

A NEO-CHICAGO PERSPECTIVE ON THE LAW OF PRODUCT TYING:

EXPOSING THE LAST SANCTUARY OF THE HARVARD SCHOOL

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## INTRODUCTION

Since the emergence of the Chicago School in the 1980s, U.S. antitrust policy has been evolving into a legal body of increasing economic sophistication. Gone are the days in which courts employed impressionistic assessments of competitive harm in construing challenged business practices.<sup>1</sup> Promoting the welfare of the consumer, economically defined, appears to have emerged as the sole legitimate goal of the antitrust laws.<sup>2</sup> Yet, one area of antitrust jurisprudence—product tying—has remained surprisingly resistant to the recent surge of economic analysis and continues to be regarded with hostility on an almost ubiquitous basis by the courts.<sup>3</sup> It is here that one finds the last refuge of the Harvard School, according to which equitable wealth distribution and harm to competitors must be considered as legitimate antitrust concerns.<sup>4</sup> The law governing

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<sup>1</sup> See, e.g., Stephen Ross, *Network Effects and the Limits of GTE Sylvania's Efficiency Analysis*, 68 ANTITRUST L.J. 945, 945-965 (2001).

<sup>2</sup> See, e.g., *Reiter v. Sonotone Corp.*, 442 U.S. 330, 343 (1979) (holding that the Sherman Act creates a "consumer welfare prescription"); ROBERT BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 427 (New York: Free Press 2d ed. 1993) (arguing that the sole purpose of the antitrust laws is to promote consumer welfare); William J. Kolasky, U.S. and EU competition policy: Cartels, Mergers, and Beyond, <http://www.usdoj.gov/atr/public/speeches/9848.pdf> (noting that "the ultimate goal of any sound competition policy must be consumer welfare, which competition advances through lower prices, higher output and enhanced innovation."); Chang, Evans & Schmalensee, *Has the Consumer Harm Standard Lost its Teeth?* (2002) at 1, [http://ssrn.com/abstract\\_id=332021](http://ssrn.com/abstract_id=332021) ("[C]onsumer welfare is the fundamental standard for evaluating competitive effects."). See generally Robert H. Lande, *Consumer Choice as the Ultimate Goal of Antitrust*, 62 U. PITT. L. REV. 503 (2001).

<sup>3</sup> See *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 6 (1958) (holding that tie-ins "are unreasonable in and of themselves whenever a party has sufficient economic power with respect to the tying product").

<sup>4</sup> See, e.g., Thomas A. Piraino, *Sharp Dealing: The Horizontal/Vertical Dichotomy in Distributor Termination Cases*, 38 EMORY L.J. 311, 313 (1989).

tying arrangements is now a focal point of tension between the two major antitrust philosophies: Chicago and Harvard.<sup>5</sup>

Interestingly, the courts' construction of tying behavior by dominant firms remains ostensibly focused, at least in part, on the well being of the consumer.<sup>6</sup> Importantly, however, the theory of consumer harm typically put forward by the courts within this realm is not one based on economics. It is instead based on a more impressionistic notion of consumer injury. This leads to an interesting issue: are the principles of neoclassical price theory sufficiently capable of protecting consumers? The courts and some academics appear skeptical as to whether such faith in microeconomics is warranted, particularly in the context of product tying where demonstrable market deficiencies, including imperfect competition and information asymmetries, may accompany explicit injury to competitors.

This Article is driven by what the author perceives to be a fundamental shortcoming in the economic analysis of the phenomenon of tying, both by the judiciary and the academy. While many academicians have correctly noted the unsatisfactory nature of the current law,<sup>7</sup> their commentary has yet to provide a workable legal standard by which to readily and effectively dichotomize consumer-welfare enhancing instances of

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<sup>5</sup> See, e.g., *The Antitrust Legacy of the Rehnquist-O'Connor Court*, 20 SUMMER ANTITRUST 8, 10 (2006); Gordon B. Spivack & Carolyn T. Ellis, *Kodak: Enlightened Antitrust Analysis and Traditional Tying Law*, 62 ANTITRUST L.J. 203, 214 (1993) (noting the "ongoing debate . . . among antitrust practitioners, scholars, and members of the judiciary as to whether the antitrust laws foster goals other than economic efficiency").

