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Implementing Antitrust's Welfare Goals

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ANTITRUST AND NONEXCLUDING TIES

Herbert Hovenkamp*

Introduction

A tying arrangement occurs when a seller of two separate products refuses to sell one unless the buyer also takes the other, either simultaneously or else as aftermarket purchases. For example, a hospital may refuse to offer its surgical services unless a patient also purchases its anesthesiological services,¹ or a franchisor may refuse to enter a franchise contract unless the franchisee promises to use certain of the franchisor's products.²

Under the idiosyncratic "per se" rule that antitrust law applies to tying arrangements under §1 of the Sherman Act, a tie is unlawful when the products are legally "separate," when the seller has market power in the tying product and actually conditions sales of the tying product upon purchases of the tied product, and a "not insubstantial" amount of commerce is affected by the arrangement.³ If one or more of these requirements fails tying is also reachable under a rule of reason under §3 of the Clayton Act,⁴ or as an exclusionary practice under §2 of the Sherman Act.⁵ The §2 analysis requires a showing of greater market power but is less categorical about the specific tying requirements.⁶ The tie is typically, but not always, created and enforced by a written or oral contract. In some cases a tie can be proven in the absence of an

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¹Jefferson Parish Hosp. Dist. No. 2 v. Hyde, 466 U.S. 2 (1984).

²E.g., Queen City Pizza, Inc. v. Domino's Pizza, Inc., 124 F.3d 430 (3d Cir. 1997); Kypta v. McDonald's Corp., 671 F.2d 1282 (11th Cir. 1982); Krehl v. Baskin–Robbins Ice Cream Co., 664 F.2d 1348 (9th Cir.1982).

³See 9 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶1700-1702 (3d ed. 2011); HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §10.1 (4th ed. 2011).

⁴Times-Picayune Pub. Co. v. United States, 345 U.S. 594 (1953).

⁵E.g., United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001) (condemning "commingling," and thus tying, of browser code into operating system).

⁶See 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶777a (3d ed. 2008).

explicit contract by looking at the record of previous sales.⁷ In other cases the tie is “technological,” which means that it is created by a design feature that permits two products to be used only with each other.⁸

Nearly all ties involve complementary products, which means that they are interrelated in either production or consumption. “Complements in production” are things that are cheaper if made together, even though they might be used separately. For example, it may be cheaper to offer primary, secondary, and tertiary health care out of a single facility, because much of the equipment can be used for all three, even though individual patients require only one type of care.⁹ Or it might be cheaper to bundle large number of individual television stations into a single cable TV service, even though customers watch only one station at a time and any particular customer may not regularly watch more than a half dozen stations in their 100-station bundle. Once the significant fixed cost cable installation is put in place, adding additional channels costs very little more than the licensing fee.

Complements in use are things that are used together by the customer. For example, the camera/film tie in *Berkey Photo* involved complements in use: a photographer could not use the camera without using the tied film, or vice-versa, but there is no obvious reason for thinking that it is cheaper to manufacturer the camera and film together. Complements are said to be “perfect” when each item has no value except when used with the other. For example, cameras are largely useless without film, or vice-versa. As noted below, imperfect complements may explain bundled discounts, which occurs when tying is not absolute but two things are sold together at a lower price than they are sold separately. Purchases who regard the two items as complements can purchase them together at a lower price, while customers who want only one item can continue to buy it.

Complementarity affects tying analysis mainly as it relates to production costs or consumer need or satisfaction. As a result, it typically shows up in an efficiency analysis. At the same time, however, often it is not decisive. For example, cowhide and beef are complements in the production of beef, but that does not serve to explain why they must be tied in subsequent sales. By contrast, per channel cost savings may explain why a cable company bundles large numbers of channels into a single

⁷10 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶1755-1756 (3d ed. 2011).

⁸Id. at ¶1757. See, e.g., *Microsoft*, 253 F.3d 34; *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir.1979).

