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**Tying:
Requirements Ties, Efficiency and Innovation**

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Requirements Ties, Efficiency and Innovation

Amidst the lively discussion about the whether tie-ins should be assessed under the rule of reason or under the current modified per se rule, relatively little attention has been paid to the form of tying that has been most consistently condemned by the United States Supreme Court. That would be the requirements tie (sometimes referred to as a metering tie). I offer here a competitive assessment of the requirements tie. My conclusion is that, whatever rule is applied to tie-ins generally, requirements ties should be recognized as posing grave risks to competition.¹

I. Requirements Ties

A tie-in occurs when a purchaser of a tying product is forced to purchase a second product (the tied product). Tying should be distinguished from the bundled sale of two or more products. The forcing element is lacking in bundled sales which are, accordingly, generally procompetitive or benign. Tying conduct can be condemned under Section 2 of the Sherman Act as an abuse of monopoly power or, when the forcing power is present, as a restraint of trade in violation of Section 1 of the Sherman Act or Section 3 of the Clayton Act.²

Ties involving the deferred purchase of the tied product are a suspect category because they raise information problems. Some purchasers of the tying product may not focus on the cost of subsequent purchases of the tied product. Moreover, even a savvy and well informed purchaser may have difficulty projecting future use of the tying product and future competitive conditions in the tied product market. These issues were explored in 1982 by Craswell,³ and have been developed by Kaplow and others.⁴ In the Supreme Court's 1992 opinion in *Eastman Kodak Co. v. Image Technical Services, Inc.*, the Court described life cycle pricing difficulties that could make it impossible for the purchaser of the tying product to accurately project future needs and costs.⁵

The case law suggests that most deferred purchase ties are requirements ties.⁶ Professor Nalebuff points to two salient characteristics of the requirements tie that distinguish it from other tie-ins.⁷ The first is that the tying and tied products stand in a complementary relationship. A computer printer is of no use

without the ink needed to perform the printing function. A salt injection machine cannot be used without the proper form of salt. The second and related characteristic of requirements ties is that the value of the tying product depends on the intensity of its use. An intensive user of a computer printer is likely to value it more highly than a less intensive user. The same will be true for an intensive user of a salt injection machine. Requirements ties can also be described as metering ties because the sale of the tied product is a way of metering the use of the tying product.

A final salient characteristic of most requirements ties is that the seller charges a supra-competitive price for the tied product. Without this inflated price, the tie may foreclose rival sellers of the tied product and it may deprive consumers of choice, but it will be difficult to measure injury to consumers.

Most United States Supreme Court decisions that have condemned tying arrangements have involved a requirements tie.⁸ The United States Congress was focused on a requirements tie when it enacted Section 3 of the Clayton Act in 1914.⁹ In the European Union, the term “requirements tie” or “metering tie” has not been used, but a 1979 decision of the Commission condemned such a tie under Article 85 (now Article 81).¹⁰ A tying seller required users of its process patent for manufacturing sausage to purchase sausage casings only from the seller. The Commission declared this arrangement “an unlawful extension by contractual means of the monopoly given by the patent.” The Commission did not suggest a concern that the patentee would gain a monopoly in the casings market but did conclude that the patentee would increase its return through use of the metered tie.

Sellers impose requirements ties to make money. The extra money that a seller garners could be the result of procompetitive efficiencies or of anticompetitive gains. A number of possible explanations for tie-ins have been proposed.¹¹ To understand the competitive effects of requirements ties, both static or allocational efficiencies and dynamic efficiencies must be considered. Assuming no change in the products or services being marketed, efficient allocation is achieved if consumers receive the maximum allocation of these desired items. In contrast, dynamic efficiency is advanced when new or innovative products and services are developed and marketed to consumers.