<sup>6</sup> See, e.g., *United States v. Loew's, Inc.*, 371 U.S. 38, 44-45 (1962) (noting that tying arrangements are an object of antitrust concern as "they may force buyers into giving up the purchase of substitutes for the tied product").

<sup>7</sup> See, e.g., RICHARD POSNER, ANTITRUST LAW 197-207 (University of Chicago Press 2d ed. 2001); BORK, *supra* note 2, at 365-81; David S. Evans & Michael Salinger, *Why do Firms Bundle and Tie? Evidence from Competitive Markets and Implications for Tying Law*, 22 YALE J. ON REG. 37 (2005); Nalebuff, *Bundling, Tying and Portfolio Effects*, DTI Economics Paper No. 1 at 21 (2003), <http://www.dti.gov.uk/ccp/publications.htm>; Ward S. Bowman, *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19 (1957).

tying behavior from the more injurious forms such practices can take. It will be submitted that neoclassical microeconomic theory is indeed capable of making reliable predictions of the effect of tying on consumer welfare.

Product tying occurs when a seller conditions the sale of a product or service (“the tying product”) on the purchase of a second product or service (“the tied product”).<sup>8</sup> Bundling—a closely related concept—is said to exist when two or more products are sold in fixed proportions; while requirements tie-in sales involve consumers being compelled under contract, or otherwise,<sup>9</sup> to purchase all future tied products from the tying firm.<sup>10</sup>

Whence comes the objection to product tying? Competition law has condemned the practice on the grounds: (1) of inherent unfairness to consumers, in that they are being effectively coerced into accepting a second, “tied” product that they do not necessarily desire;<sup>11</sup> (2) that an undertaking with considerable market power in the tying market may seek to extend its monopoly power into a second, otherwise competitive, market through the leveraging effects of product tying;<sup>12</sup> and (3) that tying arrangements create considerable barriers to entry, thereby enhancing the market power of the undertaking engaged in tying, by forcing potential entrants to enter the tied market, if at all, only by entering the tying market as well.

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<sup>8</sup> See, e.g., CARLTON & PERLOFF, MODERN INDUSTRIAL ORGANIZATION (Pearson 4th ed. 2005).

<sup>9</sup> Various pricing techniques such as discount rebates may be found to have an equivalent effect to a contractual tie.

<sup>10</sup> CARLTON & PERLOFF, *supra* note 8, at 321.

<sup>11</sup> See, e.g., *Jefferson Parish Hospital Dist. No. 2 v. Hyde*, 466 U.S. 2, 12 (1984) (“[T]he essential characteristic of an invalid tying arrangement lies in the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms.”).

<sup>12</sup> Evans & Salinger, *supra* note 7, at 38 (“The pre-Chicago case law claimed that tying was an attempt to leverage a monopoly in one market to another.”).

These grounds may strike the reader as providing an entirely reasonable foundation for U.S. law's qualified per se prohibition of product tying, but, as this Article shall strive to make clear, the foregoing objections are based on an economically uninformed view of the business world. Current U.S. law, which holds a company guilty of abusing its dominant position when employing tying arrangements that damage competitors in the tied market, is misguided and ought to be reversed.

This Article shall proceed in five stages. First, the competing schools of antitrust jurisprudence will be introduced and the law as currently applicable in the United States will be presented. Second, the difficult and interesting issue of monopoly leverage will be analyzed in considerable detail. The "single monopoly mark-up constraint" will be explored as a concept excluding the possibility of successful leverage. Though under attack from post-Chicago theorists, the continuing force of the constraint shall be demonstrated. Nevertheless, a limited number of scenarios will be shown to exist in which the constraint may be circumvented, though not directly violated. Here, information and efficiency asymmetries, in addition to markets characterized by severe entry barriers, will be shown to facilitate the possibility of consumer harm. Third, the objection to tying on the base of inherent unfairness to consumers will be considered and shown to be spurious. Fourth, the unique challenges posed by new economy industries will be explored in the context of tying arrangements. Last, and consistent with the preceding discussion, a novel legal standard will be presented which, if enacted, would lead to an optimal outcome with respect to the consumer welfare standard.