⁹E.g. *Cascade Health Solutions v. Peacehealth*, 515 F.3d 883 (9th Cir. 2008).

package.¹⁰ By the same token, cameras and film are complements in use, but a purchaser could buy them from different sellers and in different transactions.

Ties have historically been thought to produce two kinds of competitive harm: “leverage,” or extraction; and foreclosure, or exclusion. The two theories are not mutually exclusive. Indeed, the premise of the foreclosure theory is that exclusion of rivals is harmful because it enables a firm to keep prices up or to prevent them from falling in response to the entry of new competitors. Ultimately, anticompetitive foreclosing ties must harm consumers.

The leverage theory suggests, however, that certain ties can harm consumers as a group even though exclusion of rivals is not in prospect. For example, in the *Carbice* case Justice Brandeis opined in his opinion for the court that by tying unpatented dry ice to its patented ice box the patentee was able to extract two sets of monopoly profits – one on the patented ice box, which was legitimate, and the other on the unpatented dry ice, which was not.¹¹ At that time virtually every town in the country had a plant for making dry ice, which was a common unpatentable refrigerant for the ice boxes of the day. As a result, exclusion in the dry ice market was not a possibility.¹² In 1957 Ward Bowman severely crippled this theory by showing that when the tying and tied products are strong complements, meaning that most users require both, they will attribute their willingness to pay to the combination rather than to each product separately.¹³ As a result a monopolist of *either* the ice box or the dry ice could obtain all available monopoly profits, and could not earn greater monopoly profits by combining the two. Judge (then professor) Posner has identified this rejection of the “leverage theory” as one of the most important hallmarks of Chicago School antitrust.¹⁴

Assuming that at least some ties should be deemed anticompetitive on grounds of foreclosure of rivals,¹⁵ is there any reason for thinking that ties that do not foreclose anyone should be condemned? The issue can arise in several different contexts. The

¹⁰E.g., *Brantley v. NBC Universal, Inc.*, 675 F.3d 1192 (9th Cir. 2012).

¹¹*Carbice Corp. of Am. v. Am. Patents Dev. Corp.*, 283 U.S. 27 (1931).

¹²See Christina Bohannon, *IP Misuse as Foreclosure*, 96 Iowa L. Rev. 475, 482-83 (2011).

¹³Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 Yale L.J. 19 (1957).

¹⁴Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. Pa. L. Rev. 925 (1979).

¹⁵E.g., *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984); *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

most common is the “unwanted” tied product. The purchase does not want the tied product at all and is objecting about being forced to take and pay for it. This is basically the facts of the *Brantley* case, in which cable television consumers complain that the defendant cable television provider offers programming only in large packages of channels. The plaintiffs would prefer to purchase a smaller subset of channels and pay only for those. However, the complaint was dismissed because the plaintiffs could not identify any independent program providers who were foreclosed, or excluded, by the arrangement.¹⁶ Another subset of cases involves customers complaining about the way the seller allocates the price between the tying and tied goods, typically in order to facilitate a type of price discrimination. These cases, which are discussed below, can roughly be divided into two piles. In one pile the tied product is sold in variable proportions and the seller’s return varies with the number of tied units sold. In the other the products may be sold in fixed proportions but the buyers may have differential demand for the goods within the package.

Structuring the Initial Query

Showing results that are competitive or anticompetitive is often heavily dependent on how the tying query is structured. One way, which might be termed the “hostility approach,” is to begin by assuming that the tie is nothing more than a manipulation in pricing, and consider defenses only after a rather easy prima facie case has been made against the tie. In an extreme version of this position the burden of proof may be placed on the defendant to justify its tie. The other way, which might be termed the “benign approach,” is to seek out the rationale for the tie in cost savings or product improvement and go to anticompetitive explanations only if the first query turns up little or nothing. Assignment of the burden of proof can be critical in these cases, because the facts are difficult to interpret in all but the clearest circumstances.

