline the supplier.⁵⁴ Thus all downstream firms might refrain from action, relying on others to

price is elected to maximize the joint profits of retailers and the supplier. Accordingly, even if retailers have some power to retaliate against the supplier when the supplier grants a competing retailer a concession at their expense, it does not follow that retailers would use this bargaining power to get a lower wholesale price in the first place.

⁵⁴ A downstream firm punishing the supplier suffers all the costs of such punishment but shares the benefits with its downstream competitors.

act instead.

2. Downstream Firm Retaliation Might Not Deter the Supplier

Even assuming downstream retaliation is credible, it might not suffice to deter the supplier from granting concessions. First, even if downstream firms can observe the supplier's concessions, they might observe them only a considerable time after the concession was granted. In such a case there is a considerable time lag between the concession and the retaliation by injured downstream firms—a time lag in which the downstream firm receiving the concession could steal a considerable amount of profits from its rivals. Accordingly, the profits that can be made from the concession may well outweigh the future losses due to retaliation.

Second, retaliation might not deter the supplier if the supplier and the retaliating downstream firms do not expect to interact for a very long time. In such cases retaliation is confined to a relatively short period and therefore is more likely to be outweighed by the supplier's short-term profits from granting a concession. For example, if demand for the product is declining (as in some software or hardware products that become obsolete after a certain period), the supplier's long-term loss from downstream firms' retaliation is relatively small.

Third, in certain industries a big fraction of sales is concentrated in a particular time of the year (e.g., toys at Christmas or Matzos at Passover). During that particular time, a reputation for not making concessions is particularly hard to develop, since a considerable amount of business can be stolen from rival downstream firms during these periods. Retaliation by injured downstream firms typically occurs later, during the periods in which sales are lower, and therefore has less deterrent value.

Fourth, whether retaliation will deter the supplier depends on the weight that the supplier places on future profits versus current profits. The higher the interest rate, the less weight the supplier will place on future profits, and the more it will value current profits. Accordingly, the supplier's short-term profits from granting the concession may outweigh its long-term loss from retaliation by downstream firms.

Also, the larger the downstream profits from sales, and the less the supplier internalizes these profits, the larger is the supplier's short-term gain from a concession.⁵⁵ Accordingly, the larger the downstream profits from sales, the harder it is for the supplier to develop a reputation for not making concessions.⁵⁶ Finally, if some of the downstream firms' orders are large and infrequent, the short-term

⁵⁵ See *supra* Section I.A.

⁵⁶ One implication of this point is that practices that lower downstream profits from sales (such as imposing price ceilings, see *supra* Section II.E) help the supplier develop a reputation for not making concessions. Such practices are, therefore, anticompetitive in the above-mentioned sense.

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gains the supplier can make from a concession in favor of these downstream firms are even more likely to outweigh the long-term loss from retaliation.

E. Observability by Downstream Firms of Concessions Given to their Competitors

In the toy retailing example, we assumed that concessions the supplier granted to toy retailers are secret and that competing toy retailers cannot observe them after they are given. This assumption simplified the analysis. In the current subsection, we shall examine the consequences of relaxing this assumption. As will be shown, the supplier's inability to commit to charging its profit-maximizing wholesale price may exist whether or not downstream firms can observe concessions made in favor of their competitors after the concessions have been given.⁵⁷ Nevertheless, if downstream firms can observe concessions the supplier made to their competitors, the analysis of the supplier's commitment paradox becomes more complex.⁵⁸

When downstream firms observe a concession given to their competitor, they might readjust their pricing strategies accordingly. The supplier and the downstream firm receiving the concession generally will anticipate such readjustment, which may change the magnitude of the concession. In our toy retailer example, suppose the supplier grants a wholesale price concession to Costco, and both parties know that Toys "R" Us will be able to observe the concession after it has been granted. Suppose further that after observing the concession granted to Costco, and anticipating that Costco consequently will cut its retail price, Toys "R" Us readjusts its pricing strategy and cuts its own price. Toys "R" Us may react in such a manner in order to "strike first" and mitigate the harm that Costco's anticipated price-cut will cause.⁵⁹

Such a reaction is expected to harm Costco, since by price-cutting Toys "R" Us steals some business back from Costco. If the supplier and Costco anticipate Toys "R" Us's reaction, they typically will negotiate a smaller concession than they would have otherwise. By negotiating a smaller concession (thereby restricting Costco to a smaller price-cut), they would mitigate Toys "R" Us's eagerness to cut its price. In such cases, it can be shown that the eventual wholesale

⁵⁷ This was shown in a formal model by McAfee & Schwartz, *supra* note 9, at 221.

⁵⁸ One implication of downstream firms' ability to observe concessions was stated in Section I.D: Observability of concessions is a necessary (though not a sufficient) condition for the supplier to be able credibly to develop a reputation for not making concessions, thereby avoiding the commitment paradox.

⁵⁹ For a formal presentation of this type of competitive interaction among firms (termed in the industrial organization literature "strategic complements"), see generally TIROLE, *supra* note 8, at 323-37 and Jeremy Bulow et al., *Multimarket Oligopoly: Strategic Substitutes and Complements*, 93 J. POL. ECON. 488 (1985).

price charged by the supplier will be somewhat higher than the supplier's marginal cost.⁶⁰

An opposite effect is expected to occur if an anticipated price-cut by Costco would make Toys "R" Us extract output or leave the market altogether (due to reduced profits) rather than cut its price to try to attract more business.⁶¹ Under such circumstances, Costco and the supplier would tend to negotiate an even larger concession than they would have negotiated but for their anticipation of such a response. A larger concession would enable Costco to charge an even lower retail price, which would trigger more extraction of output (or even exit from the market) by Toys "R" Us and thereby raise Costco's profits even more. In such cases, downstream firms' eagerness to induce their rivals to extract output exacerbates the commitment paradox.⁶²

Therefore, the supplier and each toy retailer's joint incentive to negotiate price concessions would still exist, even when concessions to one toy retailer are observable by the other toy retailers after they have been given. In our hypothetical, even though Toys "R" Us observes the concession given to Costco, the concession still grants Costco a competitive advantage over Toys "R" Us and enables Costco to steal business from Toys "R" Us. Thus, the same intuition as discussed in Section I.A provides that the supplier cannot commit to charging the monopoly wholesale price, unless the supplier credibly can develop a reputation for not making concessions.⁶³

II. Legal Implications

A. *Secondary-Line Price Discrimination*

The antitrust prohibition against secondary-line price discrimination included in Section 1(a) of the Robinson-Patman Act states that,

[i]t shall be unlawful for any person . . . either directly or indirectly, to discriminate in price between different purchasers of commodities of like grade and quality, . . . where the effect of such discrimination may be substantially to lessen competition or tend to create a monopoly in any line of commerce, or to injure, destroy, or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination, or with customers of either of

⁶⁰ McAfee & Schwartz, *supra* note 9, at 221.

⁶¹ This type of competitive interaction, where one firm becomes more "aggressive" (i.e., cuts prices and increases output) and the competing firm raises prices and reduces output in response, is termed "strategic substitutes" in the industrial organization literature. *See generally* TIROLE, *supra* note 8, at 323-37; Bulow et al., *supra* note 59.

⁶² McAfee & Schwartz, *supra* note 9, at 221.

⁶³ *See supra* Section I.D.

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them⁶⁴

Interestingly, this prohibition might help solve the commitment paradox.⁶⁵ The courts have interpreted this prohibition to allow an injured downstream firm to sue the supplier whenever price discrimination put the injured downstream firm at a competitive disadvantage, making it lose sales or profits.⁶⁶ As the Supreme Court in *FTC v. Morton Salt Co.* put it:

It is argued that the findings fail to show that [the supplier's] discriminatory discounts had in fact caused injury to competition. . . . [T]he commission found what would appear to be obvious, that the competitive opportunities of certain merchants were injured when they had to pay [the supplier] substantially more for their goods than their competitors had to pay. The findings are adequate.⁶⁷

Thus, assuming downstream firms can detect a wholesale price concession and can prove it in court, the threat of suits based on this statutory provision would deter the supplier from making concessions. Although the supplier could approach the complaining downstream firm and offer it a similar (or even greater) concession, suing the supplier might be more appealing to the downstream firm since the antitrust laws provide for treble damages – that is, damages that are triple the actual loss of profit.⁶⁸ Hence, by helping the supplier solve the commitment paradox, the ban on secondary-line price discrimination itself is anticompetitive.

Admittedly, the statutory language supports the courts' interpretation that it suffices for a plaintiff to show that the injured downstream firm suffered a competitive disadvantage even if end consumers were not harmed. The statute's effects clause is satisfied *either* when competition is lessened substantially *or* when "competition with any person who . . . receives the benefit of such

⁶⁴ 15 U.S.C. § 13(a) (2000).

⁶⁵ O'Brien & Shaffer, *supra* note 16, construct an economic model that shows how welfare is reduced by forbidding price discrimination.

⁶⁶ See *Falls City Industries v. Vanco Beverage, Inc.*, 460 U.S. 428 (1983); *J. Truett Payne Co. v. Chrysler Motors Corp.*, 451 U.S. 557 (1981), *on remand*, 670 F.2d 575 (5th Cir. 1982); *FTC v. Morton Salt Co.*, 334 U.S. 37 (1948); *J.F. Feeser, Inc. v. Serv-A-Portion, Inc.*, 909 F.2d 1524, 1535-38 (3d Cir. 1990); *Edward J. Sweeney & Sons, Inc. v. Texaco* 637 F.2d 105 (3d Cir. 1980); *Mueller Co. v. FTC*, 60 F.T.C. 120 (1962), *aff'd*, 323 F.2d 44 (7th Cir. 1963); HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY* 525 (1994); O'Brien & Shaffer, *supra* note 16. It appears that the supplier cannot rebut a claim of price discrimination by claiming that the firm that received the concession, unlike its rivals, had to pay an additional fixed payment to the supplier. Courts seem to require suppliers to charge downstream firms similar wholesale prices *and* similar fixed payments (if fixed payments are provable in court). O'Brien & Shaffer, *supra* note 16.

⁶⁷ 334 U.S. at 45-47.

⁶⁸ Section 4 of the Clayton Act, 15 U.S.C. § 15(a) (2000), provides that "any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws . . . shall recover threefold the damages by him sustained."

discrimination” might be injured, destroyed, or prevented.⁶⁹ According to this language, even if discrimination might not “substantially lessen competition,” it is still illegal if it might injure competition between the downstream firm receiving the concession and other downstream firms. If this potential injury were interpreted as requiring harm to end consumers, then the first part of the effects clause, which requires substantial lessening of competition, would be superfluous.