## I. THE ROLE OF CONSUMER WELFARE IN ANTITRUST LAW

### A. *The Role of the Chicago School*

The Chicago School's influence over U.S. competition law has been immense and has unequivocally set the consumer welfare standard as the benchmark for antitrust inquiries.<sup>13</sup> A compendious discussion of the school's fundamental tenets and the influence it has had on antitrust law provide the necessary foundation from which to consider the nature and direction of the law's treatment of product tying.<sup>14</sup>

In order to understand the Chicago School approach to antitrust, one must appreciate the economic objections to monopoly, for it is against such evils that Chicagoans seek to employ competition law.

The basic objection to monopoly results from the profit-maximizing strategy pursued by an undertaking which is unconstrained by competition. In maximizing profits, a monopolist will produce at the point where the marginal cost of producing another unit of output equals the marginal revenue which would be gained by selling that unit.<sup>15</sup> As a monopolist faces a downward-sloping demand curve, the price it charges for a given unit will necessarily be larger than the marginal cost of producing that unit.<sup>16</sup> As a result, the monopolist earns positive economic profits.

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<sup>13</sup> See, e.g., Thomas J. Horton & Dr. Stefan Schmitz, *A Tale of Two Continents: The Coming Clash of the Conflicting Economic Viewpoints in Europe and the United States*, <http://www.orrick.com/fileupload/205.htm> (last visited Apr. 17, 2006) (noting "the reverence and deference the Chicago School has received in the United States").

<sup>14</sup> See generally Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925 (1979).

<sup>15</sup> See CARLTON & PERLOFF, *supra* note 8, at 91.

<sup>16</sup> *Id.* at 89.

Why the objection? There are two fundamental reasons. First, by charging a price above marginal cost, a deadweight loss is created for society in the form of foregone transactions that would have taken place but for the supracompetitive pricing.<sup>17</sup> Essentially, there are consumers who value the product or service at a level at or beyond the marginal cost to society of producing it, but who are nevertheless denied access to it. As a result, there is a loss in value as some consumers satisfy their demand by switching to goods that require more of society's scarce resources to produce.<sup>18</sup> In this sense, perverse incentives are created: a consumer believes she is acquiring an equivalent product, but in fact is purchasing a product that costs society more to produce.<sup>19</sup>

The second objection to above-marginal cost pricing is that it creates perverse incentives on the part of a would-be monopolist to expend resources on acquiring and maintaining a monopolistic position. At the limit, such an undertaking would be willing to spend a sum equal to the discounted present value of its expected monopoly profits on obtaining that position.<sup>20</sup> This behavior is known as rent seeking and such expenditure constitutes social waste.<sup>21</sup>

The Chicago approach to antitrust policy is aimed solely at avoiding the various evils associated with monopoly identified above. Therefore, the twin aims of maximizing consumer welfare and efficiency emerge as the combined source of competition policy. To achieve these aims, Chicagoans look to price theory as the means by which to inform the construction of efficiency- and wealth-maximizing rules. Accordingly, harm to

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<sup>17</sup> See, e.g., JEFFREY M. PERLOFF, MICROECONOMICS 357–361 (Addison Wesley Longman 2d ed. 2004); WALDMAN & JENSEN, INDUSTRIAL ORGANIZATION 42–44 (Addison Wesley Longman 2d ed. 2001).

<sup>18</sup> See RICHARD POSNER, ECONOMIC ANALYSIS OF LAW 278 (Aspen 6th ed. 2003).

<sup>19</sup> See POSNER, *supra* note 7, at 12.

<sup>20</sup> *Id.* at 17.

<sup>21</sup> *Id.* at 17.

individual competitors and rising market concentration do not, in themselves, raise antitrust concern. Instead, the relevant issue focuses exclusively on the question of whether price and quality are going to be rendered inferior or superior on the basis of the challenged conduct.

The classic Chicago School found, and continues to find, almost all unilateral business practices to be undeserving of antitrust attention, believing that natural market forces provide a superior remedy than the law.

The post-Chicago School adopts Chicago's central tenet that consumer welfare is the sole, relevant consideration, but places less faith in the functioning of the market place. Accordingly, post-Chicago scholars advocate a more interventionist approach, believing that the legal system is often capable of correcting distortions more quickly than the market. Regardless, microeconomics remains the post-Chicago analyst's tool and the ultimate consideration remains the same: does the practice at issue elevate consumer welfare and economic efficiency?<sup>22</sup>

What is clear is that the Chicago and post-Chicago theories have near-total control over antitrust law in the modern day. The law governing tying arrangements constitutes a quite dramatic instance of divergence.