Many if not most tying challenges today involve manufactured goods with a significant fixed cost or research component. As a result, most of these goods are sold at markups above marginal cost and are subject to “double marginalization.” If each of two producers of complementary goods has a certain amount of market power it will set a price higher than marginal cost. If the two should merge or if one firm acquired a similar position in the second good it would also set a price higher than marginal cost, but the increase is typically less across both goods than when each firm maximizes

¹⁶*Brantley v. NBC Universal, Inc.*, 675 F.3d 1192, 1196 (9th Cir. 2012); see also *BMI v. Moor-Law, Inc.*, 527 F. Supp. 758, 763, 767–68 (D. Del. 1981), *aff’d*, 691 F.2d 490 (3d Cir. 1982).

separately.¹⁷ Elimination of double marginalization has always been a robust explanation for vertical integration – as, for example, when a gasoline refiner integrates into a retail market that has been subject to collusion or some other kind of noncompetitive pricing. But the theory works just as well for complementary goods. It is particularly strong for intellectual property rights, where price-cost margins are typically high.¹⁸ For example, if LCD monitors are subject to price fixing the reduced output will reduce the sales of computers, a complementary product.¹⁹ In that case the computer maker can increase its profits by entering LCD monitor production and selling computer/monitor packages. Further, the package price will be lower than the sum of individual prices had been before.

Further, quite aside from double marginalization, bundling can yield significant transaction cost and some production cost savings, particularly in innovation intensive markets. For example, in the case of blanket licenses the bundled form of the license enables licensees to have instant, protected access to every song in the bundle without having to negotiate individually. Patent pools can often accomplish the same thing, although the ambiguity of patents makes them subject to greater abuses.²⁰ In a case such as *Cascade*, which dismissed a challenge to the defendant's bundling of primary, secondary, and tertiary health care, the bundled discount was very likely justified because while these three levels of care are distinctive they also rely on a great deal of common equipment and staff. As a result, it is far cheaper to offer the three together out of a common facility than to operate separate facilities. Many bundled discounts are justified by the presence of joint costs.²¹ For the same reason a firm may be able to offer a combination of television, telephone, and internet service out of a single wire than would be charged by three different companies separately delivering the services.

¹⁷See Erik N. Hovenkamp & Herbert Hovenkamp, *Tying Arrangements*, in OXFORD INTERNATIONAL HANDBOOK OF COMPETITION POLICY (Roger D. Blair & Daniel Sokol, eds., 2013) (in press).

¹⁸See CHRISTINA BOHANNAN & HERBERT HOVENKAMP, CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION 29-32 (2012); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 Tex. L. Rev. 1991, 2046-48 (2007).

¹⁹ See, e.g., *In re TFT-LCD (Flat Panel) Antitrust Litig.*, 781 F.Supp.2d 935 (N.D.Cal. 2011).

²⁰See BOHANNAN & HOVENKAMP, *supra*, at 325-64.

²¹*Cascade Health Solutions v. Peacehealth*, 515 F.3d 883 (9th Cir. 2008). See Herbert Hovenkamp & Erik Hovenkamp, *Complex Bundled Discounts and Antitrust Policy*, 57 Buff. L. Rev. 1227, 1234-35 (2009).

Finally, most types of ties find analogues in firms lacking power, meaning that there must be explanations for them that are premised on something other than the assertion of market power.

Harm from Nonexcluding Ties

Tying and exclusive dealing are closely related offenses, except that they are treated very differently under the law.²² Exclusive dealing is subject to a rule of reason and one of the requirements is proof of an inference of foreclosure, which means that at least one rival or potential rival is shut out of the market (or relegated to inferior or more costly distribution channels). Under tying law's unusual per se rule, market power in the tying product must be shown, but foreclosure in the tied product need not be.

Leverage

The simple leverage argument that Justice Brandeis made in the *Carbice* case has little or no credibility in economics today. To the extent two goods are complements a seller with market power can assign its markup to either or both together but it cannot earn a double monopoly profit by assigning the full markup to the tying product and an additional markup to the tied product. If the goods are imperfect complements, however, the seller might be in a position to force the second good on a buyer who does not want it. But if there are no savings from combination and no prospect of foreclosure such a seller would ordinarily be harming itself.

