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Publication Date

1996-04-27

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THE NONEQUIVALENCE OF VERTICAL MERGER
AND EXCLUSIVE DEALING*

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April 27, 1996

*This paper was presented at the Western Economic Association Meetings in San Diego, July 6, 1995. Thanks are due to the participants at that meeting, especially Andrew Dick, and to William S. Comanor for helpful comments and criticisms. Thanks are also due to the Academic Senate of the University of California, Santa Barbara, for financial support.

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Abstract

The economic and legal view of vertical integration has varied over time. But, a constant source of concern is the fear that the integrated firm will foreclose competitors from intermediate markets. At the same time, most commentators have considered the economics of vertical contracts, especially exclusive dealing, to be essentially identical to vertical merger. Using the simple model of Comanor and Frech (1985), I show that vertical mergers and exclusive dealing contracts are not behaviorally equivalent. In particular, vertical mergers will not lead to foreclosure of rivals for anticompetitive reasons, while ordinary exclusive dealing contracts will lead to such anticompetitive foreclosure. Vertical mergers avoid certain externalities that exclusive dealing contracts create. In this model, vertical mergers can only cause anticompetitive problems through their horizontal aspects, by creating a monopoly of distributors. Of course, merger can always be mimicked by a complex enough contract between nominally independent parties. In this model, the more contract that mimic the merger requires two parties to agree on the price of a third party's products and is particularly subject to being undermined by price-cutting. Thus, it is likely to be uncommon.

Key Words: Vertical; Foreclosure; Contracts; Mergers; Restrictions

JEL Classifications: L22; L42; L14; K21; D43

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I. Introduction

A. Antitrust Policy and Economic Analysis

The issue of vertical relationships has long been problematical in antitrust policy and in related economic analysis. Until the early 1980s, the antitrust enforcement authorities and courts had been quite hostile to vertical coordination, either by complex, nonstandard contract or by vertical merger. Vertical restraints were viewed mainly as devices to foreclose markets to competitors. A now classic summary of the enforcement agencies' attitude was given by Donald Turner, then head of the Antitrust Division of the U.S. Department of Justice, in 1968 when he said "I approach customer and territorial restrictions not hospitably in the common law tradition, but inhospitably in the tradition of antitrust," (Williamson 1985: 19). Federal official blocked numerous vertical mergers in this earlier period (Fisher and Sciacca 1984: 3).

In the past, the courts have also taken it as obvious that vertical coordination would result in foreclosure, preventing other manufacturers from selling to the merged distributor. For example, in Brown Shoe, the court states baldly and as a general principle that "the primary vice of

a vertical merger or other arrangement tying a customer to a supplier is that (of) foreclosing the competitors of either party from a segment of the market otherwise open to them." (1962, p. 324)

Policy was following the prevailing view among economists that vertical restraints could only be used to create or exploit market power. Outside of a few apparently technologically driven cases (e.g. the integration of steel production with the hot rolling of sheet steel), vertical coordination was viewed as having no socially redeeming functions.

In the 1970s, economists began to stress and examine benign, efficiency-enhancing, rationales for vertical coordination (Williamson 1971; Klein, Crawford and Alchian 1978; Williamson 1979; Klein 1988). The result, with some lag, was a shift in legal opinion to be more favorable to vertical contracts and mergers (Fisher and Sciacca 1984: 3; Blair and Kaserman 1983: 5). Indeed, Richard Posner (1981) went so far as to advocate that vertical controls and mergers be made per se legal. Howard Marvel made the same argument for a particular class of vertical controls: exclusive dealing (1982: 25). The rapid shift towards a more favorable view of vertical controls led, in turn, to its own reaction.

B. Recent Economic Literature

In the mid 1980s, a new literature appeared, showing that vertical contracts and mergers could, in certain situations, be harmful to competition and to consumer welfare. The new literature showed how complete (ownership) or partial (contractual) vertical integration could raise costs for existing, non-integrated rivals or make entry more difficult for potential rivals.

Comanor and Frech (1985; 1987), constructed a simple model of vertical control through exclusive dealing contracts. Employing an asymmetric model, focusing on entry, they showed that exclusive dealing contracts between a dominant manufacturer and downstream distributors could foreclose the market to efficient entry, raise prices to consumers and harm economic welfare. Socially harmful results are possible, but not necessary, even when exclusive dealing is the equilibrium outcome (Mathewson and Winter 1987; Comanor and Frech 1987). Marius Schwartz (1987) criticized the analysis on the grounds that the model was not subgame perfect. Comanor and Frech (1987) agreed, but argued that subgame perfection is often a poor assumption in modeling vertical restraints (and many other industrial organization problems) and that subgame perfection is not generally assumed in the literature. Interestingly, Reinhard Selten, who originated the idea of subgame perfection and applied it to industrial organization in the classic article on the Chain Store Paradox, believes that it is behaviorally unacceptable (1990: 651).