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<sup>22</sup> See generally Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257 (2001).

## B. *The Harvard School*

Although largely discredited in most settings, the Harvard School's influence nevertheless remains controlling in the realm of tying law. The Harvard School rejects the Chicago contention that maximizing consumer welfare is the sole aim of competition policy. Instead, Harvard followers look beyond purely economic considerations to such political and social ideals as equitable distribution of capital and freedom of access to markets.<sup>23</sup>

The heyday of the Harvard School was the 1960s, during which time the Warren Court embraced the view that antitrust law promotes the well being of small business and general equity, in addition to consumers.<sup>24</sup> Moreover, any practice that constituted a hindrance to contractual and economic freedom to engage in direct competition was condemned.<sup>25</sup>

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<sup>23</sup> See, e.g., Andreas Kirsch & William Weesner, *Can Antitrust Law Control E-Commerce? A Comparative Analysis in Light of U.S. and E.U. Antitrust Law*, 12 U.C. DAVIS J. INT'L L. & POL'Y 297, 304-05 (2006) ("In contrast, Harvard School Interventionists want antitrust law to promote goals such as guaranteeing free access to markets, providing customers with the widest choice of suppliers and the [sic] preventing abuse of economic power."). See generally Schwartz, *'Justice' and Other Non-Economic Goals of Antitrust*, 127 U. PA. L. REV. 1076 (1979); Robert Pitofsky, *The Political Content of Antitrust*, 127 U. PA. L. REV. 1051 (1979).

<sup>24</sup> See, e.g., Michael S. Jacobs, *An Article on the Normative Foundations of Antitrust Economics*, 74 N.C. L. REV. 219, 226-28 (1995) (describing the Harvard School's influence on antitrust policy during the Warren Court era). For the classic, illustrative example of the Warren Court's adoption of Harvard School thinking, see *Brown Shoe Co. v. United States*, 370 U.S. 294 (1962).

<sup>25</sup> See, e.g., Alan Messe, *Price Theory, Competition, and the Rule of the Reason*, 2003 U. ILL. L. REV. 77, 124 (2003) (describing the inhospitality tradition of the era as taking "the form of extreme hostility toward any contractual restraint on the freedom of individuals or firms to engage in head-to-head rivalry").

Much of the Warren Court era's precedent was subsequently overruled as the Chicago School approach gained prominence.<sup>26</sup> Despite this, the Harvard School-influenced law with respect to product tying has remained far more stubborn in its refusal to budge.<sup>27</sup> The burning question is: why?

The answer, almost certainly, lies in the nature of the effect of product tying on the market. One strains to identify an area of antitrust law in which the relative virtues and objections to the practice raise almost every conceivable point of contention between the competing ideologies of the Chicago and Harvard Schools. As will become clear shortly, a tying arrangement can, given the right circumstances, enable a tying firm to deprive rivals of access to their customers in tied markets. The afflicted firms not only have their freedom to consumers constrained, but they may ultimately be forced to exit their markets. Yet, there may be no concomitant reduction in consumer wealth.<sup>28</sup> Clearly, the ideals of the Chicago and Harvard Schools stand in tension.

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<sup>26</sup> See, e.g., *Continental T.V. v. GTE Sylvania*, 433 U.S. 36 (1977) (overruling the Warren Court decision in *United States v. Arnold Schwinn*, 388 U.S. 365 (1967) and holding that vertical non-price based restraints are to be judged under the rule of reason); *State Oil Co. v. Khan*, 522 U.S. 3 (1997) (overruling the Warren Court's holding that vertically-imposed maximum price restraints are illegal per se); see also Jacobs, *supra* note 24 at 220-21.

<sup>27</sup> There have been some instances of attempted evolution within the field toward Chicago, but they have been few and far between. See, e.g., *Illinois Tool Works Inc. v. Independent Ink, Inc.*, 126 S.Ct. 1281 (2006) (rejecting the assumption that patents confer market power for the purposes of an antitrust tying claim); *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 1 (1984) (O'Connor, J., dissenting) (arguing for rejection of the per se illegal standard in tying cases).