To illustrate, suppose that a firm has a monopoly in a particular saucepan but its lid is generic and sold in a competitive market. The saucepan has costs=10 and a profit maximizing price of 15, and the lid is sold in a competitive market at 3. The saucepan seller can sell the two separately, earning economic profits of 5 on the pan and zero on the lid. It can also tie, where its profit maximizing price will be 18. However, suppose that a certain group of customers do not want the lid at all. For these the seller will be charging too high a price and it will lose at least some of these sales, unless we can also assume that the particular buyers who do not want the lid are also willing to pay more for the pan. Because the monopolist's profits are in the pans, this tie will not be profitable.

For example, suppose that out of 100 potential customers 80 want the pan/lid combination while the remaining 20 want only the pan. By charging its profit-

²²On exclusive dealing, see 11 HERBERT HOVENKAMP, ANTITRUST LAW Ch. 18 (3d ed. 2011).

maximizing price of 15 for the pan and the competitive price for the lid the seller captures all the customers and earns 500. Suppose now that it ties the two at a price of 18. It still earns 5 on each sale that it makes, but at least some and perhaps all of the customers who do not want the lid will walk away. Indeed, if only one of these customers of the unwanted tied product walks away the tie will be unprofitable.

So the “pure” leverage argument fails. In order to use it we need to assume that a double markup is possible vis-à-vis the customers who want both products together, which is economically irrational. Otherwise the tying firm’s gains must come from some other source, such as economies that accrue to joint provision or else foreclosure of a rival in the lid market.

Variable Proportion Ties and Price Discrimination

In a variable proportion tie a seller ordinarily prices two (or more) complementary products by reducing the price of the tying product from its standalone level, tying the second product, and increasing the price of that product. For example, a manufacturer of printers that use ink cartridges specifically designed for that printer might have a standalone printer price of \$200 and a standalone cartridge price of \$20. It then cuts the printer price to \$100, and ties cartridges at a price of \$25. Consumer gains accrue from the price cut in the tying product, which both brings new customers into the market and increases the surplus of some existing customers. Any consumer harm accrues from the price increase in the tied product. As a result, these two effects have to be netted out.

Models of price discrimination ties that do not assume a price cut and output increase in the tying product create false positives to the extent that they do not reflect reality. In virtually every case in which the relevant numbers are reported, these variable proportion ties have been accompanied by a price decrease in the tying product and a price increase in the tied product. Sometimes the tying product price increase is said to be to “cost” or “below cost,” and in a few cases it is even zero.²³ Unfortunately, case law reporting on the issue is haphazard because price changes in the tying product are not relevant to tying law’s per se rule.

In the above example, where the seller cuts the printer price from \$200 to \$100 and increases the cartridge price from \$20 to \$25, the seller “breaks even” when a buyer

²³See Erik Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 Ariz. L. Rev. 925, 942-43 & n. 77 (2010) (collecting numerous decisions).

purchases twenty cartridges over the life of the printer. In that case the buyer will have paid \$100 less for the printer, but \$5 more on each of the twenty cartridges, or \$100. Ignoring producer profits, the following three effects occur:

1. For high use buyers who use more than twenty cartridges the tying scheme is costly, because the lower price they pay for the printer is more than offset by the higher price they pay for the twenty-plus cartridges that they purchase.
2. For lower intensity buyers who would have purchased under pre-tie pricing but who use fewer than twenty cartridges over the printer's life, the tying scheme saves money because the price increase for the cartridges that they purchase is less than the cost savings from the reduced printer price; they also purchase fewer cartridges. On the margin, this buyer might print somewhat less because of the higher cartridge price, but its total cost would be lower so long as it used fewer than twenty cartridges.
3. For a third group of buyers the tie is an unambiguous improvement because they would not be in the market at all at the previous printer price of \$200, but they come into the market when the price is cut to \$100.