Philippe Aghion and Patrick Bolton (1987) formulated a model, again asymmetric, with an established, incumbent seller. In some circumstances, he can induce downstream buyers to sign exclusive contracts that deter some, though not all, efficient entry. In their rather complex model, the incumbent and the buyers appropriate some of the surplus from the superior entrant. Buyers must pay the incumbent a predetermined penalty fee (called liquidated damages in the paper) if they break the contract and deal with the entrant.¹ The incumbent also commits to a price. If the penalty is set optimally, the incumbent gains more than enough from the penalty payment to offset his losses from the entry. Buyers, in reselling, engage in Bertrand competition. Absent the contract, they make zero profits with or without entry. Therefore, it only takes a small bribe for them to agree to the exclusive contract.

Michael Salinger (1988) harks back to earlier and simpler ideas of foreclosure making the market less efficient for non-integrated competitors.² He sets up a symmetric successive Cournot oligopoly problem. A vertical merger eliminates the double marginalization problem for the

¹ The use of the term "liquidated damages" is no accident. The courts are sometimes reluctant to enforce penalty clauses. In those cases where they do enforce penalties, the courts typically use the term liquidated damages.

² See Jones (1977) for an example of the concern with integration rendering intermediate goods market less competitive in the oil industry in the 1970s.

merged firm, reducing its marginal cost and leading it to expand output. However, under some circumstances, the integrated firm withdraws from selling in the open market, foreclosing downstream competitors from purchasing its intermediate good. If so, the merger reduces the number of sellers at the upstream level, raising costs to the non-integrated, downstream buyers. The net result is indeterminate: in some situations, price to consumers falls because eliminating the double marginalization dominates, while in some situations, price to consumers rises because the reduction in competition in the upstream industry dominates.

Janusz Ordover, Garth Saloner and Steven Salop (1990) use a variant of Salinger's approach to argue that anticompetitive and socially harmful foreclosure can be an equilibrium. Their model is more special; one of symmetric successive duopoly. They avoid some of Salinger's indeterminacy by assuming that the upstream firms, which produce identical outputs, are in Bertrand competition, therefore double marginalization does not occur in the unintegrated original position. This assumption makes it more likely for integration to harm competition, since upstream competition, even with only two firms, already equates price to marginal cost. Their model requires that the integrated firm be able to commit not to supply the unintegrated downstream firm. They have been criticized by Oliver Hart and Jean Tirole (1990: 205, 257) and David

Reiffen (1992: 694) for their assumptions on commitments. Neither Ordoover, Saloner and Salop's nor Salinger's models are robust to small changes in the strategy space (e.g. Cournot versus Bertrand competition).

Nonetheless, Ordoover, Saloner and Salop do demonstrate that it is more profitable, at least for small increases in the price of the input, for the unintegrated firms to remain unintegrated. If they integrate, the status quo is restored, increasing competition. If the unintegrated competitors are not disadvantaged too much by the partially integrated equilibrium, it is privately superior, even to the initially symmetric unintegrated firms. The unintegrated firms also benefit from the integration and harm to competition. Far from being victims, they automatically gain.

Oliver Hart and Jean Tirole (1990) present a complex major modeling effort focused on vertical merger, that is similar in many ways to the work of Ordoover, Saloner and Salop. However, they assume away the motivation to avoid double marginalization a different way--by assuming that perfect two-part tariffs are allowed. They restrict the strategy space by not allowing any commitments on the part of firms. They work through many variants of their model, assuming different types of competition at the two levels and different types of bargaining between potential merger partners. The result is that vertical merger can lead to

foreclosure that harms consumer welfare. They use their model to interpret three important antitrust cases.

Eric Rasmusen, Mark Ramseyer and John Wiley (1991) present a relatively simple model of "naked exclusion," by exclusive dealing contract. The essential point is similar to that of Aghion and Bolton (1987). If the downstream level is competitive, firms at that level make zero profits, regardless of the price of the intermediate good. Thus, an incumbent monopoly need only offer a very small bribe to induce the downstream firms to agree to exclusive dealing, thus eliminating efficient entry and maintaining supracompetitive intermediate prices. The result is robust to heterogeneous downstream firms if there are scale economies at the manufacturer level. Entry can be prevented if only a fraction of downstream firms agree to exclusive dealing, because entry must be at an efficient scale.

Robert Innes and Richard Sexton (1994) change the focus of this literature by allowing organized buyers to either vertically integrate or to contract with outside entrants. This amounts to a broadening of the strategy space. The results are striking. In this setting, exclusionary contracts are generally found to be efficient; to deter only inefficient entry. The buyers must have their own profits or consumer surplus affected by the prices of the intermediate good. Competitors with zero profits would not

have the incentive to become organized.³ With multiple unorganized buyers, exclusionary contracts can be harmful to competition and welfare, just as the earlier literature showed.

C. Are Vertical Mergers and Vertical Contracts Similar?

The courts have often viewed vertical integration by merger and vertical restriction by contract as virtually indistinguishable. The well-known Supreme Court decision in the Brown Shoe case is a clear example (Brown Shoe Co. v. U.S. (1962), p. 292.)⁴ The great variety of arrangements from retail stores owned and operated by Brown to stores with only the loosest contractual controls has been examined by John Peterman (1975a,b).

The view that vertical mergers and vertical contracts are similar is common. E.g. Fisher and Sciacca (1984: 3) begin their exhaustive empirical study of vertical merger enforcement with the bald statements that, "The economic

³ The small empirical literature on vertical mergers either ignores anticompetitive possibilities (Spiller 1985) or finds little or no anticompetitive problem (Fisher and Sciacca 1984; Rosengren and Mehan 1994).