<sup>28</sup> See, e.g., Jonathan M. Jacobson, *Exclusive Dealing, "Foreclosure," and Consumer Harm*, 70 ANTITRUST L.J. 311, 311 (2002) (opining that "the highest levels of percentage foreclosure may entail no consumer harm").

### *C. The Supreme Court's Treatment of Product Tying*

Having considered the preceding schools of thought, the ensuing task is to ascertain how the goal of consumer welfare is, and should be, forwarded by the law in the context of product tying. Armed with knowledge of the Chicago and Harvard Schools, consider the following hypothetical:

A large firm, Alpha, operates in two markets. The first market, where Alpha has 100% market share, is for widgets and the second market, where Alpha has a 10% share, is for blodgets. Blodgets are necessary complements for widgets.<sup>29</sup> Alpha decides to tie the sale of the two products in variable proportions, so that a consumer in deciding to purchase a widget must only buy blodgets from Alpha. As a result, Alpha's market share in the tied market rises to approach monopoly levels. Alpha's competitors, having been ruined, cry foul. They proclaim that competition in both markets has been eliminated so that Alpha now enjoys two monopoly profits at the expense of consumers instead of just one, that consumers have been coerced into accepting Alpha's version of the blodget instead of being free to choose others, and that now it is impossible to re-enter the market for blodgets without also entering the market for widgets.

Clearly, the above market effects collide directly with the aims of the Harvard School and, as the Supreme Court has largely accepted the Harvard approach in the tying context, U.S. law would condemn the above situation. Consistent with the Harvard School, it has been held that tying arrangements "generally serve no legitimate business

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<sup>29</sup> Two goods are complementary when a reduction in the price of one increases the demand for the other.

purpose”<sup>30</sup> and that tie-ins both exploit consumers by coercing them to take products they may not desire<sup>31</sup> and create barriers to entry to the tied market.<sup>32</sup> Accordingly, they are unreasonable in and of themselves when the seller has "appreciable economic power in the tying product market and if the arrangement affects a substantial volume of commerce in the tied market.”<sup>33</sup>

This is a modified “per se” standard of liability; as long as a showing of market power in the tying market and a significant impact on the tied market can be made, illegality automatically follows.<sup>34</sup> Importantly, there is no requirement that harm to consumers be positively shown. Instead, it is assumed that the two relevant factors necessarily equate to consumer harm. The accuracy of this assumption will be critiqued shortly.

But if the Court discarded the Harvard approach and sought to enact antitrust rules in a manner consistent with the consumer welfare standard, would one expect Alpha’s behavior, extreme as it is, to be outlawed? Is there any conceivable way to construe this situation so as to be not merely benign, but enhancive of consumer welfare and competition? To go further, might the above situation be more likely than not to benefit consumers?<sup>35</sup>

For the uninitiated, these questions may seem laughable, the answers self-evident. Surely, the acquisition of an additional monopoly market share facilitates further restriction of output, increase in price, and deadweight loss. Moreover, the heightened

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<sup>30</sup> See *U.S. Steel Corp. v. Fortner Enterprises*, 394 U.S. 495, 503 (1969).

<sup>31</sup> See *Jefferson Parish Hospital Dist. No. 2 v. Hyde*, 466 U.S. 2, 12 (1984).

<sup>32</sup> See *id.* at 14-15.

<sup>33</sup> *Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451, 461-462 (1992).

<sup>34</sup> Note also that the tying and tied goods must be shown to belong to different markets for per se illegality to attach. See *Jefferson Parish*, 466 U.S. at 9.

<sup>35</sup> See Part III.G *infra*.

entry barriers must also prolong the double monopoly. Aren't these the very phenomena the Chicago School seeks to protect consumers from? The remainder of this Article will seek to answer this question by economically assessing the practice of product tying to ascertain the situations in which tie-ins will, and will not, promote consumer welfare.

## II. THE REQUIREMENT OF MONOPOLY POWER

A ready, though oft-overlooked, means by which to immediately distinguish potentially damaging from benign tying arrangements involves looking to the market power of the tying firm.

### *A. Where the Tying Market Is Subject to Competition*

In a competitive market, an undertaking will be unable to directly impose any tie that constitutes a source of disutility for consumers. Should it attempt to do so in a competitive market characterized by perfect, symmetric information, it will be unable to make any sales.