This interpretation is also consistent with the legislative history and statutory intent surrounding the prohibition of secondary-line price discrimination. The Supreme Court in *Morton Salt* quoted the Report of the Senate Judiciary Committee, “[T]he more immediately important concern is in injury to the competitor victimized by the discrimination. Only through such injuries, in fact, can the larger general injury result, and to catch the weed in the seed will keep it from coming to flower.”⁷⁰ Similarly, the Court of Appeals in *J.F. Feeser v. Serv-a-Portion, Inc.*,⁷¹ repeating the quotation of the legislative history, stated that “[t]his statutory language and legislative history are highly persuasive indicia of Congress’ intent to outlaw price discrimination that tends to injure competitors, rather than competition in general, which we must follow unless the Supreme Court has construed the statute in a contrary manner.”⁷²

Unfortunately, this reading of the prohibition of secondary-line price discrimination harms consumers, since, as shown above, it helps the supplier solve the commitment paradox, which in turn causes wholesale and resale prices to be higher. Furthermore, in a regime without the prohibition of secondary-line price discrimination, the statutory intent aimed at protecting downstream firms from suffering a competitive disadvantage still might be satisfied in many cases. Due to the commitment paradox, wholesale prices would have been low in the first place, and downstream firms could not have been disadvantaged. Thus, removal of the statutory ban on secondary-line price discrimination would, in many cases, eliminate Congress’s worry about downstream firms’ competitive disadvantage *and* would benefit consumers by leaving the commitment paradox intact.

Although the prohibition of secondary-line price discrimination helps the supplier solve the commitment paradox, it certainly does not eliminate it. In particular, when wholesale price concessions are not readily detectable to injured downstream firms, they naturally cannot sue the supplier on that basis. Furthermore, in order to succeed in such a lawsuit, injured downstream firms need to prove that a wholesale price concession has been granted. Wholesale price concessions can be disguised in many ways, including rebates, improved or discounted shipping services to the downstream firm’s facility, extended credit,

69 15 U.S.C. § 13(a) (2000).

70 334 U.S. at 49-50 & n.18 (quoting S. REP. NO. 74-1502, at 4 (1936)).

71 909 F.2d 1524 (3d Cir. 1990).

72 *Id.* at 1533.

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attached gifts, and the like. Downstream firms will not always be able to present sufficient evidence to show that illegal price discrimination indeed occurred. Accordingly, downstream firms cannot count on the possibility of a lawsuit to deter suppliers from making concessions. Therefore, they will not agree to pay a supra-competitive wholesale price at the outset. In such a case, the commitment paradox remains intact.

Counter-intuitively, the *buyer's* liability under Section 1(f) of the Robinson-Patman Act, which makes it illegal for a buyer “knowingly to induce or receive a discrimination in price which is prohibited” by the Act,⁷³ may lessen the statute’s effectiveness in solving the commitment paradox and thereby aid consumers. Buyer liability makes the supplier and the buyer who received the concession “co-conspirators,” so secret discriminatory deals between them are more obtainable. The following example illustrates this effect. Suppose the supplier offers retailer *A* a wholesale price concession in exchange for a fixed payment. As already stated, the supplier might do so despite the statutory prohibition, since retailer *B* might find it hard to detect discrimination or prove a violation in court. Still, retailer *A* would hesitate to pay the fixed payment upfront, fearing that the supplier would then grant retailer *B* a concession that would make a mockery of retailer *A*’s cost advantage. To reassure retailer *A*, the supplier would have to agree to receive the fixed payment later, after retailer *A* steals business away from retailer *B*. Absent the liability imposed on retailer *A* by the statute, such an arrangement would have been difficult to implement. Retailer *A* could have opportunistically refused to pay the fixed payment, knowing that the supplier could not sue it. Suing retailer *A* for failing to pay the fixed payment would expose the supplier’s illegal price discrimination, inviting a treble damages suit from retailer *B*. Anticipating retailer *A*’s opportunism, the supplier would refuse to negotiate the concession in the first place.⁷⁴ But under Section 2(f) of the statute, retailer *B* could likewise sue retailer *A* for treble damages. Accordingly, retailer *A* will hesitate to be opportunistic, and an arrangement settling the concession will become obtainable. In this sense, buyer liability erodes the effectiveness of the statutory prohibition and helps keep the commitment paradox intact. When discriminatory concessions are provable in court, buyer liability deters buyers from negotiating such concessions. However, absent buyer liability, most cases of price discrimination would have been prevented even when they are too difficult to detect or prove in court. As the supplier’s and buyer’s above-mentioned fear of each other’s opportunism would tend to deter them from negotiating concessions.

⁷³ 15 U.S.C. § 13(f) (2000).

⁷⁴ To be sure, if the supplier and retailer *A* expect to negotiate many additional concessions in the future, retailer *A* or the supplier might be able to develop a reputation for not being opportunistic, thereby making concessions feasible.

B. *Vertical Integration*

Vertical integration between the supplier and a downstream firm will help solve the supplier's commitment paradox. Let us return to the simple toy retailer example, which includes a monopolistic supplier of Barbie dolls and two downstream toy retailers—Costco and Toys “R” Us. In the example, what drove the supplier and Costco's joint incentive to negotiate a concession in favor of Costco was their disregard of the losses Toys “R” Us consequently suffered. The supplier's incentives change dramatically, however, if it vertically integrates with Toys “R” Us. Once the supplier and Toys “R” Us are one entity, they share all profits and losses. Under vertical integration, the supplier no longer disregards Toys “R” Us's losses from a concession to Costco, since the supplier and Toys “R” Us are a single entity. Vertical integration eliminates the supplier's commitment paradox.⁷⁵

Without vertical integration, we have seen that the commitment paradox might prevent a monopolistic supplier from fully exploiting its monopolistic position. The supplier's commitment paradox is therefore beneficial from a welfare perspective. As illustrated in Section I.A, retailers use the supplier's wholesale price concessions to steal business from one another by lowering their retail prices.⁷⁶ Thus, the supplier's commitment paradox translates directly into lower retail prices, to the benefit of consumers. In contrast, under vertical integration, the supplier will be able to exploit its monopoly position completely. It will be able to commit to producing no more than the monopoly quantity and charging non-integrated downstream firms the monopoly wholesale price.

The anticompetitive effect of vertical integration identified here similarly applies to the case of multiple suppliers, discussed in Section I.C. Suppose the Barbie doll supplier competes with a Cindy doll supplier, though each of them still possesses some market power. Assume that each of the suppliers sells through two toy retailers who

⁷⁵ The supplier's exact behavior following vertical integration may depend on industry circumstances. In Hart & Tirole's framework, a vertically integrated monopolistic supplier finds it most profitable to foreclose completely its product from the non-integrated downstream firm. Such foreclosure will occur whenever supplying the non-integrated downstream firm will sufficiently reduce the profits of the vertically integrated entity (by depressing the price in the downstream market). See Hart & Tirole, *supra* note 9, at 208. Under different assumptions regarding industry circumstances, where keeping the non-integrated downstream firm operating is beneficial for the vertically integrated supplier (e.g., due to its low costs or attractive location), the monopolistic supplier may continue supplying the non-integrated downstream firm, charging it the monopoly wholesale price. In any case, the basic point made in the text remains strong in different industry configurations: Vertical integration eliminates the supplier's commitment paradox and enables the supplier to exploit its market power.

⁷⁶ Note that when the supplier is induced to grant a wholesale price concession, the downstream firm receiving the concession always cuts the resale price as well, to the benefit of consumers. The downstream firm does not “pocket” the wholesale price reduction. If the downstream firm does not cut the retail price, it cannot steal business from its competitors and cannot afford to pay the supplier a fixed payment that would induce the supplier to grant the wholesale price concession. See *supra* Section I.A.

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compete with one another.⁷⁷ If the Barbie doll supplier integrates with one of the toy retailers who sell Barbies, the supplier will no longer have an incentive to grant wholesale price concessions to the other retailer who sells Barbies, since the other retailer would then steal business and profits from the Barbie doll supplier's retailing affiliate. This will restore the Barbie doll supplier's power to charge a supra-competitive wholesale price. If the Cindy doll supplier is also vertically integrated with one of the toy retailers selling Cindy dolls, the Cindy doll supplier too will be able to commit to charging a supra-competitive wholesale price.⁷⁸

The analysis is slightly more complex (although the basic conclusions do not change) if there are more than two downstream firms. Suppose there are three, instead of two, competing toy retailers—Toys “R” Us, Costco, and Kaybee Toys. If the Barbie doll supplier integrates with Toys “R” Us, it still might be induced to grant Costco a concession. Although such a concession harms Toys “R” Us (which merged with the supplier), it also harms Kaybee Toys. Since the vertically integrated entity still disregards the losses to Kaybee Toys, it does not fully internalize the losses that the wholesale price concession caused. Suppose Costco can make \$600 from the concession by stealing business from Toys “R” Us and Kaybee Toys, with Toys “R” Us and Kaybee Toys each losing \$300. Costco can offer the supplier a fixed payment of up to \$600, which may leave the supplier better off despite the lower wholesale price *and* Toys “R” Us's loss of \$300.

Still, since the concession to a non-integrated downstream firm harms the integrated downstream firm, such a concession becomes less likely in the case of vertical integration. In particular, vertical integration lowers the supplier's short-term gain from the concession, thereby facilitating its ability to develop a reputation for not granting concessions.⁷⁹ Furthermore, in cases where the supplier will find it

⁷⁷ For our purposes, it does not matter whether there are only two retailers, which sell both Cindys and Barbies, or whether there are two retailers that sell Cindys and two different toy retailers that sell Barbies.

⁷⁸ In fact, the commitment paradox may affect suppliers' choices of whether to integrate with toy retailers in the first place. In particular, if the type of competition between the suppliers is of the “strategic complements” type, *see* TIROLE, *supra* note 8, at 323-37; Bulow, *supra* note 59, suppliers may prefer not to face the commitment paradox in order to commit to charging higher prices, thereby inducing their rival to charge higher prices as well. To avoid the commitment paradox, suppliers would prefer to be vertically integrated with a toy retailer. On the other hand, if the type of competition between the suppliers is of the “strategic substitutes” type, *see* TIROLE, *supra* note 8, at 323-37; Bulow, *supra* note 59, suppliers may, at least for a certain period, prefer to *face* the commitment paradox, in order to commit to price cuts and expanded output. Suppliers could thereby try to induce their rivals to reduce output or leave the market. In such cases, suppliers would, at least for a certain period, prefer selling to several toy retailers, thereby strategically using their commitment paradox. *Cf.* Kenneth S. Corts & Darwin V. Neher, *Credible Delegation*, EUR. ECON. REV. (forthcoming) (manuscript at 13, on file with author) (showing how suppliers may strategically prefer not to be vertically integrated and instead “delegate” pricing decisions to independent downstream firms in order to commit to becoming more aggressive competitors).

⁷⁹ *See supra* Section I.D.

optimal to sell its product only to its downstream affiliate,⁸⁰ the commitment paradox is eliminated completely, regardless of the number of downstream firms.