⁴ The Brown Shoe decision has been widely criticized on many grounds by both economic and legal scholars. It is a good concrete example to fix ideas, partly because the decisions and the subsequent analyses by Peterman and others are well-known. I do not intend a full and fair treatment of the case.

effects of vertical mergers and other types of vertical contractual relationships are similar, with any differences occurring only in the details." This view is echoed, in milder form, by William Comanor and Patrick Rey (1995: 3) and by Roger Blair and David Kaserman(1983: 3).

In principle, a complex enough contract can replicate the effect of a full vertical merger. But, in many situations, where the features of vertical contracts are limited by transactions costs or legality, vertical mergers and vertical contracts are not equivalent. This paper illustrates this nonequivalence by analyzing vertical integration with a simple model that has already been used to study vertical contracting.

D. The Approach of this Paper

William Comanor and I wrote, a few years ago, that exclusive dealing can be anticompetitive. That is, it can be successfully undertaken solely to raise the entry costs of potential rivals (Comanor and Frech, 1985). Our result suggests that the idea that vertical restrictions cannot harm competition is overbroad. At least where there is some market power at both the manufacturing and distribution levels, exclusive dealing can raise distribution costs for new entrants, thus leading to less competitive conditions.

We considered simple exclusive dealing relationships between the parties. Natural questions arise concerning the

generality of our result. In particular, does it follow when the parties are united by a vertical merger, rather than by a simple exclusive dealing contract? What about the complex or nonstandard contracts that fall between the extremes of simple exclusive dealing restrictions and complete vertical arrangements? As the title of this paper indicates, I will show that vertical integration can be very different from simple exclusive dealing contracts. In models similar to those used in our previous paper, I show that vertical integration for anticompetitive purposes of market foreclosure is not profit maximizing.

In this paper, I examine vertical merger in the conditions that Comanor and I found conducive to anticompetitive exclusive dealing in our earlier paper. Specifically, I examine whether vertical merger can be profitably used to influence entry conditions at the manufacturing or distribution stage of production. In the analysis, I presume that an element of market power exists originally at both stages of production.

II. The Market Setting

At the manufacturing stage of production, I assume that market power exists because of consumer preferences for the products of particular firms. Whether or not these preferences result from real differences in product quality,

first-mover advantages, informational differences, or other factors has no bearing.

Although some consumers may have strong preferences for individual brands, this may not be so for all. Indeed, the same product differences may not be valued identically by all consumers. To capture this difference in a tractable way, I assume two classes of consumers: the first includes those with strong preferences for the product of a specific manufacturer, and the second whose members consider all products as identical.

Initial market power at the distribution stage results from locational differences. Distributors have a monopoly position for some consumers but compete with rivals at the fringes of their market areas.

Not only may economies of scale be found in the distribution sector, but often economies of scope as well.⁵ Such economies are commonly found when it is more efficient to distribute different commodities together in the same facility than separately. Various inputs are shared so it is less costly to distribute an additional commodity. These economies are especially likely when commodities are complements or substitutes and consumers prefer to obtain them all from the same outlet.

⁵ For a discussion of economies of scope, see Robert Willig, 1979: 346-347.

Economies of scope, in combination with scale economies, limit prospects for vertical integration. In such circumstances, a manufacturer faces higher costs if he attempts to integrate vertically into the distribution of his products alone. To be competitive, his integrated distribution unit would need to sell a full line of products, including those produced in other manufacturing industries. A complete distribution facility is required, which might lead the manufacturer far afield from his basic expertise and represent a high cost undertaking.⁶

Nonetheless, vertical merger will be efficient for some firms in some circumstances. Also, complex enough contracts can simulate vertical integration; many more manufacturers may have such contracts with their distributors than could possibly merge with them. Thus, I study merger first as a pure type of privately efficient complex contract. Later, I will analyze the necessary form of the actual contracts that would accomplish the same gains as vertical integration.

If foreclosure is practiced, an entrant thereby faces higher distribution costs which pose a barrier to entry at the manufacturing stage. He cannot establish an equally efficient distribution network because it would fail to realize economies of scope and/or would be smaller than optimal scale. This factor is particularly important in smaller market areas. Alternative means of distribution are

⁶ See the discussion in Oliver E. Williamson (1975: 110-113).

possible, whether vertically integrated or not, but would involve higher costs, at least for a period of time. Because of restricted entry conditions, consumers are forced to pay higher prices. This is particularly likely for those consumers who view the products of rival manufacturers as identical and are most concerned with paying the lowest price. It may appear that vertical foreclosure can serve anticompetitive ends.

III. An Illustrative Model

At this point, it is useful to move beyond a general discussion of the competitive effects of exclusive dealing agreements and examine some of these issues using a simplified model, following Frech and Comanor (1984). In this model we make some assumptions which are not critical to the qualitative results obtained, but which simplify the analysis sufficiently to make it tractable. The object is not to provide a general model but rather to illustrate both the conditions and the manner by which exclusive dealing may have anticompetitive effects and see if vertical merger leads to foreclosure in these situations.