II. Static or Allocational Analysis of Requirements Ties

Theorists have identified various theories which could explain how imposition of a requirements tie provides the seller with increased revenue. The most descriptive of these explanations is the implementation of metered price discrimination. Other possible theories include: (1) preserving the seller's reputation for quality; (2) efficiencies in distribution; (3) efficiencies in risk allocation; and (4) the leveraging of market power from the tying to the tied market. Aside from metered price discrimination, none of the other explanations is credible for most Supreme Court cases involving requirements ties. The discussion below addresses first the alternate explanations for imposing a requirements tie, then returns to metered price discrimination.

A. Alternate explanations of requirements ties

A reputation for quality argument was advanced by Trident, the tying seller in *Illinois Tool Works, Inc. v. Independent Ink, Inc.*¹² That case involved the tied sale of Trident's patented pizzo-electric printhead with the ink used in the printhead. Trident argued that the tied sale of its ink insured that customers would not purchase inferior inks that could cause the printhead to malfunction. But Trident's own test showed that Independent Ink's product was chemically indistinguishable from its own.¹³ Moreover, major users of the printhead would be well-informed and unwilling to tolerate a product that caused substantial breakdowns or significant quality problems. Buyers should, in any event, be permitted freedom of choice to opt for varying levels of quality with corresponding adjustments in price. The Supreme Court has in the past been skeptical of quality assurance claims, pointing out that the seller, without the anticompetitive consequences of a tie, can issue bulletins or provide information that will allow users to make an informed decision about which aftermarket product to purchase.¹⁴

Efficiencies in distribution are most likely to occur when the tying and tied product are purchased simultaneously. There are no substantial efficiencies evident when the purchaser makes future purchases of the tied product at an unknown frequency. If there were substantial efficiencies in a long term supply relationship, one would expect that buyers would freely choose to enter into that relationship, without being forced to do so by the tying seller.

Risk allocation efficiencies have also been cited as a justification for requirements tying. A purchaser of the tying product might be uncertain of the quality and utility of the product and prefer to pay a low up-front price while paying a higher per use fee through metered sale of the tied product. Here again, however, if buyers really preferred to shift risk in this manner, they would freely choose a metered pricing arrangement without being forced into it by the manufacturer. A manufacturer might offer two differing plans to allow this freedom of choice. The first plan might be an offer to sell at a relatively high price, but with no metered use of the product. The second plan might be a lease for a relatively low price, but contingent on metering, preferably implemented without forced purchase of the tied product from the manufacturer. This plan should be free of antitrust concerns as long as the user is offered meaningful risk allocation choices (a non-competitive offer to sell free of the metering would not obviate the antitrust risk).

Leveraging power from the tying product market to the tied product market also might explain the seller's gain from a requirements tie. Older Supreme Court decisions involving requirements ties rested to some extent on this theory. Leverage theory has been attacked by Bowman and others,¹⁵ who argue that the tying seller possessing monopoly power can shift profits back and forth between the tying and tied products, but cannot increase its overall return above the optimal monopoly price. This conclusion, however, will not hold if use of the tie makes entry into the tied product market more difficult.¹⁶ Moreover, even if there is no threat of monopolization in the tied product market, a requirements tie can have adverse competitive effects when (1) buyers cannot discern at the time of purchase of the tying product what their total costs for subsequent purchases of the tied product will be; and (2) the market for the tied product is oligopolistic, so that the tying seller will reap higher returns through a tie that exploits the market's oligopolistic tendencies, perhaps by making discounted sales less likely.¹⁷ In *Independent Ink*, it seems unlikely that Trident's tie will somehow give that firm monopoly power in ink markets. But the tie will adversely effect the competitive pricing and choices for buyers in the tied product market (see the discussion of allocative effects in the tied product market in part 3.2.3 below).