The preceding analysis reveals an anticompetitive effect of vertical integration that neither legal commentary nor the decisions of courts and agencies have yet acknowledged. A vertical merger helps the supplier utilize its market power and charge supra-competitive prices, whereas without the vertical merger the supplier might not have been able to commit to charging supra-competitive prices.⁸¹

In particular, a large body of legal commentary, often referred to as the “Chicago School” view, has argued consistently that there is only “one monopoly profit” the monopolistic supplier can make. According to this reasoning, even without vertical integration, a monopolistic supplier can set a monopoly wholesale price that maximizes its profits. Downstream firms, so the argument goes, will have to set a high resale price that reflects the monopolistic wholesale price they have to pay for the supplier’s product. Thus, the price charged to end consumers will reflect the supplier’s monopoly position regardless of whether the supplier integrates with a downstream firm or not.

Indeed, the “one monopoly profit” theory is emphasized in all of the leading legal analyses of vertical integration as well as in several court and agency decisions. For example, Richard Posner states:

Imagine an industry with two levels, production and distribution: if production is monopolized and distribution is competitive, can the monopolist increase his profits by buying out the distributors? . . . If the producer acquires the distributors and increases the retail markup he will have to decrease the producer markup by the same amount. He cannot maximize his profits by charging a price above the monopoly price⁸²

Areeda & Hovenkamp similarly stress the “one monopoly profit” claim in their treatise,⁸³ as do other major authorities.⁸⁴ Riordan &

⁸⁰ See *supra* note 75.

⁸¹ In certain cases vertical merger might be prohibited under Section 7 of the Clayton Act, 15 U.S.C. § 18 (2000) (prohibiting acquisitions of “the whole or any part of the stock” or “the whole or any part of the assets” of another firm where “the effect of such acquisition may be substantially to lessen competition”).

⁸² RICHARD A. POSNER, *ANTITRUST LAW, AN ECONOMIC PERSPECTIVE* 197 (1976); see also ROBERT H. BORK, *THE ANTITRUST PARADOX* 229, 239 (1978).

⁸³ 3A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 756b2, at 13 (2d ed. 2002) (“Under any given cost and demand conditions, there is but one maximum monopoly profit to be gained from the sale of an end-product.”).

⁸⁴ See, e.g., PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS* 489 (5th ed. 1997) (“The power already possessed by the . . . monopolist to control the price and output . . . effectively controls the price and output of independent [downstream firms].”); Thomas G. Krattenmaker & Steven C. Salop, *Analyzing Anticompetitive Exclusion*, 56 *ANTITRUST L.J.* 71, 85 (1987) (“Where the input supplier is a single-firm monopoly, the supplier often would require no help in exercising [market] power.”). Although Krattenmaker & Salop discuss exceptions to this

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Salop,⁸⁵ in a comprehensive analysis of the antitrust treatment of vertical mergers, also fail to address the anticompetitive effect of vertical integration that is this Article's focus. For example, they assume that "if a set of spark plugs is absolutely essential to the construction of an automobile, then a spark plug monopolist could, in effect, control the automobile market and extract all the monopoly profits."⁸⁶ This presumption ignores the point driving our analysis, that a monopolistic supplier may be unable to commit to its monopoly wholesale price and thus may be unable to extract all monopoly profits.

Several court decisions also cite and apply the "one monopoly profit" argument. For example, in *Western Resources, Inc. v. Surface Transportation Board*,⁸⁷ electric utilities that transport coal on railroads challenged a merger between Burlington Northern, Inc. ("BN") and The Atchinson, Topeka and Santa Fe Railway Company ("Santa Fe").⁸⁸ For several electric utilities, Santa Fe had a monopoly over tracks terminating at the utility, while there was competition among a few railroads, including BN, with regard to railroad transportation of coal from the coal mines up to Santa Fe's lines.⁸⁹ The Court of Appeals approved the merger, as did the Interstate Commerce Commission, on the grounds of the "one monopoly profit" claim. The Court of Appeals stated:

[B]ased on the one-lump theory, which says that there is only one monopoly profit to be gained from the sale of an end-product or service (here the transportation of coal for use at an electric generating plant) [the Commission rejected petitioner's claims]. Because a monopolist at the end stage of production is in a position to capture that entire profit, integration backwards upstream, even when accompanied by monopolization of the earlier stages (which hasn't happened here) normally does not enable it to raise the profit-maximizing price and thus inflicts no harm on the ultimate customer.⁹⁰

The Court of Appeals failed to take account of the commitment

argument (such as using vertical integration to evade price regulation), *id.*, they fail to refer to the motivation for vertical integration identified here, namely, using vertical integration to solve the commitment paradox. *See also* RICHARD A. POSNER & FRANK EASTERBROOK, *ANTITRUST* 870 (2d ed. 1989) ("There is only one monopoly profit to be made in a chain of production.").

⁸⁵ Michael H. Riordan & Steven C. Salop, *Evaluating Vertical Mergers: A Post Chicago Approach*, 63 *ANTITRUST L.J.* 513 (1995).

⁸⁶ *Id.* at 534; *see also id.* at 543.

⁸⁷ 109 F.3d 782 (D.C. Cir. 1997).

⁸⁸ *Id.* at 783-84.

⁸⁹ Therefore, the merger between Santa Fe and BN was a vertical merger, in the sense that BN, in order to provide a utility with transportation of coal from the coal mine to the utility's plant, needs to acquire the right to use Santa Fe's tracks that reach the plant.

⁹⁰ 109 F.3d at 787. *See* 3 AREEDA & TURNER, *supra* note 83, at 199. [AU: Please update source to Areeda & Hovenkamp]

paradox as an anticompetitive effect of vertical integration. In particular, it failed to acknowledge that before the merger between BN and Santa Fe, Santa Fe might have had an incentive to grant concessions to BN and its competitors due to the commitment paradox. Merger between Santa Fe and BN might have solved Santa Fe's commitment paradox, since it caused the merged entity to internalize some of the losses from concessions granted to "downstream" railroads. Consequently, the prices utilities pay for transports might have been substantially higher after the merger.

Similarly, in *Lamoille Valley Railroad Co. v. ICC*, the Court of Appeals stressed that:

Ordinarily, a vertically integrated monopolist has no incentive to use its monopoly power over one level of production . . . to increase profits at another level As the leading treatise puts it, 'there is but one maximum monopoly profit to be gained' from a monopoly of one level of production, and that profit may be gained directly at the monopolized level . . . through appropriate pricing.⁹¹

The District Court in *Turner Broadcasting v. FCC* made a similar argument:

The orthodox thinking on vertical integration by an unregulated monopoly is that such integration normally adds nothing material to the distortions implicit in the monopoly itself. A monopoly is able to achieve a single monopoly profit on its sales, and its ownership of resources supplying an input normally has no bearing on the extent to which the price of its final product will exceed the competitive price.⁹²

The "one monopoly profit" theory should properly be read as applying equally to suppliers with market power short of monopoly power. As we have seen, according to conventional industrial organization analysis, a supplier may still possess the power to charge supra-competitive wholesale prices even though competing suppliers exist.⁹³ According to the "one monopoly profit" logic, a supplier with market power (even short of monopoly power) can charge a supra-competitive wholesale price that maximizes its profits, regardless of whether it is integrated with a downstream firm that buys its brand. In contrast, our analysis demonstrates that without vertical integration the supplier (either a monopolist or an oligopolist) may be unable to commit to

⁹¹ 711 F.2d 295, 318 (D.C. Cir. 1983). Later in its decision, the court dealt with the "evasion of price regulation" exception. *Id.*; see also *supra* note 84 and accompanying text; 3 AREEDA & TURNER, ANTITRUST LAW § 725B, *supra* note 83. [AU: Please update source to Areeda & Hovenkamp]

⁹² 910 F. Supp. 734, 774 (D.D.C. 1995). See also *Town of Concord v. Boston Edison Co.*, 915 F.2d 17, 23 (1st Cir. 1990).

⁹³ See *supra* note 10; text accompanying note 46.

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charging the supra-competitive wholesale price that maximizes its profits. Vertical integration with a downstream firm helps restore the supplier's ability to exploit its market position.

1. The Reduced Importance of the "Double Marginalization" and "Input Substitution" Efficiencies

As we have seen, the supplier's commitment paradox reveals an anticompetitive effect of vertical integration not addressed in legal commentary and court decisions. The commitment paradox also substantially lessens the importance of two *efficiencies* that commentators and courts commonly allege result from vertical integration.

The first efficiency commonly cited in defense of vertical integration is the elimination of "double marginalization."⁹⁴ This efficiency is based on the premise that a supplier with market power from either a monopoly or an oligopoly position will charge a supra-competitive wholesale price for every unit. According to this argument, downstream firms may also possess the power to charge a price exceeding their marginal cost.⁹⁵ These downstream firms, given the supra-competitive wholesale price they pay for the product, will add their own markup. The result is an even more supra-competitive price than that which would be charged by a vertically integrated firm. Vertical integration tends to reduce the price of the end product, since it eliminates the "double markup" or so-called "double marginalization." Once the supplier and a downstream firm are one entity, the supplier supplies the product to its downstream affiliate for a price equal to the supplier's marginal cost. Consequently, the price is marked up only once instead of twice.

The commitment paradox, however, shows that without vertical integration, the supplier may not be able to commit to charging a supra-competitive wholesale price. In the extreme case where secret concessions can be made, the supplier will charge downstream firms a price equal to the supplier's marginal cost.⁹⁶ In such a case there will be no "double markup" even without vertical integration, since the supplier will have no markup. Even when the wholesale price is not driven all the way down to the supplier's marginal cost,⁹⁷ the commitment paradox will cause the supplier's markup to be smaller than what conventional wisdom contemplated. Therefore, here too the "double markup" problem is less important than conventionally thought.

⁹⁴ See, e.g., *Town of Concord*, 915 F.2d at 24; *Byars v. Bluff City News Co.*, 609 F.2d 843, 861 (6th Cir. 1979); AREEDA & KAPLOW, *supra* note 84, at 490-91; Riordan & Salop, *supra* note 85, at 526 & n.37.

⁹⁵ See *supra* note 10.

⁹⁶ See *supra* Section I.E.

⁹⁷ See, for example, some of the cases discussed *supra* Section I.E.

A second commonly cited efficiency of vertical integration is the input substitution efficiency.⁹⁸ This efficiency occurs when downstream firms use an input supplied by a supplier with market power, together with other inputs, to produce a new product. When downstream firms can use varying quantities of the inputs to produce the downstream product, the optimal mix of inputs used should be determined by the marginal costs of producing these inputs. For example, it is alleged that when the supplier of input *A* possesses market power, it will charge a wholesale price exceeding the input's marginal cost of production. Therefore, under the assumption that the other inputs are supplied to the downstream firms for a price equal to the inputs' marginal costs of production, downstream firms will use an inefficiently small proportion of input *A* and an inefficiently large proportion of the other inputs. Vertical integration allegedly helps eliminate this inefficient distortion, because once the supplier and a downstream firm are one entity, the supplier supplies the input to its downstream affiliate for its marginal cost. The use of the input in the production of the end product is determined according to the input's marginal cost, as production efficiency requires.

