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TYING NONCOMPETITIVE GOODS

Hebert Hovenkamp*

A tying arrangement can help a seller increase its profits by either controlling or exploiting pricing irregularities in a secondary market.¹ Such tying also benefits consumers by eliminating or reducing the impact of double marginalization. Further, tying occasionally limits the substitution of “inefficient” inputs for the tying product. While the double marginalization problem is common and serves to justify a wide variety of ties, the input substitution problem is too rare and the effects are too ambiguous to determine the general legal status of tie-ins. As a result, input substitution should be ignored as a ground to condemn an otherwise lawful tie or to save an otherwise unlawful one except in the very rare case of clear net effects.

Whether proof, generally or in specific cases, of incremental exploitation of preexisting power should itself suffice to condemn tying is a controversial issue.² Here, we ask how such exploitation—other than through price discrimination³—can be aided by a tie, whether the exploitation exceeds that which would occur without the tie, and whether any such incremental exploitation is accompanied by other anti- or procompetitive features.

Double Marginalization and “Reverse Leveraging”

Consider the monopolist (or cartel) of one product that is used with a second, complementary product that is monopolized by a different firm (or subject to a cartel of oligopoly). If the producers of these two products are unable to coordinate their output the result is likely to be “double marginalization,” which generally results in lower output and higher prices than if the first firm monopolized both products. For example, some critics of a proposed divestiture of Microsoft's Internet Explorer browser from its Windows operating system⁵ argued that if the two products were sold by different firms, each having significant market power, then the combined price of the two would be higher than if they were offered together by a single firm.⁶

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¹See generally ROGER D. BLAIR & DAVID L. KASERMAN, *LAW AND ECONOMICS OF VERTICAL INTEGRATION AND CONTROL* (1983); FREDERICK R. WARREN-BOULTON, *VERTICAL CONTROL OF MARKETS* (1978); Meyer Burstein, *A Theory of Full-Line Forcing*, 55 NW. U. L. REV. 62 (1960).

²See 9 ANTITRUST ¶ 1710.

³See 9 ANTITRUST ¶ 1711.

⁵See *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30 (D.D.C. 2000), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir.), *cert. denied*, 534 U.S. 952 (2001). The government proposed this divestiture and the district court accepted the proposal, but the remedy was vacated by the D.C. Circuit.

⁶See CHRISTINA BOHANNAN & HERBERT HOVENKAMP, *CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION*, ch. 2 (N.Y.: Oxford Press, 2011, forthcoming) (on tying and double marginalization); Richard J. Gilbert & Michael L. Katz, *An Economist's guide to U.S. v. Microsoft*, 15 J. ECON. PERSP. 25 (2001) (“[T]he sum of the operating system and application prices set by an integrated monopolist will be lower than the sum of those prices when set separately by two independent firms each with significant market power.”); Stan J. Liebowitz, *An Expensive Pig in a Poke: Estimating the Cost of the District Court's Proposed Breakup of Microsoft*, 9 GEO. MASON L. REV. 727 (2001); Linda R. Cohen & Roger G. Noll, *Intellectual Property, Antitrust and the New Economy*, 62 U. PITT. L. REV. 453, 457 (2001); John E. Lopatka & William H. Page, *Monopolization, Innovation, and Consumer Welfare*, 69 GEO. WASH. L. REV. 367 (2001); see also R. Venkatesh & W. Kamakura, *Optimal Bundling and Pricing under a Monopoly: Contrasting Complements and Substitutes from Independently Valued Products*, 76 J. BUS. 211 (2003). Bundled discounts can lead to the same results – namely, the

The double marginalization result occurs only when both products are sold at prices above the competitive level. It can apply in both the vertical context, such as when a monopoly manufacturer must distribute through a monopoly dealer, but also in situations involving complements, such as printers and ink cartridges, or hospitals and physicians.⁴ Indeed, the problem is generally more serious in the complementary situations, because often the offerors of complementary products are not in a good position to negotiate with one another, while the participants in a vertical chain of distribution bargain with each other all the time.¹

Because power is required in both markets, double marginalization is unlikely to be of particular concern if the tied product is a commodity such as dry ice or salt. However, it may produce potent savings via tying if the tied product is subject to fixed costs or innovation or manufacturing economies of scale that typically result in prices above short run costs. Double marginalization can occur both when the proportions of sales in the two markets is fixed and when it is variable,² so the consumer welfare savings that result from elimination of double marginalization applies to both.

profit maximizing price of the bundle is lower than the profit maximizing prices of the goods when they are sold separately. Likely examples are *Southeast Missouri Hosp. v C.R. Bard, Inc.*, ___ F.2d ___, 2011 WL 2201067 (8th Cir. June 8, 2011); *Cascade Health Solutions v. Peacehealth*, 515 F.3d 973 (9th cir. 2008).