B. How Metered Pricing Might Produce More Efficient Allocation of the Tying Product

As seems evident from this analysis, the primary impetus for a seller to impose a requirements tie is likely to be a desire to engage in metered, discriminatory pricing. There is some discussion, however, whether the effects of metered pricing are pro- or anticompetitive. Perfect price discrimination could result in higher output and, in this sense, be procompetitive. For example, if a seller can determine the reservation price for every purchaser of its product (the highest price that the purchaser is willing to pay), it could set a range of prices that would increase the number of purchasers above the level that would purchase if only a single uniform price were set. A uniform price on a printhead might be set at the seller's cost (C) plus a reasonable profit (RP). At this price (C+RP), the number of purchases would be X. If the same seller could discriminate perfectly, it could set its price higher than C+RP for those who valued the product highly, but somewhat lower than C+RP for those who placed a lower value on the product. The result would be additional sales of the product (X+Y) and a fuller exploitation of the market power that the printhead seller possesses. The seller could increase both sales and revenue and achieve optimal allocative efficiency.

C. Wealth Transfer Loss as the Primary Injury From Requirements Ties

There are a number of problems with this model of perfect price discrimination. To begin with, one of the harms from monopoly power is the wealth transfer losses to buyers who pay the supracompetitive price for a product. Most, perhaps all, of the seller's increased revenue from a requirements tie will be in the form of a wealth transfer loss to buyers. In theory, the seller may also gain revenue from allocation gains that occur when low intensity users are enticed to purchase more of the tying product. But this gain will occur only if the seller lowers the price of the tying product, something that the case law suggests may not occur at all.¹⁸ Even if the tying seller does reduce the price of the tying product, the increased revenue received from additional sales of the tying product will be minimal because the seller has reduced its mark up of the tying product. Finally, the increase in the price of the tied product may result in intensive users purchasing fewer tying products, so that there may be a net loss in sales of the tying product. Thus, revenue gains will flow primarily from sales of the tied product at

supracompetitive prices, producing a substantial wealth transfer loss to intensive buyers who would have purchased these products regardless of the tie.

Although some scholars reject wealth transfer loss as a concern of antitrust,¹⁹ many others believe that wealth transfer loss, which in most cases will be substantially larger than any deadweight loss, is a primary, perhaps the paramount, concern of antitrust.²⁰ Measures of damages in antitrust cases are often based on loss to consumers from supracompetitive surcharges, an indication that, whatever the theoretical argument, antitrust law as practiced does provide a remedy for wealth transfer losses. Thus, to condemn metered tying based on overpayments made by purchasers of the tied product is well within mainstream U.S. antitrust interpretation. This result is likely to appeal to the consumer base that supports competition laws and is sound economic policy.

D. Allocation Effects in the Tying Product Market

Even if one rejects prevention of power-based wealth transfer as a goal of antitrust, the conclusion that metered price discrimination will result in more efficient allocation (and therefore be procompetitive) is still highly problematic. In order for the tie-in to produce more efficient allocation, there must be substantial transparency in the market so that buyers understand the costs of the bundled offer and sellers understand the reservation prices of buyers. If this transparency exists, it is possible that the tying seller can set the price of the tying and tied products at a levels that will produce increased sales of the tying product. However, prescient buyers will look not just at the price of the tying product, but also at the cost of the tied product. If combined cost is too high, an intensive user with adequate information may purchase fewer tying products, undermining an efficient allocation. Thus, increased sales to low intensity users may be offset by decreased sales to high intensity users.

If there are information inadequacies for the tying seller and for a substantial segment of purchasers, the risk of inefficient allocation grows substantially. Buyers attracted to a low price on the tying product and not adequately cognizant of the future costs for the tied product may overbuy the tying product (a misallocation) and end up using it inefficiently – less often than they would use it if the tied product were sold at a competitive price. Consider the user of a Trident printhead that has a choice

between employing the printhead more widely, or relying on a less attractive technology (for example, pre-printed bar code labels that are pasted on cartons). As the price for the ink for a Trident printhead gets higher, the incentive for the purchaser to make use of Trident's efficient technology is reduced, perhaps forcing this purchaser to continue use of a less preferred alternative.²¹