In certain cases of information asymmetry, however, it may be possible for a given round of consumers to be made worse off by a tie when they are "locked in" by the initial purchase of the tying product. But such disutility will be ephemeral, for there will be no second round purchasers. More importantly, other areas of law are better suited to such consumer protection.<sup>36</sup> From an economic standpoint, no tie will be capable of restricting output. Necessarily, then, any tie "imposed" in a competitive market will be

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<sup>36</sup> See Part IV.C *infra*.

incapable of diminishing allocative efficiency. Moreover, no such tie will be capable of having a monopolizing effect on the tied market, unless the tie constitutes such a source of efficiency that monopolization results in the tying market first. Obviously, this is implausible, for incumbent competition would similarly impose efficiency-enhancing ties. It follows that no antitrust issues can be raised by an undertaking imposing a tie from a competitive market.

#### *B. Where the Tying Firm Has Significant Market Power*

In a market in which the tying firm has significant market power, though power falling short of monopoly power, no antitrust concerns should arise as a result of a tie imposed on consumers. Note that this is contrary to the current legal standard.

First, monopolization of the tied market cannot result for the consumers of the tied product, by definition, are not solely comprised of those who purchase from the tying firm.<sup>37</sup> As the tying undertaking does not have a monopoly in the tying market, it has competitors whose customers will similarly comprise the tied market. The tie cannot lead to monopolization of the tied market in these circumstances.

Second, an undertaking that does not have a monopoly in the tying market will be unlikely to enter into a tying arrangement that harms consumers. A tie imposed by a firm with even significant market power that harms consumers will be a source of competitive advantage for incumbent rivals in the tying market. One would not expect to see a firm imposing a disadvantageous tie from the perspective of the consumer unless it faces *little*

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<sup>37</sup> See Part III.A *infra*.

*or no* competition in the tying market. If a firm does utilize such a tie, a loss in market share and market power is likely to result, leading to higher levels of allocative efficiency within the tying market in the long run. Knowing this *ex ante*, a firm facing even slight competition will not impose an unwelcome tie, for it will be contrary to its long-term financial interest.

Third, firms wishing to enter the tied market will not discover themselves to be in a position where they are incapable of finding consumers to sell to. This is due to the fact that there are consumers of the tying firm's competitors who will not be subject to a tie. By lowering the prevailing price in the tied market, entrants will further increase the harm to the tying firm of imposing the tie in the tying market. Consumers, in deciding whether to purchase from the near-monopolist in the tying market, or from one of its competitors, will take into account the fact that they can get a better deal in the tied market by purchasing from the latter. The dominant firm will therefore have to drop the tying restriction or suffer further loss of market share. It follows that a tie-in imposed by a firm without monopoly power will be incapable of monopolizing the tied market.

Due to the foregoing factors, it can be concluded that a tie-in imposed by a firm without monopoly power will likely be motivated by efficiency-enhancing objectives.

### *C. Where the Tying Firm Is a Monopolist*

Monopolization of the tied market is capable of following the imposition of a tie only where the tying firm has monopoly power in the tying market. However, this is a necessary but by no means sufficient condition with regard to the questions both of

consumer harm and, indeed, whether monopolization will in fact result. These questions shall now be addressed..

### III. THE IMPLAUSIBILITY OF MONOPOLY LEVERAGE

It is now assumed that a tying firm's monopoly power in the tying market has been established. It is with this assumption that the analysis of product tying becomes interesting.

It seems fitting to begin with the most intuitively powerful objection to product tying, namely that it facilitates the acquisition of additional monopoly power. The process by which a company supposedly acquires such incremental power in a neighboring market is known as "leveraging." The position will be taken that leverage is a specious and vacant concept that serves only to confuse and mislead, rather than to clarify.

The fundamental point to be taken from the upcoming discussion is the counter-intuitive one that a distinction exists between market share and market power; only the latter enables the restriction of output and the diminution of consumer welfare. Given the economic nature of the phenomena, market share acquired and maintained via a tying arrangement is artificial and quite unlike market share existing on a unilateral basis. Price theory can explain why, both in the context of vertical and conglomerate expansion.