As with the "elimination of double marginalization" efficiency, the "input substitution" efficiency is based on the premise that the supplier is able to charge a supra-competitive wholesale price for its product. However, the supplier may not be able to commit to charging such a wholesale price. In extreme cases, the supplier may be obliged to sell the product for its marginal cost despite its perceived "market power," and downstream firms will use the input in its efficient proportion (assuming other inputs are priced at their marginal cost of production). Even without vertical integration, there would be no inefficient input substitution. When the supplier is able to charge a wholesale price somewhat higher than the product's marginal cost, the commitment paradox ensures that the wholesale price will still be well below the supra-competitive wholesale price which conventional wisdom anticipates. Consequently, the often-cited "input substitution" efficiency of vertical integration, like the "double marginalization" efficiency, is less important than conventionally perceived.

As shown above, the commitment paradox disappears if downstream firms buying the supplier's product do not compete with one another due to price regulation, a downstream cartel, or vertical restraints eliminating downstream competition.⁹⁹ The double marginalization and input substitution efficiencies still are of less importance. When downstream firms do not compete with one another, the supplier and downstream firms generally would prefer to eliminate the supplier's markup by using two-part tariffs: The supplier will

⁹⁸ See, e.g., *Turner Broadcasting v. FCC*, 910 F. Supp. 734, 775 (D.D.C. 1995); BORK, *supra* note 82, at 229; Riordan & Salop, *supra* note 85, at 525.

⁹⁹ See *supra* Section I.B.

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charge its marginal cost per unit while charging downstream firms a fixed franchise fee to share their profits from sales.¹⁰⁰

In the absence of downstream competition, there will be no problems of double markup or input substitution, even without vertical integration. The fixed franchise fee will not adversely affect resale prices or the input mix, since fixed costs do not affect downstream firms' pricing or production decisions. If downstream firms buying the supplier's product do compete, the competition will dissipate overall profits and reduce the franchise fee downstream firms will be willing to pay. In order to maximize its profits when the downstream firms compete, the supplier generally will need to charge a wholesale price above its marginal cost.¹⁰¹ But then the commitment paradox will cause the supplier to charge a wholesale price well below its profit-maximizing wholesale price.

Therefore, both the double marginalization efficiency and the input substitution efficiency are generally much less important than previously thought. If downstream firms buying the supplier's product compete, the commitment paradox substantially lessens the importance of these efficiencies. Conversely, if downstream firms do not compete, these efficiencies generally become irrelevant because the supplier will want to eliminate its markup and share downstream profits via a fixed franchise fee.

C. Operation Through a Sole Outlet

The supplier can also avoid the commitment paradox by selling to only one downstream firm. Supplying only one downstream firm eliminates competition among downstream firms that buy the supplier's product and also eliminates the incentive to grant a concession to one downstream firm at the expense of another.¹⁰² By selling to only one downstream firm, the supplier can commit to charging its profit-maximizing (monopolistic) wholesale price or franchise fee,¹⁰³ and thus the commitment paradox disappears.¹⁰⁴ The same reasoning implies that selling through a sole outlet also solves the commitment paradox of an oligopolistic supplier with market power

¹⁰⁰ See TIROLE, *supra* note 8, at 175-76, 184, 187-89. The supplier and downstream firms will prefer to eliminate the double markup since the double markup inflates the resale price above the price that maximizes the supplier's and downstream firms' joint profits.

¹⁰¹ *Id.* at 187-89.

¹⁰² See *supra* Section I.B (stressing how competition among downstream firms is the driving force behind the supplier's commitment paradox).

¹⁰³ The supplier can establish a more complex payment schedule, such as a two-part tariff. When there is no downstream competition, the supplier sells each unit to its exclusive downstream firm for a price equal to the supplier's marginal cost. It then collects a fixed franchise fee from the downstream firm to extract all, or part, of the downstream firm's profits. With such a two-part tariff, the supplier and downstream firms can raise their joint profits while avoiding the problems of "double marginalization" and "input substitution" discussed *supra* Section II.B, notes 100-101 and accompanying text.

¹⁰⁴ See McAfee & Schwartz, *supra* note 9, at 223.

short of monopoly power.¹⁰⁵

To succeed in eliminating the commitment paradox, the supplier must be able to commit to sell exclusively to a single downstream firm. In principle, once the supplier proceeds to operate through a sole outlet, the supplier has an incentive to break the exclusivity and sell to an additional downstream firm at the expense of its “exclusive” outlet.¹⁰⁷ The second downstream firm will steal business from the existing one and pay the supplier a fixed payment as compensation for its encroachment upon the first downstream firm’s exclusivity. This incentive bears some resemblance to the incentive to grant concessions to *existing* downstream firms at the expense of their competitors, described in Section I.A above.

Accordingly, a contractual obligation to grant exclusivity to a downstream firm benefits the supplier, because it restores the supplier’s ability to extract the total profits from its market position. Without such a contractual obligation, the “exclusive” downstream firm might not trust the supplier to refrain from selling to additional downstream firms and thus might not agree to pay the high wholesale price or franchise fee that would maximize the supplier’s profits. Indeed, there should be more antitrust concern if the supplier is contractually bound to enforce a downstream firm’s exclusivity than if the supplier is not contractually bound to do so.¹⁰⁸ Without such a binding contract, the supplier has an incentive (analogous to the commitment paradox) to encroach upon the downstream firm’s exclusivity and sell to additional downstream firms. The supplier’s opportunistic behavior will tend to lower resale prices. A binding contract prevents the supplier from encroaching upon the downstream firms’ exclusivity, allowing resale prices to remain high.

Even if the supplier does not contractually commit to maintain the downstream firm’s exclusivity, operation through a sole outlet can still help the supplier solve its commitment paradox. Operation through a sole outlet (like designation of exclusive territories or imposition of a minimum resale price) helps the supplier develop a reputation for not making concessions. Alexander & Reiffen neglect this anticompetitive effect of sole outlets, minimum resale price maintenance, and exclusive territories.¹⁰⁹ These authors argue that the commitment paradox does not justify prohibition of sole outlets, minimum rpm, and exclusive territories, since the supplier would not enforce these

105 The existence of the commitment paradox and its effect on the strategic interaction among suppliers would then be similar to the case of vertical integration. *See supra* note 78.

107 *See* McAfee & Schwartz, *supra* note 9, at 223 (discussing suppliers’ difficulties in committing not to encroach on downstream firms’ exclusivity).

108 *See* Alexander & Reiffen, *supra* note 23, at 635-36, 640 (showing that antitrust concern should be greater when exclusivity can be “externally enforced” by the injured retailer, for example, or by obligating the supplier to enforce exclusivity). The same point applies to exclusive territories and minimum rpm arrangements, explored *infra* Section II.D.

109 Alexander & Reiffen, *supra* note 23, at 643.

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arrangements unless they involve efficiencies in distribution. However, they fail to recognize that these practices facilitate the development of a reputation for not making concessions.¹¹⁰

Legal commentary regarding exclusive dealerships and sole outlets has failed to observe the role of such practices in solving the supplier's commitment paradox. The proponents of the above-mentioned "one monopoly profit" claim apply it to the current context as well. According to their argument, a monopolistic supplier (or a supplier with market power short of a monopoly) can exploit its market power regardless of the number of downstream firms through which it operates, since it can always set a supra-competitive wholesale price that maximizes its profits. For example, Bork claims that "[w]hen a manufacturer wishes to impose resale price maintenance or vertical division of reseller markets, or any other restraint upon the rivalry of resellers, his motive cannot be the restriction of output."¹¹¹

This application of the "one monopoly profit" theory again relies on the incorrect premise that the supplier can exploit its market power even if it sells to several competing downstream firms. The "one monopoly profit" argument contradicts the point raised here: When selling to several competing downstream firms, the supplier may not be able to commit to charging a supra-competitive wholesale price. Eliminating downstream competition by operating through a single downstream firm might restore the supplier's ability to charge a supra-competitive wholesale price or a franchise fee that would maximize the supplier's profits.

In their analysis of the sole outlet arrangements under Section 1 of the Sherman Act,¹¹² courts have consistently shown hostility toward exclusive dealership agreements when the supplier possessed market power.¹¹³ The courts have implicitly assumed that the supplier's "market power" is exploitable with or without the sole outlet arrangement. Their fear is that operation through a sole outlet will add to the effects of the supplier's existing market power through the creation of a monopolistic downstream firm. Accordingly, the sole outlet arrangement would enlarge the "double markup": The supplier's markup would be accompanied by the sole distributor's monopolistic mark up, to the detriment of consumers. Such an increase in the double

110 *Id.* at 645. My discussion of minimum rpm and exclusive territories, *infra* Section II.D, will pursue this point in more detail.

111 BORK, *supra* note 82, at 289. Such arguments were also made with regard to the analogous case of a vertically integrated monopoly's refusal to deal with non-integrated downstream firms. See Charles R. Andres, *Refusals To Deal by Vertically Integrating Newspaper Monopolists: Paschall v. Kansas City Star Co.*, 11 WM. MITCHELL L. REV. 527, 550 & n.170 (1985) (applying the above-mentioned "one monopoly profit" hypothesis to allege that a refusal to deal with non-integrated downstream firms will not reduce competition); John Cirace, *An Economic Analysis of Antitrust Law's Natural Monopoly Cases*, 88 W. VA. L. REV. 677, 709 & n.197 (1986). See also AREEDA & KAPLOW, *supra* note 84, at 612-13, 637-38.

112 15 U.S.C. § 1 (2000).

113 See, e.g., *Packard Motor Car Co. v. Webster Motor Car Co.*, 243 F.2d 418 (D.C. Cir. 1957); PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS* 657 n.44 (4th ed. 1988).

markup, however, becomes less of a concern once we acknowledge that a supplier with market power and a sole outlet will maximize its profits by eliminating the double markup. As mentioned earlier,¹¹⁴ the supplier can do so through a two-part tariff: The supplier would charge the exclusive downstream firm a price per unit equal to the supplier's marginal cost, and the downstream firm's profits from sales would then be divided through a fixed franchise fee.

The anticompetitive effect of sole outlet arrangements identified here is different. It exists even when the supplier and its sole outlet eliminate the double markup via a two-part tariff. What the above court decisions fail to identify is that elimination of downstream competition will not add to the harm of the supplier's *already exploited* market power but will enable the supplier to exploit its market power more fully, which the commitment paradox previously prevented it from doing.

D. *Minimum Resale Price Maintenance and Exclusive Territories*

As previously emphasized, eliminating competition among downstream firms solves the commitment paradox. The above section dealt with elimination of downstream competition in the most extreme manner, namely operating through a single downstream firm. The current section will deal with two other devices the supplier can use to eliminate downstream competition—minimum rpm and exclusive territories.¹¹⁵

Minimum rpm refers to a resale price floor imposed on downstream firms that buy the supplier's product. With a successfully implemented minimum rpm arrangement, the supplier and a downstream firm lack a mutual incentive to negotiate a wholesale price concession.¹¹⁶ Even if a downstream firm receives a wholesale price concession, it cannot use it to steal business from its downstream competitors, since it will be unable to cut its resale price.¹¹⁷ Accordingly, it cannot offer the supplier a fixed payment that would make the wholesale price concession worthwhile to the supplier.¹¹⁸ If

114 See *supra* text accompanying note 100.

115 Exclusive territories generally are dealt with under Section 1 of the Sherman Act, 15 U.S.C. § 1 (2000), and are scrutinized under a rule of reason analysis. See *Continental T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36 (1977). Minimum rpm is also scrutinized under Section 1 of the Sherman Act but is subject to a per se prohibition. See *Dr. Miles Medical Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

116 O'Brien & Shaffer, *supra* note 9, at 306.

117 It is assumed that downstream firms charge a price that does not exceed the minimum retail price. If downstream firms charge higher prices, they could still steal business from each other by undercutting these prices, and the commitment paradox would still exist. Indeed, if the supplier wishes to avoid the commitment paradox through minimum rpm, the supplier will elect a minimum resale price high enough to induce downstream firms to charge a price not exceeding the minimum resale price. Alternatively, the supplier can dictate the resale price and not just a price floor.