There is yet another reason to doubt that procompetitive price discrimination will be achieved through a requirements tie's metered pricing. As the Supreme Court cases demonstrate, many requirements ties are not enforced against power buyers.²² If powerful buyers are excepted from metered pricing, the buyers who value the tying product most will likely pay the lowest, not the highest, price. The brunt of discriminatory pricing ends up falling on smaller and less powerful firms, creating a competitive disadvantage for them in competing against firms possessing buyer power.²³

E. Allocative effects in the tied product market

A requirements tie will result in the purchaser paying more for the tied or metering product. Even if this pricing is done in a fully transparent and open manner, its effect on allocation of tied products may be negative. The seller may sell more of the tying product and therefore also sell more of the tied product on which it garners a supracompetitive return. However, as noted above, the supracompetitive price for the tied product will create an incentive for buyers to use the tying product less intensively, and therefore purchase fewer tied items than would occur under competitive conditions. If buyers are prescient, they will understand that the high cost for the tied product is an overall charge for the tying product, and purchase fewer of them as well.

Additional distortions in allocation are likely because of the information problems associated with deferred purchase ties (see the discussion in part I, *supra*). Even if a prescient buyer is able to fully and accurately anticipate future needs, price changes, and other market shifts, the buyer may have limited choice if other sellers of the tying product are engaging in comparable tying conduct.

Finally, before metered price discrimination can be adjudged procompetitive, the evasion costs must be considered. Buyers forced to pay supracompetitive prices for the tied product will not passively accept this result. As a result of tying or exclusive dealing practices, automobile owners in the United

States are forced to pay supracompetitive prices for parts that may be available only from the manufacturer of the vehicle, or a source approved by the manufacturer.²⁴ Consumers seeking a way around these high prices have indirectly given rise to a booming automobile theft market. Thieves steal a vehicle, strip its parts in a “chop shop,” then sell the parts at a price that vastly exceeds the street value of the car itself. Society bears these very substantial costs through higher law enforcement burdens, higher automobile insurance rates, and uninsured losses borne by theft victims.

In the *Independent Ink* case, efforts to avoid the tie were unlikely to produce the array and extent of external costs that occur with automobile parts. However, buyers are likely to expend resources seeking alternative sources of ink. Whatever efficiencies might flow from the metered pricing scheme may be offset by Trident’s own costs in attempting to enforce its tie and in customers’ costs incurred in seeking a way to avoid supracompetitive tied product prices.

Although requirements ties may in some cases be the most efficient way of implementing metered pricing, they are laden with anticompetitive risks that could be entirely avoided if the metered pricing could be implemented without a tie. For example, if the manufacturer of a printhead could incorporate a usage meter, something that sophisticated computer technology could easily accomplish, the manufacturer can implement a metered usage charge without the use of any tying and with no anticompetitive effects on the tied product market. Buyers will retain a full range of choice to purchase the most competitive aftermarket product. Such direct metering charges may be unpopular with buyers, but that is hardly an argument for why the same metering should be allowed through the use of a tying mechanism that has very substantial additional anticompetitive consequences.

III. Dynamic efficiency analysis: will a requirements tie increase innovation?

Proponents of maximum exploitation of IP rights argue that the increased revenues achieved through tying a patented product to an unpatented product provide a desirable increased incentive for innovation. There is little doubt that increased return from a requirements tie creates a higher reward for an owner of a patent on the tying product. But the effect of the increased return achieved through a requirements tie, in contrast to the direct patent reward, (1) is arbitrary because it has no direct

correlation to the value of the underlying patented tying product; and (2) may actually decrease overall innovation because of the constricting impact on the tied product market.

The direct nature of a the basic IP reward can be simply illustrated. If an inventor discovers a novel way to manufacture a solar powered cigarette lighter, the inventor may receive a patent that grants exclusive rights to market this invention. If consumers deem this invention a valuable addition to their portfolio of goods at the price at which it is offered, they will purchase it and reward the patentee. The price and quantity of sales (and therefore the value of the patent reward) will correlate directly with the value that purchasers place on this new invention.