### A. *When Will Tying Allow a Firm To Monopolize a Tied Market?*

Before considering the extent to which the acquisition of market share corresponds to the attainment of market power, it must first be understood under what conditions a tie-in will cause monopolization of a tied market. If a tie-in does not have such an effect, there is clearly no threat of monopoly power being acquired.<sup>38</sup>

Successful accumulation of extensive market share in the tied market will occur only where the purchasers of the tying product account for all, or substantially all, of the sales of the tied product. Moreover, a sine qua non for acquisition of market share is that the utility consumers derive from the tying product significantly exceed that conferred by the tied product and that the tied product be purchased as a complement for the more valuable tying product.

What is the consequence of a tie in the absence of these requirements? The answer is that there will be no monopolization and no possibility of consumer harm. So, in a case where the manufacturer of a printing machine makes the sale of its machine subject to the purchase of ink from it too, it could not be said that there was any possibility of the manufacturer monopolizing the market for ink.<sup>39</sup> Here, it can be seen that the consumers in the tied market—the market for ink—are comprised of many more economic actors than those who buy printing machines. Many people and companies purchase ink other than for use with those machines. There is, therefore, no feasible risk of monopolization.

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<sup>38</sup> Correctly, U.S. law does not object to tying arrangements which do not lead to market share acquisition in tied markets. *See Eastman Kodak Co. v. Image Technical Services, Inc.*, 504 U.S. 451, 461-462 (1992).

<sup>39</sup> *See POSNER, supra* note 7, at 198.

In contrast, take the example of the most famous antitrust litigation of recent times involving product tying, the *Microsoft* case.<sup>40</sup> There, Microsoft bundled the sale of its Windows operating system with its internet browsing software, Explorer. In these circumstances, there are few, if any, consumers who could or would utilize internet browsing software without an operating system. As it appears that Microsoft held an effective monopoly over the market for operating software,<sup>41</sup> it follows that few, if any, consumers of internet browsing software could employ such software without also employing Microsoft Windows as the operating system. As a result, it seems clear that by tying Windows and Explorer, Microsoft was able to acquire a large share of the market for internet browsing software.<sup>42</sup> This is as clear an example of monopolization as one is likely to encounter, but this is not the end of the inquiry. The following discussion explores how such “monopolization” is, in fact, typically benign when perpetuated by means of a tying arrangement.

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<sup>40</sup> United States v. Microsoft Corp., 147 F.3d 935 (D.C. Cir. 1998).

<sup>41</sup> See, e.g., Benjamin Klein, *An Economic Analysis of Microsoft's Conduct*, 14 Fall ANTITRUST 38, 38 (1999). But see Testimony of Richard Schmalensee, <http://cyber.law.harvard.edu/msdoj/trial.html>.

<sup>42</sup> It should be noted, however, that this statement fails to incorporate the specific nature of the tied market in this case, for the marginal cost to a consumer of installing a second internet browsing program is small. Nevertheless, the point remains that almost every consumer who desired internet browsing software needed an operating system first. As the latter product contained the former product, extensive acquisition of market share should be expected to follow, unless Microsoft's Internet Explorer was not of comparable quality with the product offered by rivals.

## *B. Tying to Vertically Integrate*

The first illustration of how market share, gained through a tie, will not equate to market power arises in the context of vertical integration. This provides a more readily understandable introduction to the concept than conglomerate expansion.

It is possible for firms to employ tying arrangements to achieve integration—not horizontally, for no firm would ever tie an interchangeable, competing product with its own—but vertically. So, for example, an undertaking may desire to extend its operations “downstream” to control distribution. Thus, a manufacturer, displeased with the level of quality or cost-effectiveness being provided by its distributors or by their lack of intrabrand price competition, may wish to increase its own profits by vertically integrating so as to eliminate the inefficiency at the distribution level. If the manufacturer is a monopolist—that is, it faces no interbrand competition at the competitive price level in the tying market—it will be able to acquire 100% of the distribution market by insisting that any firm or consumer who wishes to purchase its good also avail of its delivery services. In this sense, the manufacturer “monopolizes” the downstream market for its own product. Nevertheless, it ought to be clear that this “monopolization” is not objectionable, for it neither creates further monopoly power for the manufacturer nor leads to higher prices for consumers.