Our first assumption is that there exists a single dominant manufacturer producing a single product at constant unit costs c in the relevant range of output. There are two classes of consumers for the firm's product. Members of the first group, indicated as Class A, believe it superior to

any rival brand. These consumers are identical and purchase the dominant firm's product rather than a competing brand so long as its price to them is no higher than α above the rival's price. Their individual inverse demand functions for this product therefore lie above the corresponding demand function for all other products by the same amount α , which reflects the per-unit value of Class A consumers' brand preferences. At this price differential do they consider the goods of all manufacturers as perfect substitutes.

The remaining consumers, members of Class B, view the products of all sellers as identical. For convenience, we assume that the individual inverse demand curve of Class B consumers is identical to that of Class A consumers for all brands except that of the dominant manufacturer. The aggregate demand curves of the two classes therefore depend on the number of consumers in each class as well as the size of α .

Consumers obtain the product through a distributor. There is only one level of distribution. Furthermore, since resale between customers is possible, price discrimination between the two classes of consumers for the same manufacturer's product is not feasible.

Although competition exists among established distributors, consumers consider them imperfect substitutes. we assume that there are a limited number of customers for the particular commodities, so that scale economies in

distribution create segmented local markets. Established distributors do not compete on a large, dense plain. They have some degree of market power and set distribution margins above marginal costs.

Distribution margins in these circumstances are determined by spatial competition of the type modeled by Salop and others.⁷ A primary implication of these models is that firms gain a monopoly position in regard to nearby customers but compete for those located farther away. The equilibrium number of distribution firms and distribution margins are endogenous and depend on cost and demand conditions.

In these models, a change in either the manufacturer's price or his policy regarding exclusive dealing or foreclosure would affect both demand and costs for the distribution function. However, it would be extremely complex and lead us away from the main subject to formally incorporate these effects. We therefore adopt the simplifying assumption that the number of distributors and the imperfectly competitive distribution margin is constant with respect both to the manufacturer's price and policy regarding exclusive dealing. This margin is indicated by γ .

This simplifying assumption actually comports with reality better than one might expect. Due to the presence

⁷ See Steven C. Salop (1979: 141-156) and Jack Hirschleifer (1980: 363-376).

of economies of scope, distributors handle many, perhaps thousands of products. Therefore, the actual number of distributors is unlikely to be much affected by what happens with any single product. Equilibrium margins which depend on the number and location of rivals would be relatively stable.

Distribution is a multi-product activity that is subject to economies of scope. These economies imply that

$$(1) \quad E(q_1, \dots, q_n) < C(q_1) + C(q_2) + \dots + C(q_n)$$

where $C(q_1, \dots, q_n)$ indicates the total costs of distributing a vector of q_i goods. The terms on the right-hand side of expression (1) indicate the total costs of distributing the same vector of goods separately. $C(q_1)/q_1$ is therefore the unit cost of distributing the first good without realizing economies of scope. It represents the minimum distribution margin that can be charged by single-product distributors, and is indicated by δ in the analysis below.

While alternate distribution channels for a manufacturer's product may be available, these alternatives do not provide the gains from economies of scope. We assume these economies are sufficiently important so that the costs of distributing a firm's product through alternate channels exceeds equilibrium distribution costs plus the profits earned by established distributors. What this indicates for our analysis is that δ exceeds γ .

Distribution Without Exclusive Dealing and Without Merger

In this section, I examine likely patterns of manufacturer-dealer relationships in the absence of exclusive dealing or merger. First, consider the case where the manufacturer ignores the prospect of entry. Since established distributors set a distribution margin of γ , the market inverse demand curve facing the manufacturer is the consumer demand curve shifted downward by that amount. The dominant manufacturer sets quantity where the marginal revenue derived from the final demands of both classes of consumers, shifted downwards by the distribution margin γ , equals c . The optimal manufacturer's price is determined by this quantity. The final price, charged to all customers, is that price plus the distribution margin γ .

Now consider the case where a dominant manufacturer faces an entrant poised on the doorstep of the market, and takes this prospect into account. To focus attention on manufacturer-dealer relationships, let the entrant have the same constant manufacturing costs as the established firm. His only disadvantage results from the structure of demand. Although Class B consumers view his product as identical to that of the original manufacturer, Class A consumers consider his product less valuable so their aggregate demand price is lower by α per unit.

While there is considerable literature on the strategic interactions between entrant and established firm at the time of entry,⁸ we abstract from these issues and assume simply that the entrant behaves competitively regardless of the actions of the dominant firm.⁹ He enters if he can obtain a price of c for his product and sets this price in all circumstances. This assumption simplifies the analysis of oligopolistic interdependence between entrant and established firm. With this assumption, the established firm knows that the entrant's price will remain constant regardless of his actions, and seeks merely to maximize profits.

Even in this simplified setting, there are two possible strategies which can be adopted by the original manufacturer. The first, a low-price strategy, is to set his price at c . Entry is prevented and the entire market retained by the original manufacturer. At any higher price, some portion of demand is lost to the entrant.

As compared with the case where entry is not allowed, prices and quantities are quite different. Output is substantially larger as price is reduced from the monopoly level to that which would exist under competition. This

⁸ See F.M. Scherer (1980: 229-266) and Comanor and Frech (1985).