Contrast this with the additional reward that a requirements tie might provide the patentee if, for example, the lighter uses disposable wicks that must be replaced after a number of uses. The patentee's ability to enforce this requirements tie will depend on a variety of factors that have no correlation to the value of the underlying invention. For example, if similar wicks are already widely available in the market from a number of producers, the patentee will likely have difficulty imposing a tie that sets a premium price on the wick. Instead, the patentee will probably have to set the price for its wicks at or near the market price for similar wicks. On the other hand, if it happens that wicks of the necessary type are not available at all, or are available only at high oligopolistic prices, the patentee can easily impose a premium price on the wick that earns a much higher return. The point is that the amount of this return will depend on extrinsic factors (for example, the state of competition in the wick market) that have no correlation with the underlying value of the cigarette lighter.

There is an additional wrinkle to this story. If requirements ties are lawful, the inventor has an incentive to design the patented lighter in a way that functions with a special wick that only the patentee can readily provide. The additional cost incurred in designing the lighter with a difficult-to-replicate wick would not improve the technology, but instead would be a rent-seeking cost incurred by the patentee in an effort to enhance returns. Encouraging such rent-seeking design changes is decidedly not a legitimate purpose of IP laws, but it is an inevitable result of a competition policy tolerant of requirements ties.

This leads to the second reality about requirements ties and the likelihood that they will increase

innovation. Because the patentee employing a requirements tie has an incentive to build and maintain sales of wicks, it will do everything possible to obstruct entry in that market, especially if the would-be entrant offers new or improved technology not offered by the patentee. As long as requirements ties are lawful, the patentee will have an incentive to restrain competition and entry in the tied product market. If requirements ties are unlawful, the patentee is more likely to welcome improvements in wicks that could increase the utility and value of its patented lighter.

These concerns give greater weight to the policy goals underlying Congress' 1914 enactment of Section 3 of the Clayton Act, designed to prohibit anticompetitive requirements ties whether the tying product is "patented or unpatented."²⁵ The case for anticompetitive effects of requirements ties is a strong one, reflected in venerable decisions of the Supreme Court, and consistent with correlating IP rewards with the value of the patented product. The Justice Department and the Federal Trade Commission had an opportunity to steer the law in a positive direction when *Illinois Tool Works* came before the Supreme Court in 2005. That opportunity was lost when the Government's amicus brief focused on the market power presumption to the exclusion of weighty policy concerns about the use of requirements ties.

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1. The analysis presented here is drawn from a chapter entitled *Making Antitrust/Intellectual Property Policy in the United States: Requirements Tie-Ins and Loyalty Discounts*, in HANDBOOK ON INTELLECTUAL PROPERTY AND COMPETITION LAW to be published by Edward Elgar Publishing.
 2. For a more detailed discussion of tie-ins, see LAWRENCE A. SULLIVAN & WARREN S. GRIMES, THE LAW OF ANTITRUST: AN INTEGRATED HANDBOOK §8.3 (2d ed. 2006).
 3. Richard Craswell, Tying Requirements in Competitive Markets: The Consumer Protection Issues, 62 B.U. L. Rev. 661 671-79 (1982).
 4. Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515 (1985); Lawrence A. Sullivan & Warren S. Grimes, The Law of Antitrust: An Integrated Handbook § 8.3c (2d ed. 2006).
 5. 504 U.S. 451, 473 (1992).
 6. There are occasional deferred purchase ties that would not be requirements ties -- for example,

the sale of a cemetery's grave yard plot with a stipulation that the grave stone or stone carving services later be purchased from the cemetery. *Baxley-DeLamar Monuments, Inc. v. American Cemetery Association*, 938 F.2d 846 (8th Cir. 1991).