⁴ See 3B ANTITRUST ¶ 758, which develops the theory mainly in the vertical integration context. In general, as each monopolist of a complement reduces output to its profit-maximizing level, market output for the complementary package goes down further and prices rise further. See W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, *ECONOMICS OF REGULATION AND ANTITRUST* 238–241 (4th ed. 2005); Blair & Kaserman, *supra*, 31–34; William F. Baxter & Daniel P. Kessler, *Toward a Consistent Theory of the Welfare Analysis of Agreements*, 47 STAN. L. REV. 615, 625 (1995).

In the context of complementary products rather than vertical integration the phenomenon is sometimes referred to as the “Cournot complements” problem because it is derived from Cournot’s analysis of pricing by firms that produce complements rather than substitutes. See AUGUSTIN A. COURNOT, *RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH* 99–116 (Nathaniel T. Bacon trans., Macmillan 1897) (1897); see also Patrick Rey & Jean Tirole, *A Primer on Foreclosure*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION ch. 33 (Mark Armstrong & Robert H. Porter, eds., 2007); Giuseppe Dari-Mattiacci & Francesco Parisi, *Substituting Complements*, 2 J. COMPETITION L. & ECON. 333 (2006); Francesco Parisi & Ben Depoorter, *The Market for Intellectual Property: The Case of Complementary Oligopoly*, in THE ECONOMICS OF COPYRIGHT: DEVELOPMENTS IN RESEARCH AND ANALYSIS 162 (Wendy J. Gordon & Richard Watts eds., 2003); James M. Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anticommons*, 43 J.L. & ECON. 1 (2000); Herbert Hovenkamp, *Harvard, Chicago and Transaction Cost Economics in Antitrust Analysis*, 55 ANTITRUST BULL. 613 (2010), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1592476.

¹ The problem is particularly prevalent in high technology markets where the degree of interaction between products is significant and compatibility concerns limit the range of complementary choices. See BOHANNAN & HOVENKAMP, *CREATION WITHOUT RESTRAINT*, *supra*, ch. 1.

² For example, if a monopoly gasoline refiner is selling to gasoline stations that have formed a cartel and are extracting a high markup the refiner can eliminate the markup and benefit both itself and consumers, even though different members of the cartel sell different amounts of gasoline. See James L. Hamilton & Ibrahim Mqasqas, *Double Marginalization and Vertical Integration: New Lessons from*

To illustrate, suppose that most authors prefer to have both a dictionary and a thesaurus, and both are sold in imperfectly competitive markets, such as an oligopoly. A dictionary costs \$10 to make, a thesaurus costs \$8 to make, and the profit-maximizing price of a bundle is \$20. Different firms selling the two products would each try to capture the overcharge. For example, the dictionary maker might charge \$12 on the theory that the thesaurus maker would charge \$8. But the thesaurus maker would charge \$10 on the assumption that the dictionary maker would charge \$10 as well. That outcome, which would yield a package price of \$22, is suboptimal for everyone.³ Fewer consumers would buy and those that did would pay too much. Output for both the dictionary maker and the thesaurus maker would fall below the “joint-maximizing” level. In this case consumer welfare would increase if a single firm sold both the dictionary and the thesaurus for a package price of \$20, which would also be that firm’s profit maximizing level. The firm could either package the two together at a price of \$20, or it could sell each separately at prices of \$12 and \$10, respectively, but also bundle them at a discounted price of \$20.⁴

When a monopolist or oligopolist in one market contemplates the effects of a price cut, it calculates the decreased revenue from the lower price against the increased net revenue from a higher number of sales. For instance, the dictionary maker in the above example might charge \$12, and calculate that a \$2 price cut would yield 1000 additional dictionary sales. However, if the dictionary maker operated in both markets and tied the dictionary to the thesaurus, complementary products both sold at above cost, then a \$2 price cut might yield 1000 additional dictionary sales plus 1000 additional thesaurus sales. That is to say, the profit maximizing price would be lower when a single firm controlled both products and could tie them together. This result could also come about if the sellers of the two products were separate but were able to coordinate their behavior. They would jointly maximize by sharing both the output increase and the price reduction, as in the vertical integration context. Note, however, that the gains accrue only by tying. The seller does not profit simply because he makes both dictionaries and thesauruses, but rather because the output increase in dictionaries attaches to thesauruses as well.

A rule condemning tying in this situation would reduce both producer and consumers’ surplus unless the court also forced the firms to charge less than their individual profit-maximizing prices. One might assume that the dictionary maker could charge \$12 for the dictionary and separately sell the thesaurus at the marginal cost price of \$8. But that result would be no better than bundling, and the seller could not be expected to do it, because some buyers would purchase its thesaurus at the competitive price and then go elsewhere for their \$12 dictionary. That is to say, the lower price on the thesaurus is profitable only on the premise that the seller is obtaining the dictionary sell as well, and vice-versa.