To illustrate, at the untied price of \$200 for the printer and \$20 for the cartridge, a minimum purchase is \$220. A consumer will not purchase at all unless she places this value on the use of the printer over its life, considering alternatives. Under tying the price for a minimum purchase will be \$100 for the printer and \$25 for each cartridge, or \$125. Customers whose willingness to pay is at least \$125 (but less than \$220) will purchase. Tying would increase the welfare of all consumers in this group over the life of the printer.²⁴ Transactions in this range also profit the seller, assuming that the prices are above cost, because they would not be made at all absent tying.

A second class of customers is willing to purchase even at the \$220 entry price, because while they print fewer copies they place a higher value on each copy. However, they pay less under tying until the cartridge overcharge exceeds the cost savings on the printer. For example, someone might use only ten cartridges per year

²⁴ For example, assuming 1000 prints per cartridge, the cartridge costs 2 cents per page at the untied price and 2.5 cents per page at the tied price. A buyer who prints 5000 pages over the printer's life would pay \$200 plus \$100, or \$300, at the untied price, and \$100 + \$125, or \$225 at the tied price. If his reservation price were 5 cents per page he would not purchase at all at the untied price but would at the tied price and have \$25 in consumers' surplus. Note that at the margin this customer would print less than if cartridges were sold competitively, but not less than if he did not purchase at all.

over a printer's life of, say, five years. However, she values individual copies by a very high amount because the cost of printing is SMALL in proportion to the value of the documents and the convenience of not having to send her printing out. These customers also come out ahead under tying even though they print less.

Ignoring producer welfare, whether the scheme benefits customers on balance depends on the size and per unit surplus realizations in each of these three categories. The relevant factors are the durability of the primary product, the size of the primary product price cut, the elasticity of demand for the primary product at the pre-tie price, the size of the tied product price increase, and the elasticity of demand for the tied product. Other relevant factors include economies of scale in producing the tying product. For example, if the impact of cutting the printer price from \$200 to \$100 is that tying product output doubles, per unit manufacturing costs could be much lower. Given that many of these ties occur in markets for manufactured goods with a significant R & D component, the inference is strong that the increased output will yield lower per unit costs. Finally, because the seller does not tie unless it is profitable, any outcome that increases consumer welfare will also increase general welfare.

Fixed Proportion Ties

In a fixed proportion tie the seller joins two products together and sells them in a fixed proportion, typically of one to one. For example, a computer manufacturer may refuse to sell a computer without a preinstalled operating system, or the owner of copyrighted movies or television programs might refuse to license them individually, but insist on doing so only in "blocks."²⁵ Ties like this are sometimes said to facilitate "interproduct" price discrimination to the extent that different buyers place differential values on the individual components of the package, or "block." To illustrate, suppose that a firm is offering to license two films called Alpha and Beta to two different customers. Given that the films have already been made, marginal costs are very low and we assume them to be zero. The two customers will take both movies but their willingness to pay differs, as follows:

	Alpha	Beta
Customer 1	7	4
Customer 2	3	13

²⁵E.g., *United States v. Loew's, Inc.*, 371 U.S. 38 (1962) (block-booking of films licensed to television stations).

If the seller licenses the two movies individually it has some price points to select from. It can charge the higher price for each movie and license to only one buyer. That is, Customer 1 would license Alpha and Customer 2 would license Beta. Total profits would be 20, and consumer surplus would be zero. Alternatively it could charge the lower price and license to both customers, earning 6 from Alpha and 8 from Beta. In that case its profits would be 14 and consumer surplus would be 13. Finally, it could tie the two movies together at a price of 11, which would give it 22 in profits and yield consumers' surplus of 5.

This case is interesting because consumers' surplus under tying (5) is considerably less than the consumers' surplus under the second unbundled choice (13). However, if prohibited from tying the seller would not take the second unbundled choice. It would take the first one, which gives it even greater profits but yields a consumers' surplus of zero. The only way antitrust intervention would improve consumer welfare in this case would be if we both prohibited the tie *and* regulated the seller's standalone prices, forcing it to select the lower number. Different assumptions about willingness to pay will yield different outcomes, and bundling will not always be the most profitable strategy.