⁹ This can be justified by assuming that the entrant makes a Bertrand assumption about the behavior of the original firm. Given that assumption, the entrant simply maximizes profits.

strategy, however, leads to zero profits. It is not adopted, since a better strategy exists.

An alternate approach is a high-price strategy, where the firm sets a higher limit-entry price which retains sales to Class A consumers but sacrifices sales of Class B consumers to the entrant. The dominant manufacturer sets a price of $(c + \alpha)$ to all distributors which leads to a final consumer price of $(c + \alpha + \gamma)$. The entrants' price is merely c and the resale price of his product simply $(c + \gamma)$. These prices are summarized below:

(2)	$P_M = c + \alpha,$	Manufacturer's price
	$P'_M = c + \alpha + \gamma,$	Distributor's price of original manufacturer's product
	$P_E = c,$	Entrant's price
	$P'_E = c + \gamma.$	Distributor's price of the entrant's product

Although the manufacturer cannot discriminate between types of customers, their behavior distinguishes them. This is a separating equilibrium. Class A consumers, who value the reputation and quality of the original manufacturer's products, continue to purchase from him even at the higher price. Class B consumers, however, are unwilling to pay the

higher price and purchase the entrant's product from the distributor.

In this model, all sales to Class A customers are of the original manufacturer's product, while all sales to Class B consumers are of the entrant's product. The original manufacturer's profits result from his product differentiation advantages, represented by α , while the distributor's profits, if any, rest on his locational or other advantages, indicated by γ less distribution costs. The original manufacturer reaps positive profits from this high-price strategy, thus it dominates the zero profit low-price strategy.

Distribution With Exclusive Dealing

At this point, exclusive dealing provisions are introduced into manufacturer-distributor relationships. Contracts, however, remain otherwise simple.

Consider what occurs to entry conditions at the manufacturing stage after the dominant manufacturer has imposed exclusive dealing requirements. Because the new entrant is now foreclosed from existing distribution channels, he must distribute his product through an alternate one and bear higher distribution costs. The relevant prices for the entrant's product are now:

$$(3) \quad P_E = c \quad \text{Entrant's price}$$

$P_E = c + \delta$ Resale price of the entrant's product

It is apparent that under exclusive dealing, the original manufacturer can benefit from any differential costs of distribution. This factor is the key to understanding the possible anticompetitive effects of exclusive dealing.

Again, two strategies are possible. Following a low-price strategy, the manufacturer sells to both classes of customers. In this case, his final price must be no higher than the corresponding price of the entrant's product, and is thereby given by:

$$(4) \quad P'_M = P'_E = c + \delta.$$

From this price must be deducted the standard distribution margin, so that the manufacturer's price to his distributors is:

$$(5) \quad P_M = c + \delta - \gamma.$$

Compare the price to consumers in the presence of exclusive dealing with that charged in its absence. Although the price in expression (4) is higher than that set with a low-price strategy without exclusive dealing, that strategy is not pursued in those circumstances. A more valid comparison is with prices set under a high-price strategy, as reported in expression (2). Clearly, Class B

customers are worse off in the presence of exclusive dealing, since they would be content to purchase the entrant's product. Class A customers, on the other hand, purchase the original manufacturer's product in either case and could be better off or worse off. They face higher prices with exclusive dealing so long as:

$$(6) \quad \delta > \alpha + \gamma,$$

which can be rewritten:

$$(7) \quad \alpha < (\delta - \gamma),$$

and lower prices where these inequalities are reversed.

The economic interpretation of this result is straightforward. Prices are higher to Class A consumers under exclusive dealing if the increased costs of distribution due to the failure to realize economies of scope exceed the brand preference shown for the dominant firm's product. Where this inequality is reversed, however, Class A customers face lower prices in the presence of exclusive dealing. In either case, Class B customers face higher prices with these restrictions.

With a high-price strategy, the manufacturer sets the highest price possible for Class A customers, and accepts the loss of Class B customers. The final price now is the entrant's price plus α . Since the entrant's resale price is $(c + \delta)$, the original manufacturer's price to consumers

is readily determined, and also his price to established distributors:

$$(8) \quad P'_M = c + \alpha + \delta,$$

$$P_M = c + \alpha + \delta - \gamma.$$

At these prices, Class A customers purchase the original manufacturer's product despite a price differential of α . Class B customers, on the other hand, purchase the entrant's product through alternate channels of distribution. In this case, prices to both classes of customers are higher in the presence of exclusive dealing.

The implications of this analysis are striking. The original manufacturer profits by imposing exclusive dealing requirements on his distributors. When this is done, all consumers face higher prices when a high-price strategy is adopted. When a low-price strategy is chosen, Class B consumers face higher prices in all circumstances. Class A consumers, however, face lower prices when the differential costs of distribution are less than the unit value of their brand preference for the original manufacturer's product.¹⁰

Vertical Merger With All Distributors

¹⁰ Consideration of dealer choice adds nuance to the analysis, but does not change the basic result (Comanor and Frech, 1985). We will largely ignore this complication here.