This result very likely explains many bundled discounts that occur in markets where the rival is operating in an oligopoly market and enjoying fairly high markups—a common characteristic of even modestly concentrated American markets.⁵ The firm making the two products sells them individually at

Extensions of the Classic Case, 62 S. ECON. J. 567, 581–84 (1996); Michael Waterson, *Vertical Integration, Variable Proportions and Oligopoly*, 92 ECON. J. 129 (1982).

³ For useful graphical and mathematical elaborations, see Parisi & Depoorter, *supra* note __.

⁴ See Joseph J. Spengler, *Vertical Integration and Antitrust Policy*, 58 J. POL. ECON. 347 (1950); Bruce H. Kobayashi, *Does Economics Provide a Reliable Guide to Regulating Commodity Bundling by Firms? A Survey of the Economic Literature*, 1 J. COMP. L. & ECON. 707 (2005).

⁵ See Robert E. Hall, *The Relation Between Price and Marginal Cost in U.S. Industry*, 96 J. POL. ECON. 921 (1988).

the single-product oligopoly price, but bundles them at a profit maximizing price that is lower than the sum of the individual profit maximizing prices when offered by different firms.⁶

Or consider a hypothetical situation resembling the one in *Jefferson Parish*, where the Supreme Court approved a hospital-anesthesiologist tie.⁷ Suppose a dominant hospital required surgical services from anesthesiologists, a complementary product that was locally sold under conditions of oligopoly. Absent coordination both the hospital and the anesthesiologists would charge too high a price, the output of surgery would accordingly be reduced and consumers harmed. The hospital could negotiate a lower rate for anesthesiology services, however, if it promised a particular anesthesiologist to use its services exclusively. Output would then rise to the “single monopoly” level, prices would fall, and the hospital, the anesthesiologist and its patients would all benefit. This would be an instance of “reverse” leveraging, where tying caused a lower rather than higher price.

Results similar to this are reasonably likely whenever both the tying and tied markets are subject to pricing above the competitive level and sufficient coordination between producers of the two products is unlikely—although even coordination would very likely take the form of tying.⁸ The markets need not be monopolized. As a result, the savings from elimination of double marginalization can apply to almost any market in which the tied product is not a commodity sold at the competitive price. In such markets the profit maximizing price of the tying monopolist is actually lower than that of two firms independently selling the tying and tied products.⁹

Ties that at first glance appear to be accompanied by price increases in the tying product can also be used to control double marginalization, although such arrangements appear to be far less common. Such ties are in fact two part tariffs, in which the seller charges a fixed price for one component and then sells a linked component at a competitive price. For example, suppose a firm has significant market power in its fuel efficient car, which is best distributed by independent dealers, many of which have power in their local markets. If the seller charges its monopoly price to the dealers they will assess a second markup to their customers, producing double marginalization, reduced output, and higher prices. Suppose, however, that the manufacturer builds the monopoly upcharge into a fixed franchise fee and then sells the cars to the dealers at the competitive price. In this case the dealer will still take its markup, but that will reflect only its own power and not that of the manufacturer. Further, because the franchise fee is a fixed cost to the dealer, the dealer can earn more by increasing the volume of cars sold in the time period covered by the fee.¹⁰ The term “tying” is apt because the manufacturer will not sell the cars at this

⁶See, e.g., *Masimo Corp. v. Tyco Health Care Grp., L.P.*, No. CV 02-4770 MRP, 2004 U.S. Dist. LEXIS 26916, at *27 (C.D. Cal. June 9, 2004) (plaintiff challenging defendant’s discount practices which included bundled discounts had profit margins of between 45% and 83% during the period of claimed exclusion). The Ninth Circuit eventually entered an order finding liability on some claims but not others. *Masimo Corp. v. Tyco Health Care Grp., L.P.*, 350 Fed. Appx. 95, 2009 WL 3451725 (9th Cir. Oct. 28, 2009).

⁷ *Jefferson Parish Hospital Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984).

⁸ For example, a dictionary maker and a thesaurus maker could sell packages jointly, agreeing on how to divide the surplus.

⁹ See Herbert Hovenkamp, *Harvard, Chicago and Transaction Cost Economics in Antitrust Analysis*, 55 ANTITRUST BULL. 613 (2010), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1592476; Erik N. Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Competitive Harm*, 52 ARIZ. L. REV. 925 (2010), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443284.