118 The analysis applies both to a monopolistic supplier and to the case of an oligopolistic supplier discussed *supra* Section I.C and note 78.

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minimum rpm is successfully implemented, the supplier can restore its ability to charge a supra-competitive wholesale price or franchise fee¹¹⁹ that maximizes its profits.¹²⁰

Another way to eliminate downstream competition and restore the supplier's commitment power is to designate each downstream firm an exclusive territory or demand segment.¹²¹ Under such an arrangement, downstream firms do not compete with regard to the sale of the supplier's brand. Accordingly, as with minimum rpm, when exclusive territories are effectively implemented, the supplier and downstream firms have no mutual incentive to negotiate concessions.

As in the case of sole outlets, the supplier must be able to commit to adhering to the rpm or exclusive territories arrangements in order to restore its market power. In the absence of such a commitment, once minimum rpm or exclusive territories arrangements are in place, the supplier generally will have an incentive to deviate from them.¹²² For example, if a minimum rpm arrangement is made, the supplier might have an incentive to allow one downstream firm to undercut the price floor at the expense of other downstream firms in exchange for a fixed payment from the deviating downstream firm. Conversely, if an exclusive territories or exclusive market segments arrangement is in place, the supplier might have an incentive to add downstream firms to an existing downstream firm's exclusive territory.

The supplier will, of course, benefit from successfully committing to enforce the minimum rpm or exclusive territories arrangements (either contractually or through development of a reputation for enforcing such arrangements). It will help solve the commitment paradox and restore the supplier's market power. Therefore, as with the case of sole outlets, minimum rpm and exclusive territories arrangements are potentially more anticompetitive when the supplier is contractually bound to enforce them.¹²³ Empirically, however, minimum rpm, sole outlet, and exclusive territories arrangements usually do not contractually bind the supplier to enforce them.¹²⁴

From the preceding analysis, Alexander & Reiffen deduce that to prevent suppliers from using minimum rpm, exclusive territories, and sole outlet arrangements to solve the commitment paradox, courts need not *forbid* these practices. All courts need to do, so the argument goes, is refrain from making the supplier enforce these practices (pursuant,

119 As emphasized earlier, when downstream competition is eliminated, the supplier generally will prefer to charge downstream firms a price per unit equal to the supplier's marginal cost and share the downstream firms' profits from sales through fixed franchise fees. *See supra* notes 100-101 and accompanying text.

120 The price floor imposed by minimum rpm need not be industry-wide. Suppose there are multiple (although only a few) suppliers and that each supplier possesses market power (see *supra* Section I.C). Even in such a case, all a supplier needs in order to overcome its commitment paradox is to impose a price floor on downstream firms buying the supplier's brand.

121 *See* O'Brien & Shaffer, *supra* note 9, at 305.

122 *See* Alexander & Reiffen, *supra* note 23, at 634.

123 *Id.* at 635-36.

124 *Id.* at 636-42.

say, to a complaint from an injured downstream firm). As Alexander & Reiffen put it:

[Antitrust] laws are *not* required to keep bilateral minimum RPM and exclusive territory contracts from being used [to solve the commitment paradox]. Rather, a passive regime of nonintervention by the courts—e.g., denying retailer *A* the right to enforce price and/or territorial restrictions imposed by the manufacturer on retailer *B*—can be sufficient to prevent minimum RPM and exclusive territory contracts from being used to [solve the commitment paradox].¹²⁵

Alexander & Reiffen continue to argue that if the supplier voluntarily enforces these arrangements, it probably does so because the arrangements facilitate efficient distribution of the supplier's product, which is good for consumers.¹²⁶ What Alexander & Reiffen fail to address, however, is that even without a contractual commitment to enforcing minimum rpm, exclusive territories, and sole outlet arrangements, these practices can aid the supplier in developing a reputation for not making concessions. Without using these practices, it will be harder for the supplier to develop such a reputation. A wholesale price concession, in and of itself, usually is hard to detect, and at best, downstream firms detect it with a lag. As stated in Section I.D above, this hinders the supplier's ability to develop a reputation for not making concessions. On the other hand, deviation from a minimum rpm, exclusive territories, or sole outlet arrangement is very easy to detect quickly. Accordingly, the supplier may develop a reputation for enforcing these arrangements much more easily than for not making concessions without these arrangements. Once the supplier develops a reputation for enforcing these arrangements, downstream competition is eliminated, and the supplier will not be induced to grant concessions.

Even if the supplier enforces minimum rpm, exclusive territories, or sole outlet arrangements due to the distribution efficiencies they foster, such arrangements should not necessarily be legal *per se*. Their anticompetitive harm in helping to solve the commitment paradox still might outweigh their distribution efficiencies. Ironically, it is these arrangements' efficiencies in distribution that might cause them to solve the commitment paradox. Such efficiencies induce the supplier to enforce minimum rpm and exclusive territories, thereby enabling the supplier to commit credibly to not making concessions.

As with vertical integration and sole outlets, legal commentary and decision-making have failed to address this anticompetitive effect of minimum rpm and exclusive territories. A large body of the legal commentary suggests that minimum rpm and exclusive territories do

¹²⁵ *Id.* at 636.

¹²⁶ *Id.* at 645.

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not have anticompetitive effects. Such arguments are based on the above-mentioned “one monopoly profit” claim, leading commentators to presume that the supplier is able to charge a supra-competitive wholesale price that maximizes its profits regardless of the level of downstream competition. Thus, so the argument goes, suppression of downstream competition through the imposition of minimum rpm or exclusive territories would just harm the supplier, unless such restriction of downstream competition produces efficiencies in distribution that offset the harm to the supplier.

Marvel, for example, argues that “manufacturers will not voluntarily enforce cartels for their dealers”:

[A] manufacturer has no more interest in inefficient distribution than do consumers Higher mark ups [for retailers] mean that the net-of-margin demand curve faced by the manufacturer is lower than need be. Lower demand curves are less profitable. If retailer price competition is suppressed, the manufacturer must anticipate some benefit to offset the adverse effects of the higher dealer margins that result.¹²⁷

Other leading sources reach similar conclusions.¹²⁸

Marvel’s argument is based on his presumption that the supplier can commit to its profit-maximizing wholesale price, regardless of the level of downstream competition. The supplier, so the argument goes, can exploit its market power by setting its profit-maximizing wholesale price and allowing competition among downstream firms to lower downstream firms’ profit margins as much as possible. By elevating downstream firms’ markups, minimum rpm only harms the supplier (unless minimum rpm also produces offsetting efficiencies in distribution), since it lowers the demand for the supplier’s product more than is optimal for the supplier. Marvel’s argument does not take into account the possibility that the supplier may not be able to commit to charging its profit-maximizing wholesale price due to the commitment paradox and that minimum rpm (as well as exclusive territories) can solve the commitment paradox.

¹²⁷ Howard P. Marvel, *The Resale Price Maintenance Controversy: Beyond the Conventional Wisdom*, 63 ANTITRUST L.J. 59, 81-82 (1994). For a similar argument, see BORK, *supra* note 82, at 289, 290.

¹²⁸ See, e.g., AREEDA & KAPLOW, *supra* note 84, at 612-13 (“Ordinarily, a manufacturer will maximize its profits by selling wholesale at a price satisfactory to itself and by encouraging maximum competition among dealers in order that their profit margins might be as low as possible”); POSNER, *supra* note 82, at 147; Frank H. Easterbrook, *Vertical Arrangements and the Rule of Reason*, 53 ANTITRUST L.J. 135 (1984); Marvel, *supra* note 127, at 61; Richard A. Posner, *The Next Step in the Antitrust Treatment of Restricted Distribution—Per Se Legality*, 48 U. CHI. L. REV. 6 (1981); Lester G. Telser, *Why Should Manufacturers Want Fair Trade?*, 3 J.L. & ECON. 86 (1960). The same sort of reasoning is present in most of the economic literature. See, e.g., Katz, *supra* note 8, at 678; F.W. Taussig, *Price Maintenance*, 6 AM. ECON. REV. (PAPERS & PROCEEDINGS) 170 (1916).

E. *Maximum Resale Price Maintenance*

The supplier can also avoid its commitment paradox by imposing resale price *ceilings* on downstream firms (maximum rpm) while eliminating downstream profits from sales, as O'Brien & Shaffer¹²⁹ and Alexander & Reiffen show.¹³⁰ To do this, the supplier must keep wholesale prices sufficiently close to the resale price ceiling so as to allow downstream firms to recover their resale costs and leave them with zero profits from sales. As shown in Section I.A above, if downstream firms do not make profits from sales, the commitment paradox disappears.

As stressed earlier, however, it is highly unlikely that the supplier will wish to leave downstream firms with zero profits from sales. Furthermore, for the supplier to eliminate downstream firms' profits from sales, it must know downstream firms' cost structure, which in many cases is not feasible. This considerably weakens O'Brien & Shaffer and Alexander & Reiffen's reasoning. Maximum rpm arrangements that are *not* coupled with elimination of downstream profits cannot, in and of themselves, solve the commitment paradox. Once downstream firms make profits from sales, the commitment paradox arises: The supplier might not be able to commit to charging supra-competitive wholesale prices, and resale prices will drop well below the maximum resale price. O'Brien & Shaffer and Alexander & Reiffen's claim is relevant only in rare cases, where the evidence shows that downstream profits from sales were eliminated.

The economic and legal literature, however, fails to articulate a more subtle anticompetitive effect of maximum rpm. Even if the supplier does not *eliminate* downstream profits from sales, it might be able to *constrain* them. The supplier could impose a price ceiling, for example, and charge downstream firms relatively high royalties or wholesale prices that, given the resale price ceiling, will tend to reduce downstream profits from sales. Such behavior seems more realistic than total elimination of downstream profits. It does not require more than a rough estimation of downstream firms' cost structure, and it leaves downstream firms with some profits from sales, keeping their promotional incentives intact. Although the commitment paradox generally exists even for small downstream profits, the lower the downstream profits, the better the supplier's chance of developing a reputation for not making concessions. Constraining downstream firms' profits from sales (even without eliminating them) lowers the supplier's short-term profit from granting a concession, thereby facilitating the development of a reputation for not making concessions.¹³¹ The lower downstream profits from sales are, the lower are the profits that can be stolen through a concession granted to a

129 See O'Brien & Shaffer, *supra* note 9, at 305.

130 See Alexander & Reiffen, *supra* note 23, at 632.

131 See *supra* Section I.D.

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downstream firm, and the smaller is the supplier's potential gain from the concession.