Interproduct price discrimination such as this generally requires that the seller have market power in all (or both) of the products in the bundle. This entails a strong likelihood that someone who sells both of the products together will eliminate double marginalization and thus maximize its profits at a lower price and higher output than would occur if different sellers sold the two goods individually. Double marginalization may not be the only reason that a seller combines two goods into a single deal. Such combinations can also reduce transaction costs, particularly in cases where the buyer does not know in advance which goods it wants or in what proportion. For example, blanket licensing of copyrighted digital music permits a licensee such as a radio station or restaurant to purchase the license in advance and later pick and choose what it wants to play, on short notice and with complete assurance that it is not committing copyright infringement.²⁶

Nonexcluding Bundled Discounts and Imperfect Complements

When two goods in a fixed proportion bundle are perfect complements, each purchaser wants the combination. If the bundle either eliminates double marginalization or reduces production or transaction costs, then both the seller and all purchasers will be better off. For example, suppose that the standalone profit-maximizing price of A is

²⁶E.g., *BMI v. Moor-Law, Inc.*, 527 F. Supp. 758, 763, 767–68 (D. Del. 1981), *aff'd*, 691 F.2d 490 (3d Cir. 1982).

\$5 and the standalone profit-maximizing price of B is \$4, but a seller who sells both maximizes its profits for an AB bundle at \$8. If all buyers want the AB combination then both producer welfare and consumer welfare are increased by the bundle.

If the two goods are imperfect complements, however, the story is more complicated. Suppose, for example, that all users of B require an A, but that only 80% of A users want a B. In that case bundling will still benefit the set of consumers who want both products. The purchasers who prefer to have an A alone may not be better off, however. On the one hand, they enjoy the price reduction for the combination. On the other hand, they are forced to purchase a unit of B that they do not want. Whether they are better off or worse off depends on whether their gains from the price reduction exceed or are less than their losses from having to take an unwanted B.

This is a situation where the value of bundled discounts comes in. When complements are imperfect some buyers may want the seller's combination but others will not. Depending on the nature of the product and the nature of the tie it may be feasible for the seller to combine the two and pass on the cost savings to those who wish both products, but to offer the higher separate prices to those who prefer only one of the products.²⁷ So in the above example, the 80% of customers who want the AB bundle will buy it at \$8, while those who want only A will pay \$5 for A alone.

Conclusion

Notwithstanding hundreds of court decisions and scholarly articles, tying arrangements remain enigmatic. Conclusions that go to either extreme, per se legality or per se illegality, invariably make simplifying assumptions that frequently do not obtain. For example, by ignoring double marginalization or tying product price cuts it becomes very easy to prove that a wide range of ties are anticompetitive. At the other extreme, by ignoring foreclosure possibilities one can readily conclude that ties are invariably benign. Even when one considers consumer welfare alone, the great majority of ties very likely are competitively benign, with a few exceptions that involve realistic threats of anticompetitive foreclosure.

To be sure, customers may be injured when they want to purchase a smaller package than a seller wishes to sell. The customer might wish to buy a single lot rather than a rancher's 1000 acre spread, or a consumer may wish to purchase two slices of bread out of a loaf. If the seller refuses to oblige that is not an antitrust problem. Neither exclusion of a rival nor a restraint of trade producing higher prices is in prospect. Indeed, in a case such as *Brantley* the per channel cost of delivering a large number of

²⁷See Hovenkamp & Hovenkamp, *Tying Arrangements*, *supra*.

channels is almost certainly lower than the per channel cost of delivering a few. The fixed cost component of a cable television system is a significant portion of its costs and the incremental costs of adding channels are almost certainly very low. The *Brantley* plaintiffs simply want the seller to offer a smaller product than it wishes to offer. That is fundamentally not an antitrust problem.