¹⁰ See JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 174–176 (1988), who notes that the theory is very general. See also David Gilo, *Retail Competition Percolating Through to Suppliers and*

price to those who have not paid the fee. That is to say, the competitively priced *cars* are the tying product while the franchise fee is the tied product, which is the reverse of the usual claim in the franchise context. The impact of tying in this case is higher output and lower car prices than would occur if the manufacturer simply sold the cars at wholesale at its profit-maximizing price.

While the theory of double marginalization is generally thought to be robust, actual output effects in particular cases are generally impossible to measure. As a general proposition, however, the theory shows that “linking” two monopolized markets by tying typically does not result in increased consumer or economic harm. Indeed, it is much more likely to be beneficial. Given the present state of analysis, we would not favor elimination of double marginalization as a defense to a tie that is objectionable on other grounds unless there is specific evidence that the tie results in greater output and that its results could not be duplicated in some less objectionable manner.

Limiting Substitution of Inefficient Inputs

Substitutes, including imperfect ones, limit the ability of a defendant to restrict output and to exploit customers. As it raises price above the competitive level, even the sole supplier of an important product will induce some users to shift to the substitute; at some point, additional price increases would sacrifice profits rather than increase them. Thus, such shifts, even to an inferior substitute, limit the detrimental price-output effects of the defendant's monopoly. At the same time, however, such shifts waste society's resources by increasing the production of goods that might not be produced at all when competitive prices prevail.

Some ties can prevent these shifts and thus harmfully remove a constraint on monopoly pricing or beneficially eliminate a wasteful misallocation of resources. Unable to know whether society generally suffers or benefits from ties limiting input substitution, this function does not support general illegality or legality for tying. Because the net balance between these harmful and beneficial tendencies is not likely to be resolved confidently in particular cases, limiting input substitution should presumptively be ignored as a reason to condemn a tie that is otherwise lawful or to save one that is otherwise unlawful.

To illustrate, suppose that in a competitive market a certain type of glue is made up of 50 percent *D*, a drying agent, and 50 percent *B*, a bonding agent. Different proportions work somewhat less well, and in a competitive market *B* costs more than *D*, so the glue makers optimize with the 50-50 mix. But now suppose that *D* is monopolized, and the price is doubled. As a result, the glue makers would now prefer to make a glue that consists of 70 percent *B* and 30 percent *D*. This mix (1) would not be the consumers' first choice in a competitive market; and (2) represents an inefficient allocation of resources in that it does not reflect the relative demand for these two products in a competitive market.

At the same time, the altered mix reduces the demand for *D*, reducing the *D* monopolist's profits. That firm might then respond by (1) pre-mixing *B* and *D* in the original 50-50 mix and selling it only in that form—a form of “technological tie;”⁹ or (2) refusing to sell *D* unless buyers agreed to take all of their *B*

the Use of Vertical Integration, Tying and Vertical Restraints to Stop it, 20 YALE J. ON REG. 25, 54 (2003) (use of tying to limit double marginalization); Sreya Kolay & Greg Shaffer, *Bundling and Menus of Two-Part Tariffs*, 51 J. IND. ECON. 383 (2003) (comparing bundling and two part tariffs). Microsoft uses such a strategy to keep computer makers from assessing too high a markup on its Windows operating system. See Michael P. Akemann, *Microsoft's Licensing Agreements: Theory and Evidence on the Sale of MS-DOS and Windows*, 24 J. CORP. L. 553, 561 (1999).

⁹ See 10 ANTITRUST LAW ¶ 1757. A technological tie occurs when the tying vehicle is not a contract but rather a manufacturer-produced physical combination of the two products. For example, a computer manufacturer wishing to tie its hardware to its software could either (1) use a contract to require each purchaser of one of its computers to buy a specified set of its programs; or (2) pre-load the software on

requirements from the seller as well at a monopoly price designed to restore the attractiveness of the 50-50 mix.¹⁰

The two practices just described have the harmful effect of forcing buyers to take the full 50 percent of the monopolized drying agent, thus expanding the sales of the monopolized product; but they also have the socially beneficial effect of restoring the product mix to that which it would be when both *B* and *D* were sold competitively.¹¹

But known instances of tying for this purpose are extremely rare. Further, determining whether the offsetting economic effects are on balance a gain or a loss requires precise knowledge of the demand curves facing both products and the effects of substitution on the demand for other products. No procedure for assessing net welfare effects is within the competence of the antitrust tribunal. This rationale thus serves neither to condemn ties that are otherwise lawful nor to save those that are otherwise unlawful, except perhaps in a very rare case in which the net effects are very clear.

the computers' hard drives, set a package price, and refuse to sell computers without the pre-installed package.

¹⁰This would actually be a combination of tying and exclusive dealing.

¹¹For the relevant mathematics and diagrams, see ROGER D. BLAIR & DAVID L. KASERMAN, LAW AND ECONOMICS OF VERTICAL INTEGRATION AND CONTROL (1983).