Under the thirty-two-year-old *Albrecht v. Herald Co.*¹³² rule, maximum rpm traditionally has been considered a per se violation of Section 1 of the Sherman Act.¹³³ Recently, however, the U.S. Supreme Court in *State Oil Co. v. Khan* overruled the per se rule in *Albrecht* and held maximum rpm to be subject to a rule of reason analysis.¹³⁴

The anticompetitive effect of maximum rpm identified above, namely its use in solving the commitment paradox, does not necessarily contradict the ruling in *Khan*. The fear that maximum rpm might help suppliers develop a reputation for not making concessions does not justify a per se prohibition, since as Part I emphasized, the commitment paradox might not exist in certain industries or cases depending upon the industries' characteristics. Accordingly, a rule of reason approach is indeed appropriate. Still, the Supreme Court's reasoning shows that it was unaware of the anticompetitive effect identified here. In particular, the Court implied that maximum rpm tends to *reduce* resale prices. As the Court stated:

“Low prices,” we have explained, “benefit consumers regardless of how those prices are set, and so long as they are above predatory levels, they do not threaten competition.” [*Atlantic Richfield Co. v. USA Petroleum Co.*, 495 U.S. 328, 340 (1990).] Our interpretation of the Sherman Act also incorporates the notion that condemnation of practices resulting in lower prices to consumers is “especially costly” because “cutting prices in order to increase business often is the very essence of competition.” *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 (1986). So informed, we find it difficult to maintain that vertically-imposed maximum prices could harm consumers or competition to the extent necessary to justify their per se invalidation.¹³⁵

The Court cited several authorities, all of whom presume that maximum rpm is bound to reduce resale prices. For example, the Court quoted Judge Posner's ruling in the Seventh Circuit Court of Appeals' decision in the same case making the following point:

As for maximum resale price fixing, unless the supplier is a monopsonist he cannot squeeze his dealers' margins below a competitive level; the attempt to do so would just drive the dealers into the arms of a competing supplier. A supplier might, however, fix a maximum resale price in order to prevent his dealers from

132 390 U.S. 145 (1968).

133 15 U.S.C. § 1 (2000).

134 522 U.S. 3, 17 (1997).

135 *Id.* at 15.

exploiting a monopoly position.¹³⁶

The Supreme Court quoted Bork making a similar claim: “There could, of course, be no anticonsumer effect from [maximum rpm as considered in *Albrecht*], and one suspects that the [newspaper] has a legitimate interest in keeping subscriber prices down in order to increase circulation and maximize revenues from advertising.”¹³⁷ Indeed, maximum rpm *could* have the effect of reducing resale prices by trimming downstream firms’ mark ups. However, both the Supreme Court and the Court of Appeals in *Khan* overlooked the point made above—that maximum rpm might cause resale prices to *rise*. Both courts and the literature they rely upon presume that even without maximum rpm, the supplier can charge supra-competitive wholesale prices that reflect its market position. Our analysis, though, implies that maximum rpm can alleviate the commitment paradox, which is important for future rule of reason examinations of maximum rpm.

F. *Tying*

A tie-in is “a sale or lease of one product or service on the condition that the buyer take a second product or service [from the same supplier] as well”¹³⁸ and can help the supplier develop a reputation for not making concessions. The supplier can tie the sale of a product for which development of a reputation for not making concessions is easier to the sale of a product for which development of such a reputation is more difficult. That is, the tie-in enables the supplier to use “slack” reputation ability in connection to one product to develop a reputation in connection to another more problematic product.¹³⁹

Tie-ins are scrutinized mainly under Section 1 of the Sherman Act¹⁴⁰ and Section 3 of the Clayton Act.¹⁴¹ The economics and legal literature has put forward a multitude of explanations, both anticompetitive and efficiency-oriented, for why suppliers use tie-ins and what their effects are on welfare.¹⁴² The Microsoft case, in which a federal district court found that Microsoft unlawfully tied its Windows operating system to its Explorer browser, is a striking example of tying

136 *Id.* at 15-16 (quoting *Khan v. State Oil Co.*, 93 F.3d 1358, 1362 (7th Cir. 1996)).

137 *Id.* at 16 (quoting BORK, *supra* note 82, at 281-82).

138 HOVENKAMP, *supra* note 66, at 351.

139 Bernheim & Whinston, *supra* note 30, promoted a similar idea in the different context of cartels between competitors that compete in several markets.

140 15 U.S.C. § 1 (2000).

141 15 U.S.C. § 14 (2000) (“It shall be unlawful for any person . . . to . . . make a sale or contract for sale of goods . . . on the condition, agreement, or understanding that the . . . purchaser . . . shall not use or deal in the goods . . . of a competitor . . . of the . . . seller, where the effect . . . may be to substantially lessen competition or tend to create a monopoly in any line of commerce.”).

142 See, e.g., HOVENKAMP, *supra* note 66, at 366-81; Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515 (1985); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837 (1990).

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and its importance in antitrust policy.¹⁴³

This Article presents a new anticompetitive explanation for why many suppliers are interested in tie-ins or equivalent practices. As shown in Section I.D above, the supplier is interested in developing a reputation for not making concessions but cannot always succeed in doing so. Characteristics that hinder a supplier's ability to develop such a reputation might exist in connection to one product the supplier supplies but not in connection to another product.

For example, one of the supplier's products might involve low downstream profits from sales, while another might yield relatively high downstream profits from sales. As pointed out in Section I.D above, the lower the downstream profits from sales, the smaller the supplier's short-term profits from making concessions and the stronger its ability to develop a reputation for not making concessions. If, for instance, downstream firms make relatively high profits from selling modems and relatively low profits from selling PCs, a supplier that supplies both modems and PCs might not be able to develop a reputation with regard to modems but could easily do so with regard to PCs.

Suppose now that the supplier ties the sale of its PCs to the sale of its modems. The supplier might now be able to develop a reputation for not making concessions on the modems as well. Since under the tie-in retailers buy both modems and PCs from the supplier, if the supplier makes a concession on modems, retailers could then retaliate (e.g., refuse to pay more than the supplier's marginal costs) not only in connection with modems but also in connection with PCs. Since retaliation in connection with PCs would substantially harm the supplier, its deterrent effect might be enough to keep the supplier from making concessions for either PCs or modems.

The tie-in enables the supplier to use its "slack" reputation in the sale of PCs to help develop a reputation for not making concessions in the sale of modems. Now the supplier will be able to commit to charging a supra-competitive price for modems. Without the tie-in, retailers buying the supplier's modems might not have bought the supplier's PCs. The supplier's difficulty in developing a reputation for not granting concessions in connection with modems would have remained. Consequently, modems' wholesale and resale prices would be considerably lower with than without the tie-in.¹⁴⁴

143 See *United States v. Microsoft Corp.*, 97 F. Supp. 2d 59 (D.D.C. 2000); *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 41-56 (D.D.C. 2000); *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999). The court of appeals recently held that "the rule of reason, rather than per se analysis, should govern the legality of tying arrangements involving platform software products." *United States v. Microsoft Corp.*, 253 F.3d 34, 84 (D.C. Cir. 2001).

This Article suggests that an additional anticompetitive effect of tying, overlooked by the previous literature and case law, should be factored into such a rule of reason analysis even in arrangements involving platform software products, such as the one discussed in the Microsoft case.

144 To be sure, if concessions on modems are profitable enough, and retaliation with regard to PCs is lenient enough, the tie-in might have the opposite effect of inducing the supplier

To give another hypothetical, different products the supplier produces might face fluctuating demand. One product might experience a boom in demand in a certain season, while the other might face low demand in the same season. In a different season, the reverse could be the case. When demand for a product is high, the supplier's urge to make a concession is stronger than its urge to do so when demand is low, because during a boom in demand the supplier's short-term gain from making a concession is relatively high.¹⁴⁵ For instance, if the supplier sells only product *A* to certain retailers and only product *B* to others, it might be unable to develop a reputation for not making concessions during booms in demand for the product in question. However, if the supplier ties the sale of product *A* to the sale of product *B*, which faces booms in demand when product *A* faces declines in demand and vice versa, it might succeed in developing a reputation for not granting concessions with regard to both products. Retailers could retaliate by agreeing, for example, to pay no more than the supplier's marginal cost in future periods with regard to product *A* and product *B*. Therefore the supplier faces increased harm from granting a concession for product *A* when product *A* faces booms in demand. Similarly, such a tie-in can help the supplier develop a reputation for not granting concessions with regard to product *B* when product *B* faces booms in demand and product *A* faces declines in demand.¹⁴⁶

The preceding paragraphs imply that tying might be anticompetitive for reasons other than those discussed in the legal and economics literature or in the case law. One popular objection to tying results from the fear that a firm dominant in one market might use tying to gain dominance in another.¹⁴⁷ Our analysis implies that the supplier need not be dominant with regard to any of its products for tying to be anticompetitive. As shown in Section I.C above, even

to make concessions on PCs. The supplier knows that if it grants concessions on modems, retailers will retaliate in connection with PCs anyway. Hence, the supplier might as well make concessions on its PCs. However, if the tie-in's motivation is to alleviate the commitment paradox, the supplier will refrain from using it where it hinders its reputation with regard to PCs. Only if the tie-in is driven by other motivations which are so profit-enhancing that they are worth sacrificing the supplier's reputation with regard to PCs will this point be of policy importance. In such unlikely cases, the supplier will use the tie-in notwithstanding the collapse of its reputation with regard to PCs. Courts might be able to identify such cases by observing that: a) concessions on one of the products (modems in our example) are extremely profitable; b) retaliation with regard to the other product (PCs in our example) is relatively lenient; and c) the tie-in is driven by strong motivations other than solving the commitment paradox.

145 Julio J. Rotemberg & Garth Saloner, *A Supergame-Theoretic Model of Business Cycles and Price Wars During Booms*, 76 AM. ECON. REV. 390 (1986), make this point for the case of cartels among competitors. Bernheim & Whinston, *supra* note 30, at 8-9, apply the fluctuating demand case to their analysis of cartels among competitors that compete in several markets.

146 Fluctuations in demand for the supplier's tied products need not have a perfectly negative correlation for the tie-in to help the supplier develop a reputation. It suffices if fluctuations in demand for the products are not perfectly correlated. Bernheim & Whinston, *supra* note 30, at 9-10, make this point with regard to the case of cartels among competitors that compete in several markets.