Now let us suppose that the manufacturer and all the distributors merge. We first consider the merger with all distributors to parallel the exclusive dealing case, where the manufacturer was assumed to have the same exclusive dealing policy for the entire distribution network. Later we will consider the case of a vertical merger with only one of the distributors. Maintaining our assumption that there is no benign efficiency motive for the merger, we can ignore the profits that the merged firm earns from sales of goods other than the original manufacturer's and the sales of directly competing products. The merged firm has open to it the same behavior as occurred under exclusive dealing with separate firms. And we know that the profits of that option exceed those earned if the firms stayed separate and had no exclusive dealing arrangement. Therefore, we seek some other strategy that can dominate foreclosure for the merged firm.

Non-Foreclosure Strategy

Consider the non-foreclosure strategy of selling the original manufacturer's product alongside the product of the rival manufacturer through the distribution units of the merged firm. By assumption costs are not influenced by the merger, so it suffices to examine prices. If the merged firm sells both the rival's product and its own through its distribution system, it needs to stop entry at two levels.

First, it must set the retail price of the rival's product low enough to eliminate entry at the retail stage. Second, it must set the retail price of its own product at only α above the price of the rival's product sold through its own stores. This price eliminates entry into manufacturing beyond that which is unavoidable and profit maximizing for the vertically merged firms.

Avoiding entry by a single-product distributor, or one owned by the rival manufacturer, requires that the retail price of the rival's product sold through the vertically merged distributors be limited by the retail price of the rival's product when sold through alternative single-product distributors, which is just

$$(9) \quad P'_E = c + \delta.$$

The price of the original manufacturer's product exceeds this by α , so that

$$(10) \quad P'_E = c + \delta + \alpha.$$

If the merged firm were to practice foreclosure, its prices would be the same as the exclusive dealing prices. Under the low-price strategy

$$(11) \quad P'_M = c + \delta,$$

for sales to both classes of consumers. Under the high-price strategy, the retail prices with foreclosure are also the same as the exclusive dealing prices

$$(12) \quad P'_M = c + \delta + \alpha,$$

$$P'_E = c + \delta.$$

Gain, with the high-price strategy, all sales to Class B consumers go through wasteful single-product distribution.

One can see that foreclosure by the merged firm results in either lower prices to both classes to consumers or to the same prices but sales only to Class A by the merged firm. In either case, profits are lower if the merged firm forecloses sales from other manufacturers through its own distributor. This contrasts sharply with our result that the unintegrated original manufacturer can always gain by simple exclusive dealing.

Notice that prices for Class A customers are much higher with a vertical merger and no foreclosure than with the low-price, exclusive dealing strategy. Thus, effective monopoly power is greater with the vertical merger and no foreclosure than with simple exclusive dealing contracts. The more monopolistic result occurs with two manufacturers,

while the more competitive happens with but one.¹¹ One may ask how it is that the vertical merger, without foreclosure, leads to more monopoly power.

Vertical merger with all distributors leads to significant market power because it monopolizes the retailing sector. Thus vertical merger leads to a horizontal problem: monopoly in distribution. This is the source of the greater monopoly power of the vertically merged firm, as compared with the manufacturer practicing exclusive dealing. But, the merged firm with its retailing monopoly does not foreclose because it is not profitable to do so.

In fact, a moment's reflection shows that the market outcome is identical whether the monopolistic distributor is merged with the original manufacturer or not. The vertical nature of the merger is irrelevant. The horizontal combination of the distributors is all that matters. Now let us consider a vertical merger that does not change retailing market power.

Vertical Merger With a Small Proportion of Distributors

If the dominant manufacturer were to merge with a small proportion of retailers, the markup that could be charged on

¹¹ This is one example of how one can sometimes be misled by structural measures such as market share and concentration ratios. They can move inversely to the real monopoly power.

any product would be limited by competition from other distributors.¹² We will calculate prices for the non-foreclosed case first. It is useful to look at the retail limit-entry problem first.

To avoid loss of sales of the rival's goods to other distributors (entry of a sort), the retail price of the rival's product cannot exceed

$$(13) \quad P'_E = c + \gamma.$$

The price of the original manufacturer's product can be higher by α , so that

$$(14) \quad P'_M = c + \gamma + \alpha.$$

On the other hand, with foreclosure and the low-price strategy, price could not exceed

$$(15) \quad P'_M = c + \gamma.$$

This allows sales to both classes of customers, but the price is lower for sales to Class A customers. Hence, foreclosure causes lower profits than distributing the rival's product when the low-price strategy is pursued. On

¹² A small proportion is defined as one that leaves distributor competition unchanged.

the other hand, if the high-price strategy is chosen, the retail price for sales to Class A consumers alone is

$$(16) \quad P'_M = c + \gamma + \alpha.$$

Here, foreclosure causes no price reduction, but it does cause the loss of profitable sales of the rival's good to Class B consumers. Thus, foreclosure leads to either a loss in price or a loss in profitable volume for a firm vertically merged with a small proportion of the (imperfectly) competitive distributors. This is the same result that we found for foreclosure when the manufacturer merged with all distributors at once.

Notice that the prices with or without foreclosure are exactly the same as those that occur absent exclusive dealing and the merger. Even with imperfect competition among distributors, vertical integration which does not reduce the existing (imperfect) degree of distributor competition has no effect on overall competition.¹³ What's more, foreclosure for anticompetitive purposes simply never pays.