7. *Illinois Tool Works*. Amicus Brief of Professor Barry Nalebuff, 2005 WL 2427646, at 5

8. *International Salt Co. v. United States*, 332 U.S. 392 (1947); *IBM Corp. v. United States*, 298 U.S. 131 (1936); *United Shoe Machinery Corp. v. United States*, 258 U.S. 451 (1922); *Motion Picture Patents Co. v. Universal Film Manufacturing Co.*, 243 U.S. 502 (1917). Although the plaintiff in the Kodak case alleged a tie between replacement parts and service, the case can fairly be included in the category of requirements ties because a purchaser of Kodak's micrographic equipment is likely to require spare parts in proportion to usage of the equipment. *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451 (1992).

9. 15 U.S.C. §14. Enactment of Section 3 was a response to congressional dissatisfaction with the outcome of *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912)(holding that a requirements tie with a patented tying product did not violate the Sherman Act). Victor H. Kramer, *The Supreme Court and Tying Arrangements: Antitrust as History*, 69 MINN. L. REV. 1013, 1023 (1985).

10. Case 19/79, Official Journal L 019 (1979)(Vaesson/Moris).

11. Sullivan & Grimes, *supra* note 4, §§8.3b, 8.3c.

12. U.S. , 126 S.Ct. 1281 (March 6, 2006). Reply Brief for Petitioner Illinois Tool Works, Inc., 2005 WL 2902587, at 12. The author served as a consultant for Independent Ink during the Supreme Court litigation.

13. *Illinois Tool Works Inc. v. Independent Ink, Inc.*, Brief for Respondent Independent Ink, Inc., 2005 WL 2427645, at 5-6.

14. *Standard Oil Co. of California v. United States*, 337 U.S. 293, 305-06 (1949)(“specification of the type and quality of the product to be used in connection with the tying device is protection enough”).

15. *Ward S. Bowman, Jr., Tying Arrangements and the Leverage Problem*, 67 YALE L. J. 19 (1957); HERBERT HOVENKAMP, *FEDERAL, ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE*, at §7.9 (3d ed. 2005) (Criticizing “troublesome leverage theory”).

16. See Barry Nalebuff, *Bundling as an Entry Deterrent Device*, 119 Q. J. ECON. 159 (2004); Dennis Carlton & Michael Waldman, *The strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194 (2002); Michael D. Whinston, *Tying Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837 (1990).

17. It is possible, for example, that the price-guarantee tying arrangement in *International Salt* was an effort to lock in oligopolistic prices in the salt market. See the discussion of this case in SULLIVAN & GRIMES, *supra* note 4, at § 8.3c2.

18. In *Eastman Kodak*, 504 U.S. at 472-73, Kodak claimed that it did not reduce the price charged for its parts or equipment when it imposed the tie involving Kodak service.

19. ROBERT BORK, *ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 110-12 (1978); (1993); Charles Rule, *Merger Enforcement Policy: Protecting the Consumer*, 56 ANTITRUST L. J. 739- 740 (1987).

20. Robert Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 34 HASTINGS L. J. 67 (1982), Robert Lande, *The Rise and (Coming) Fall of Efficiency as the Ruler of Antitrust*, 33 ANTITRUST BULL. 429, 455-63 (1988).

21. For a similar allocation analysis, see *Illinois Tool Works Inc. v. Independent Ink*, Amicus Brief of Professor F.M. Scherer, 2005 W.L. 2427642, 12-17.

22. Exceptions for power buyers were made in *Eastman Kodak v. Image Technical Services*, 504 U.S. at 475; *IBM Corp. v. United States*, 298 U.S. at 134. In *Northern Pacific Ry. v. United States*, 356 U.S. 1 (1958), the railroad did not impose the tie against 390 of its large customers. F. Jay Cummings & Wayne L. Ruhter, *The Northern Pacific Case*, 22 J.L. & Econ. 329, 344-45 (1979).

23. SULLIVAN & GRIMES, §8.3b2, at 433-34.

24. Professor Scherer offers this example in F. M. SCHERER, *INDUSTRY STRUCTURE, STRATEGY, AND PUBLIC POLICY* 308-11 (1996).

25. 15 U.S.C. § 14.