147 See, e.g., Whinston, *supra* note 142.

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suppliers that compete with other suppliers and are not dominant in their markets might face the commitment paradox, as long as they are conventionally considered to possess some market power. Moreover, our analysis suggests that tying might be anticompetitive even if there is no fear that tying will exclude competing suppliers from the tied product's market.¹⁴⁸

Thus both the economics and legal literature as well as the case law fail to identify this anticompetitive effect of tying. The usual presumption is that the supplier can charge a supra-competitive price that maximizes its profits either with or without tying. Here too the above-mentioned "one monopoly profit" claim has been advanced abundantly, causing commentators to promote a lenient antitrust approach to tying.¹⁴⁹ For example, Posner states that:

[A fatal] weakness of the leverage theory is its inability to explain *why* a firm with a monopoly of one product would want to monopolize complementary products as well. . . . If the price of the tied product is higher than the purchaser would have had to pay in the open market, the difference will represent an increase in the price of the final product or service to him, and he will demand less . . . of the tying product.¹⁵⁰

Similarly, Blair & Finci conclude that "[g]enerally, the purpose [of tying] is not to monopolize or control another market. Instead, the purpose is to use whatever market power currently exists more effectively. This, of course, is sensible because there is only one monopoly profit to be extracted."¹⁵¹

In contrast, this Article reveals how tying can alleviate the commitment paradox, thereby increasing resale prices in one of the tied-in products. Without tying, the supplier might have been unable to develop a reputation for not making concessions in connection with one of its products. The commitment paradox might have dissipated the supplier's market power with regard to that product, causing its resale prices to be lower.

148 Indeed, in order to solve the commitment paradox, the tie-in need not forbid or deter downstream firms from purchasing competing products.

149 Courts have been reluctant to accept the "one monopoly profit" theory in connection with tying, unlike vertical integration and vertical restraints. This stems from their fear that a firm with market power in the "tying" product might be able and willing to exclude its competitors in the "tied" product. As Kaplow, *supra* note 142, and Whinston, *supra* note 142, show, economics and game theoretic models support this fear in certain circumstances. The preceding paragraphs suggest that courts should fear tying for an additional reason—tying aids the supplier in solving its commitment paradox—even when there is no threat of exclusion in the tied product's market.

150 POSNER, *supra* note 82, at 173.

151 Roger D. Blair & Jeffrey Finci, *The Individual Coercion Doctrine and Tying Arrangements: An Economic Analysis*, 10 FLA. ST. U. L. REV. 531, 554 (1983). See also Charles F. Rule, *Patent-Antitrust Policy: Looking Back and Ahead*, 59 ANTITRUST L.J. 729, 731 (1991) ("[T]here is only a single monopoly price for any given product, and you can either sell that product alone or you can combine it with as many complements as you want, but you are only going to be able to earn that one monopoly profit.").

G. Most-Favored-Customer Clauses

The supplier can use “most-favored-customer clauses” to help alleviate the commitment paradox. Most-favored-customer clauses provide that if a supplier grants a concession to one downstream firm, it must do so for all downstream firms. Such clauses are widely used and have raised the interest of scholars in a variety of contexts. For example, some have argued that most-favored-customer clauses might facilitate cartels or supra-competitive pricing among competing suppliers.¹⁵² Our focus, though, is on a different anticompetitive effect of most-favored-customer clauses. These clauses can be used to solve the commitment paradox, thereby restoring the supplier’s market power. Assuming a concession is observable to downstream firms and can be proven in court, a supplier constrained by a most-favored-customer clause will not have an incentive to grant wholesale price concessions in the first place. Were the supplier to grant a concession, the downstream firm receiving it would be unable to steal business away from competing downstream firms, since they too will have received similar concessions. Therefore, a downstream firm will be unwilling to pay the supplier a fixed payment that would make the concession worthwhile to the supplier. The supplier will be deterred from granting a concession to only one downstream firm, since the other downstream firms would sue the supplier for not obeying the most-favored-customer clause.

McAfee & Schwartz claim that most-favored-customer clauses are not always effective in solving the commitment paradox.¹⁵³ In their formal model, downstream firms pay the supplier a fixed franchise fee and a wholesale price per unit. If one downstream firm receives a wholesale price concession, it pays the supplier a higher franchise fee than it expected to pay before the concession. In McAfee & Schwartz’s framework, once a downstream firm receives a wholesale price concession (and pays a higher fixed fee), other downstream firms care more about their fixed fee and care less about the wholesale price they pay per unit.¹⁵⁴ Thus, they might not exercise their option under the most-favored-customer clause to receive the same contract (i.e., a lower wholesale price and a higher fixed fee) as the downstream firm that received the concession. Accordingly, McAfee & Schwartz argue that the most-favored-customer clause will not be effective, since injured downstream firms will not take advantage of it.¹⁵⁵ McAfee &

152 See, e.g., TIROLE, *supra* note 8, at 330-32; Jonathan B. Baker, *Vertical Restraints with Horizontal Consequences: Competitive Effects of “Most-Favored-Customer” Clauses*, 64 ANTITRUST L.J. 517 (1996); Thomas E. Cooper, *Most-Favored-Customer Pricing and Tacit Collusion*, 17 RAND J. ECON. 377 (1986); Aaron S. Edlin, *Do Guaranteed-Low-Price Policies Guarantee High Prices, and Can Antitrust Rise to the Challenge?*, 111 HARV. L. REV. 528, 555 (1997).

153 McAfee & Schwartz, *supra* note 9, at 215-18.

154 *Id.* at 217.

155 *Id.* at 217-18.

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Schwartz's results, however, are true only if the particular most-favored-customer clause promises the same *combination* of wholesale price and franchise fee to all downstream firms. The most-favored-customer clause could provide, for instance, that if one downstream firm receives a wholesale price concession, other downstream firms receive their competitor's reduced wholesale price *without* adjusting the franchise fee upward. This would remove downstream firms' possible reluctance to exercise their option, thereby restoring the clause's effectiveness in solving the commitment paradox.¹⁵⁶

For most-favored-customer clauses to be effective, however, competing downstream firms must be able to observe concessions to each downstream firm and be able to prove the existence of these concessions in court. As mentioned above, in many cases a concession to a downstream firm is not observable.¹⁵⁷ Even if downstream firms can deduce that a concession has been granted to their competitor, in many cases proving so in court will be difficult.

Nevertheless, several devices could plausibly assist downstream firms in observing the supplier's price concessions to other downstream firms. The supplier may agree to have an independent accounting firm audit its books and invoices, either regularly or according to a random draw.¹⁵⁸ The results would be made accessible to downstream firms at will. The supplier may want to implement such a practice because it can enable the supplier to commit to a supra-competitive wholesale price. Our analysis implies that such practices might be anticompetitive, since they help solve the supplier's commitment paradox. Accordingly, courts and agencies should be able to scrutinize contracts that make wholesale price concessions observable to downstream firms and provable in court.¹⁵⁹ Section 1 of the Sherman Act¹⁶⁰ can serve as a statutory tool for scrutinizing most-favored-customer clauses and agreements that make the supplier's concessions more transparent to downstream firms. Alternatively, the Federal Trade Commission may be able to scrutinize such contracts under Section 5 of the Federal Trade Commission Act, which condemns "unfair methods of competition."¹⁶¹

¹⁵⁶ Most-favored-customer clauses are generally more effective in solving the commitment paradox than the statutory ban on secondary-line price discrimination, analyzed *supra* Section II.A. A most-favored-customer clause can be defined broadly, capturing any wholesale price differential, while the statutory ban is subject to certain hurdles the plaintiff must overcome, such as proof of competitive injury. *See generally* HOVENKAMP, *supra* note 66, at 523-25.

¹⁵⁷ *See supra* Section I.D.

¹⁵⁸ As stated in the Introduction, *supra* note 31, General Electric adopted such a practice, coupled with a most-favored-customer clause, in 1963.

¹⁵⁹ Such devices can alleviate the commitment paradox even absent most-favored-customer clauses. By making concessions immediately observable, they improve the supplier's ability to develop a reputation for not making concessions. *See supra* Section I.D.

¹⁶⁰ 15 U.S.C. § 1 (2000).

¹⁶¹ 15 U.S.C. § 45(a) (2000). The Court of Appeals for the Second Circuit in *E.I. Du Pont De Nemours & Co. v. FTC*, 729 F.2d 128 (2d Cir. 1984), however, did not hold that most-favored-customer clauses violate Section 5 of the Federal Trade Commission Act, despite the

H. *The Commitment Paradox as a "Probability Result"*

Some might argue that, since the supplier's commitment paradox is a "probability result," we should exercise caution before using the commitment paradox as a basis for making policy decisions.¹⁶² One could base such an argument on the claim, for example, that the commitment paradox depends upon the beliefs downstream firms hold regarding the wholesale prices paid by their competitors.¹⁶³ Moreover, one could claim that the alleged anticompetitive effect of vertical integration, tying, and vertical restraints is probabilistic because the supplier, in certain cases, could develop a reputation for not making concessions without using vertical integration, tying, or vertical restraints.¹⁶⁴

But such an argument should not be taken too far. Historically, antitrust law and policy has not hesitated to show hostility toward certain practices, even though the anticompetitive effects of these practices are uncertain and probabilistic. A striking example is the antitrust treatment of horizontal mergers. To condemn a horizontal merger through Section 7 of the Clayton Act,¹⁶⁵ the antitrust merger provision, a plaintiff need only show probable anticompetitive effects.¹⁶⁶ Keeping this well-known doctrine in mind, the probabilistic nature of the commitment paradox becomes less troubling.

In particular, if the industry in which a horizontal merger occurs is concentrated (e.g., it consists of only a few large firms), the legal rule tends to condemn the merger as anticompetitive.¹⁶⁷ The economic reasoning behind this legal rule rests mainly on two expected anticompetitive effects of horizontal mergers in concentrated industries.¹⁶⁸ The first is the increased probability of tacit collusion among the firms remaining in the industry after the merger. The term "tacit collusion" refers to a situation in which firms charge a cartel-like

Federal Trade Commission's claim that such clauses might facilitate cartels.

162 For criticism of this nature, although not in the context of the commitment paradox, see Michael W. Klass & Michael A. Salinger, *Do New Theories of Vertical Foreclosure Provide Sound Guidance for Consent Agreements in Vertical Merger Cases?*, 40 ANTITRUST BULL. 667 (1995).

163 See *supra* note 12.

164 See *supra* Section I.D.

165 15 U.S.C. § 18 (2000) (prohibiting acquisitions of "the whole or any part of the stock" or "the whole or any part of the assets" of another firm where "the effect of such acquisition may be substantially to lessen competition . . .").

166 See *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 577 (1967) ("[Section 7 of the Clayton Act] can deal only with probabilities, not with certainties. . . . And there is certainly no requirement that the anticompetitive power manifest itself in anticompetitive action before § 7 can be called into play. If the enforcement of § 7 turned on the existence of actual anticompetitive practices, the congressional policy of thwarting such practices in their incipiency would be frustrated."). See also *Brown Shoe Co. v. United States*, 370 U.S. 294, 323, 343, 346 (1962); *United States v. E.I. Du Pont De Nemours & Co.*, 353 U.S. 586, 589 (1957); *Ash Grove Cement Co. v. FTC*, 577 F.2d 1368, 1378-79 (9th Cir. 1978); AREEDA & KAPLOW, *supra* note 84, at 802.