In the optimal policy of the merged firm, the retail market is split. Class A consumers buy the original manufacturer's product, while Class B consumers purchase the

¹³ Notice that the usual price reduction from merging successive monopolies does not occur here. This is because prices are determined by limit-entry considerations, not marginal equalities.

rival's product. This allows the same result as would have occurred if the original manufacturer could have price discriminated in the sale of his own product.

IV. Economic Interpretation

I have just shown that the results for vertical merger are the opposite of those for exclusive dealing contracts. Under the conditions postulated, where there is vertical integration through merger, foreclosure never pays. Where the firms are separate, exclusive dealing always pays. This arises because exclusive dealing for anticompetitive purposes does not maximize the joint profits of the manufacturer and the distributor. Exclusive dealing introduces a new inefficiency beyond that implied by the market power of the two levels. Vertical integration allows this inefficiency to be avoided and therefore joint profit can be maximized. In essence, the exclusive dealing optimum of the manufacturer creates an externality between the manufacturer and the distributor. The exact nature of the externality differs according to whether the low or high-price strategy is chosen. I will take these up in turn.

Under the (more likely in practice) low-price strategy, the problem is that the manufacturer must give up some profit on the Class A consumers who favor his product in order to sell to the Class B customers who are indifferent between his product and that of any rival. The low-price

strategy forces the manufacturer to forego a form of price discrimination. Vertical merger allows the merged firms to avoid this problem. Class B consumers purchase the rival's product through the merged firm's distribution channel. This provides exactly as much profit to the merged firm as selling the dominant manufacturer's product to these consumers in the profit maximizing, discriminatory way. It does not matter to the merged firm whether the product for the Class B consumers, who view all products as equivalent, is manufactured by the itself or by the rival. By assumption, costs are identical for the original manufacturer and the rival, whether or not the original firm merges with its distributors.¹⁴

If we consider the high-price strategy, the form of the externality is different. What is more, under this strategy the externality represents a wasteful use of resources. This could not be said of the purely pecuniary externality involved in the low-price strategy. The waste here is simply that the sales of the rival's good to the Class B consumers takes place with inefficient distribution, through a separate single-product distributor. The extra distribution costs are $\delta > \gamma$. This difference represents use of real resources, not simply lost profit through a particular form of pricing. The merged firm avoids this

¹⁴ Remember that this hypothesis was made to eliminate all possible benign efficiency rationales to concentrate on anti-competitive intentions and effects of vertical integration.

loss by distributing the rival's product to Class B consumers itself. This is both socially efficient and privately profitable. In the context of this simple model, I have shown that vertical merger for the purpose of market foreclosure is never profit maximizing. Now let us confront the evidence on the actual consequences of vertical mergers.

V. Evidence on Post-Merger Transactions

The evidence from actual experience after vertical mergers shows that after merger, the merged firms typically deal more with each other than the two firms did prior to the merger (Williamson 1985: 103-130). In fact, this was found in the classic Brown Shoe case. According to the Supreme Court (1962: 302):

The acquisition of these corporations was found to lead to increased sales by Brown to the acquired companies. Thus, although prior to Brown's acquisition of Wohl in 1951, Wohl bought only 12.8% of its total purchases of shoes, it subsequently increased its purchases to 21.4% in 1952 and to 21.6% in 1955. Whetherby-Kaiser's purchases from Brown increased from 10.4% before acquisition to over 50% after.

In describing Brown's relationship with Kinney the Court said (1962: 304):

At the time of the merger (May 1, 1956), Kinney bought no shoes from Brown ... Brown had, by 1957, become the largest outside supplier of Kinney's shoes, supplying 7.9% of Kinney's needs.

What is more, increasing the sales of Brown shoes to Kinney was the avowed purpose of the merger. According to Clark R. Gamble, Brown's President (1962: 304, fn. 8):

"... in addition to getting a distribution into the field of prices which we were not covering, it was also the feeling that ... Kinney probably would find the necessity of up-grading ... and it would give us an opportunity ... to sell them in that category (sic)."

This looks like movement in the direction of foreclosure. How can we rationalize such empirical findings and statements of purpose?

The answer is simple. Merged firms achieve economies of coordination so that it becomes cheaper to deal more with the other divisions of the company than with outside firms, compared to the situation before the merger. As has been argued at length by Williamson (1971, 1985) and Klein, Crawford and Alchian (1978), the vertical merger reduces the transactions costs of the manufacturer dealing with his own distributing division, especially when transaction-specific assets are created. In fact, the Brown Shoe case fits very well into the later work, since, among other specific investments, the manufacturer had to invest in making molds for specific shoes ordered by retailers (Peterman, 1975, p. 114). What is more, the government itself in the case

argued that the vertical merger leads to substantial efficiency gains (Peterman, 1975, p. 110):

The manufacturer-owned or controlled retail outlet can sell its own product at a significantly lower price than the non-integrated independent retailer can obtain for a comparable product ... The conclusion (is) inevitable that the advantages the merged company would have over the smaller retailing competitors would be so great as to threaten to become decisive.