167 See cases and source cited *supra* note 166; U.S. Department of Justice & Federal Trade Commission, *Horizontal Merger Guidelines*, 57 Fed. Reg. 41,552 (Sept. 10, 1992).

168 U.S. Department of Justice & Federal Trade Commission, *supra* note 167.

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price even without communicating, because each firm fears that its price-cut will trigger a price war that will harm the price-cutting firm in the long run. Second, courts and agencies may fear that greater concentration in the post-merger market will allow firms to exercise more market power and to charge an even higher supra-competitive price than before the merger.¹⁶⁹ This may occur even without “tacit collusion” in the industry. Conventional industrial organization analysis expects firms to charge prices even higher above their marginal costs after a horizontal merger that reduces the number of firms in the market.¹⁷⁰

However, at least the former of these feared effects of horizontal mergers is probabilistic in nature. The possibility of tacit collusion, even with very few firms in the market, is probabilistic for two main reasons. First, even after the merger, tacit collusion may not be sustainable in the industry, because firms’ urge to cut the price below the collusive price might be too great.¹⁷¹ Second, even when tacit collusion is sustainable, formal models predict that the industry’s equilibrium price may still be competitive.¹⁷² Nevertheless, courts and agencies seldom hesitate to condemn or attack a merger based on this probabilistic fear, even in cases where the second feared effect of horizontal mergers—increased market power—is insignificant.¹⁷³

Analogously, even though the commitment paradox focused upon here is probabilistic, we can still draw policy implications from it. Along with other theories of vertical integration and vertical restraints, it should be used to evaluate the probable anticompetitive effect of these practices.

Conclusion

The supplier’s commitment paradox enhances consumer welfare and overall welfare at the expense of suppliers, since it erodes

¹⁶⁹ See *supra* note 46. [AU: Is this cross-reference correct?]

¹⁷⁰ See TIROLE, *supra* note 8, at 283 (showing how when there is competition between firms selling differentiated products, the smaller the number of firms, the higher the price).

¹⁷¹ See *id.* at 245-47. Moreover, it would be extremely difficult for an antitrust court or agency to distinguish between an oligopoly in which tacit collusion is sustainable and an oligopoly in which it is not. Among other characteristics, such a distinction requires that the court or agency know how important future earnings are to each firm (so as to deter the firm from triggering a price war), what the gains from price-cutting would be, and what the price-cutters’ expected losses would be from a price war. See *id.* at 272-73 (showing, in a formal model, how tacit collusion is sustainable only under conditions requiring information about the above parameters).

¹⁷² Only if we continue to assume that firms somehow coordinate a supra-competitive price can we infer that oligopolistic “tacit collusion” is indeed anticompetitive. See *id.* at 245-47, 253. Such coordination, however, may be infeasible, since explicit contact regarding a collusive price is subject to antitrust prosecution, making tacit coordination difficult. For cases in which such coordination problems are especially acute, see *id.* at 250-51.

¹⁷³ The fear of increased market power would not be significant in industries where products are homogenous (i.e., different firms’ products do not differ from one another in the eyes of consumers), and there are no capacity constraints. In such industries, firms usually do not possess market power, no matter how concentrated the industry is. See, e.g., *id.* at 209-24.

suppliers' ability to earn supra-competitive profits. Unfortunately, several factors aid suppliers in their inevitable attempts to regain market power. Congress unintentionally created one such form of assistance with the statutory prohibition of secondary-line price discrimination. Still, buyer liability mitigates the effects of this statutory prohibition and thus fuels suppliers' urge to make concessions. In vertical integration and vertical restraints, suppliers have found additional measures that help solve their commitment paradox. Suppliers can overcome the commitment paradox and restore their market power through integration with a downstream firm, minimum resale price maintenance, exclusive distribution, exclusive territories, maximum resale price maintenance, tying, and most-favored-customer clauses. The commitment paradox, therefore, exposes an anticompetitive effect that these practices have and that legal scholars, courts, and antitrust agencies should consider.

Appendix

O'Brien & Shaffer's¹⁷⁴ formal result can be illustrated as follows. When the supplier and a retailer (say, retailer *B*) negotiate the wholesale price, they will maximize their joint profits, which can be written as follows:

$$\begin{aligned} & \text{Supplier's and retailer } B\text{'s joint profits} = \\ & (\text{supplier's, retailer } A\text{'s, and retailer } B\text{'s joint profits}) - (\text{retailer } A\text{'s} \\ & \text{profits}) \end{aligned}$$

To find the wholesale price that maximizes the supplier's and retailer *B*'s joint profits, we need to calculate the derivative of these joint profits with respect to the wholesale price *B* pays. This derivative can be written as:

$$\begin{aligned} & \text{The derivative of the supplier's and retailer } B\text{'s joint profits} = \\ & (\text{the derivative of the supplier's, retailer } A\text{'s and retailer } B\text{'s joint} \\ & \text{profits}) - (\text{the derivative of retailer } A\text{'s profits}) \end{aligned}$$

We shall look at the value of this derivative when *B* pays the monopoly wholesale price. If the value is negative, we know that the supplier and retailer *B* will not choose the monopoly wholesale price but rather a smaller wholesale price. When the derivative with respect to the wholesale price is negative, joint profits rise as the wholesale price diminishes. That is, a wholesale price concession would raise the supplier's and retailer *B*'s joint profits. Indeed, under quite general assumptions, the derivative is negative. At the monopoly wholesale price, the derivative of the term:

174 O'Brien & Shaffer, *supra* note 9.

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(supplier's, retailer A's and retailer B's joint profits)

is zero. In industrial organization analysis, the “monopoly” wholesale price—which maximizes the supplier’s profits from sales—is the wholesale price which maximizes the supplier’s and both retailers’ joint profits.¹⁷⁵ This is because the supplier can share the retailers’ expected profits through franchise fees that retailers pay the supplier. Accordingly, the derivative of this expression with respect to the wholesale price at the wholesale price that maximizes the expression (“the monopoly wholesale price”) is, by definition of the maximum, zero. It suffices to show that the derivative of retailer A’s profits with respect to the wholesale price that retailer B pays is positive, since a negative sign precedes the derivative. This is easily shown. Retailer A’s profits are always a positive function of the wholesale price retailer B has to pay, and hence their derivative is positive unless retailer A makes zero profits, in which case his profits are not affected by the wholesale price retailer B has to pay. Accordingly, the supplier will not charge retailer B the monopoly wholesale price, but instead they will negotiate a concession.

Put in algebraic terms, denote the supplier’s profit as π_s , retailer A’s profit as π_A , retailer B’s profit as π_B and the wholesale price retailer B is charged P_B . Since at the monopoly wholesale price

$$\frac{\partial(\pi_s + \pi_A + \pi_B)}{\partial(p_B)} = 0, \quad \text{and} \quad \text{since}$$

$$\frac{\partial(\pi_s + \pi_B)}{\partial(p_B)} = \frac{\partial(\pi_s + \pi_A + \pi_B - \pi_A)}{\partial(p_B)} = \frac{\partial(\pi_s + \pi_A + \pi_B)}{\partial(p_B)} - \frac{\partial(\pi_A)}{\partial(p_B)}, \text{ and given that}$$

$$\frac{\partial(\pi_A)}{\partial(p_B)} > 0, \text{ it follows that at the monopoly wholesale price}$$

$$\frac{\partial(\pi_s + \pi_B)}{\partial(p_B)} < 0, \text{ meaning that the supplier and retailer B would want to}$$

negotiate a concession.

¹⁷⁵ See, e.g., *id.* at 302; G.F. Mathewson & R.A. Winter, *An Economic Theory of Vertical Restraints*, 15 RAND J. ECON. 27 (1984).

Furthermore, O'Brien & Shaffer show how for every wholesale price above the supplier's marginal cost, the supplier would have a similar incentive to negotiate a small wholesale price concession. To illustrate, let us portray O'Brien & Shaffer's formal model in more detail for the case of a monopolistic supplier selling to two retailers who compete over end consumers. Consider a two-stage game. In the first stage, the supplier and each retailer agree on a supply contract. In the second stage, retailers, who are differentiated from one another, engage in price competition. Denote p_i as retailer i 's retail price, q_i as the quantity sold by retailer i , and T_i as retailer i 's total transfer to the supplier (where $i = 1,2$). T_i is a function of q_i (that is, retailer i 's payment to the supplier is a function of the retailer's actual sales). Consumers' demand for retailer i 's sales is a negative and differentiable function of p_i . The supplier's costs, $C(q_1+q_2)$, are differentiable, increasing, and convex. Retailers' costs (other than their transfer to the supplier) are assumed, without loss of generality,¹⁷⁶ to

¹⁷⁶ The fact that retailers have equal costs does not harm the generality of the analysis, since retailers are possibly asymmetrically differentiated. Thus, for example, one retailer might be

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be zero. Each retailer i maximizes its profits:

$$\max_p p_i q_i - T_i$$

The first order condition is:

$$q_i + (p_i - T'_i) \frac{\partial q_i}{\partial p_i} = 0 \quad (i=1,2) \quad (1)$$

When selecting T_i the supplier and each retailer will maximize their joint profits:

$$\text{Max}_{p_i, p_j, T_j} p_i q_i + T_j - C(q_1 + q_2) \quad (i \neq j, i, j=1,2).^{177}$$

Solving the first order conditions and substituting equation (1) gives:

$$\frac{\partial q_1}{\partial p_1} (T_1' - C') + \frac{\partial q_2}{\partial p_1} (T_2' - C') = 0 \quad (\text{for the supplier and retailer 1}) \quad (2)$$

and

$$\frac{\partial q_1}{\partial p_2} (T_1' - C') + \frac{\partial q_2}{\partial p_2} (T_2' - C') = 0 \quad (\text{for the supplier and retailer 2}). \quad (3)$$

Adding equation (2) to equation (3) results in:

$$\left(\frac{\partial q_2}{\partial p_1} + \frac{\partial q_2}{\partial p_2} \right) (T_2' - C') + \left(\frac{\partial q_1}{\partial p_2} + \frac{\partial q_1}{\partial p_1} \right) (T_1' - C') = 0. \quad (4)$$

$\frac{\partial q_2}{\partial p_1} + \frac{\partial q_2}{\partial p_2}$ and $\frac{\partial q_1}{\partial p_2} + \frac{\partial q_1}{\partial p_1}$ are negative under the conventional

assumption that demand for a retailer's product is more sensitive to its

more profitable than the other due to its ability to charge a higher retail price.

¹⁷⁷ For simplicity, maximization is portrayed with regard to the retail price. This does not harm the generality of the analysis, since for every wholesale price negotiated with a retailer, there is an accompanying retail price the retailer will correspondingly charge.

own price than to a rival retailer's price. Furthermore, $T_2' - C'$ and $T_1' - C'$ are not negative, since otherwise the supplier would make negative marginal profits from selling to a retailer. Therefore,

according to (4) it must be true that:

$T_2' = C'$ and $T_1' = C'$. That is, retailers' marginal transfer to the supplier equals the supplier's marginal cost.