The District Court apparently accepted this bizarre idea that the merger was even worse for competition if it was consummated for and achieved economic efficiencies. In spite of rhetoric going the other way, it seems that the Court was protecting the competitors at the expense of competition. The District Court found (U.S. v. Brown Shoe Co., 1959: 738):

... independent retailers of shoes are having a harder and harder time in competing with company-owned and company-controlled retail outlets ... Company-owned and company-controlled retail stores have definite advantages in buying and credit ... advertising, insurance, inventory control and assists and price control. These advantages result in lower prices or in higher quality for the same price and the independent retailer can no longer compete in the low and medium-priced fields ...

VI. Complex Contracts That Approximate Vertical Mergers

In this section I consider what types of contracts would be necessary to avoid the inefficiencies of simple exclusive dealing arrangements. To study this, consider the situation with two separate firms and no exclusive dealing.

In this situation, remember that the two firms have a two stage limit-entry problem, just as the merged firm examined above would have. Let us take the retail entry problem first. This sets the maximum price for the rival's good sold through the multi-product distributor. Here, the problem is that if any one distributor raises his markup on the rival's good above γ , he loses all sales to his (imperfectly) competing distributors. The manufacturer would like to see a higher markup. Thus the contract between the dominant manufacturer and the distributors must set a minimum distributor markup for the rival's product.¹⁵ For example, the contract between General Motors and a Chevrolet dealer would allow him to sell Nissans, but require him to collect a higher than privately optimal markup on each Nissan sale. In effect, this contract would cartelize the distributor level for sales of the rival's product.

With the retail price of the rival's product set artificially high by contract, the problem of setting the profit-maximizing price of the dominant manufacturer's goods is simple. The dominant firm needs merely to charge the

¹⁵ Presumably, the would run afoul of antitrust law.

wholesale price that naturally leads the distributors to charge the right retail price. These prices would be

$$(17) \quad P'_M = c + \alpha + \delta,$$

$$P_M = c + \alpha + \delta - \gamma.$$

Thus, we would observe high markups for the rival's product, δ , and lower competitive margins for the dominant firm's product of γ .

This complex contract gives the same market prices and shares as vertical integration, on the assumption that the distributors go along and agree to the contract. This assumption might be reasonable, since the contract does give the distributors higher profits than they would have with no contract. However, this contract establishes a retail cartel. Thus, there are serious problems in getting the retailers to go along. For any one retailer, acting alone, could improve his outcome by not signing and selling the rival's product to both Class A and Class B consumers.¹⁶ This seems a major problem from the manufacturer's and the distributor's viewpoint. Most likely, this possibility of distributor defection from the cartel would restrain the

¹⁶ This problem might make this type of contractual extra markup on the rival's product more likely if there are small numbers of distributors, so the benefits of defection are lower and the probability of quick detection by other distributors is higher. To fully model such a situation, with oligopolistic distributors, would be inordinately complex.

manufacturer from charging so much for his own product at wholesale, so that the market price differential between the two products would be less than α .¹⁷ This, of course, reduces the benefit of the whole contractual setup. One could calculate the values of the parameters for which such a contract, assuming away transactions and enforcement costs, would pay. In any case, the general nature of the contracts required is clear. They must maintain margins or resale prices for the rival's good at supra competitive levels. While this may occur, it does not seem to be common practice.

VI. Conclusion

At least in this simple model, concern with foreclosure or exclusive dealing between an integrated manufacturer and his downstream distributor is unfounded. While exclusive dealing by agreement can pay, as a way to increase entry costs and thus the limit-entry price, the analogous plan of foreclosure for the vertically merged firm never pays. This is true for both a manufacturer vertically merged with all the distributors and one merged with only a small proportion of the distributors.

¹⁷ If one broadens the analysis to include the possibility of predatory strategic action, the manufacturer could threaten dealers with market-wide wholesale price cuts in response to a single distributor dropping out of the system. This strategy has problems of credibility and vulnerability to antitrust attack. Predation is outside the scope of this study.

Even though the vertical merger with all distributors does not lead to anticompetitive foreclosure, the resulting prices are higher than with the exclusive dealing outcome. This happens because the vertical merger with all distributors leads to a monopoly of distributors. It is this new horizontal joining that raises prices. The vertical nature of the merger has nothing to do with it.

Complex enough contracts can, in principle, achieve the same market outcome as vertical merger with all distributors. Such contracts must require a supracompetitive margin for the rival's product. However, this type of contract amounts to a cartellization of the distributors in the sales of the rival's product and thus is vulnerable to any individual distributor cheating on the cartel by refusing to go along and selling the rival's product at prices low enough to sell to both classes of consumers. In any case, contracts that require higher margins for the rival's product than the competitive markup would seem to be rare. Presumably, such contracts would be illegal under the current law of vertical price fixing.

The policy implications are clear. In situations where this model is appropriate, market foreclosure by vertically integrated firms only occurs as a byproduct of efficiencies, not as a means of restricting entry. Therefore, the simple theory of foreclosure enunciated in, for example, Brown Shoe is simply wrong. If there is an anticompetitive problem with a particular vertical merger, it arises from subtle

interactions or, more likely, from very unsubtle horizontal aspects of the merger.

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