When a profit-maximizing manufacturer internalizes all aspects of the productive and distributive processes involved in getting its products to end-users, it will be in its best interest to minimize its costs in distribution and to charge as low a price for it as possible so as to increase consumer demand for its product. If this is unclear, consider the

following: the manufacturer's dream distributor is one who can deliver its goods at zero cost, for the higher the incremental cost charged by the distributor, the lower the demand for the manufacturer's goods will be at any given level of marginal profit per sale. When the manufacturer takes over distribution by means of a tying arrangement, it will have an incentive to lower cost downstream so as to elevate demand for its product. This cost reduction will equate to lower prices for consumers, higher output and elevated consumer welfare—the very goals the Chicago School seeks to achieve!

The manufacturer, having vertically integrated will of course not charge a higher price for distribution, for this would be akin to charging a higher price at the manufacturing level, which presumably had already been set at its most profitable point. This is our first introduction to the “single monopoly mark-up constraint.”

Just as importantly, though less obviously, the observation can be made that the manufacturer will not impose a tie so as to reserve the downstream activities for itself unless it can perform them more efficiently—that is, at lower cost—than other undertakings. If other firms are more efficient in distribution, it would be in the best interests of the manufacturer to contract with them so as to achieve a lower overall price for the consumer and a concomitant increase in demand for its product at the manufacturing level—a Coasian outcome.<sup>43</sup> It follows that competition law ought to have no quarrel with an undertaking that imposes a tie so as to vertically integrate.

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<sup>43</sup> See Ronald Coase, *The Nature of the Firm*, *ECONOMICA* (1937), available at [http://people.bu.edu/vaguirre/courses/bu332/nature\\_firm.pdf](http://people.bu.edu/vaguirre/courses/bu332/nature_firm.pdf) (arguing that firms will vertically integrate where “the cost of using the price mechanism”—that is, contracting with third parties—exceeds the cost of in-house production). There is no reason to believe that transaction costs would be prohibitively high in these circumstances, for all parties are readily identifiable at low cost and it would be in the self-interest of all parties to negotiate a Pareto-superior agreement.

This is a specific example of a more general proposition that the acquisition of substantial market share through the employment of tie-ins need not be anticompetitive at all.

### *C. Tying to Expand Market Share in Conglomerate Markets*

Even where acquisition of market share via a tie-in does not take place within the same vertical market structure, objectionable monopolization generally does not occur. This concept may be somewhat more difficult to grasp at an intuitive level than the preceding one, but price theory provides the answer. First, it will be demonstrated why the belief that monopolization of a second market through product tying facilitates monopoly power is erroneous. It will then be shown that “monopolization” of a conglomerate market is likely to *enhance* consumer welfare by lowering overall prices.

Imagine that the demand curve facing Alpha in the first market is  $P = 100 - Q$ , while the demand curve for the second market is  $P = 50 - 2Q$ . For simplicity,  $FC_1 = FC_2 = MC_1 = MC_2 = 0$ , where MC = marginal cost; FC = fixed cost. Let us proceed to demonstrate why tying is typically an ineffective method by which to extend monopoly power and decrease industrial output.

Market 1 (tying)

$$P = 100 - Q$$

Market 2 (tied)

$$P = 50 - 2Q$$

$$MC_1 = MC_2 = FC_1 = FC_2 = 0$$

$$\text{Competitive price} = 0$$

$$\text{Competitive price} = 0$$

$$\text{Competitive quantity} = 100$$

$$\text{Competitive quantity} = 25$$

$$\text{Monopoly price} = 50$$

$$\text{Monopoly price} = 25$$

$$\text{Monopoly quantity} = 50$$

$$\text{Monopoly quantity} = 12.5$$

$$\text{Monopoly profit} = 2500^{44}$$

$$\text{Monopoly profit} = 312.5^{45}$$

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<sup>44</sup> Market 1

$$\begin{aligned} TR_1 &= P \cdot Q = P(100 - P) &= 100P - P^2 \\ TC_1 &= 0 \\ \Pi_1 &= TR_1 - TC_1 \\ &= 100P - P^2 \\ \frac{d\Pi_1}{dP} &= 100 - 2P \end{aligned}$$

$$P_1 = 50; Q_1 = 50, \Pi_1 = 2500.$$

<sup>45</sup> Market 2

$$\begin{aligned} TR_2 &= P \cdot Q = Q(50 - 2Q) &= 50Q - 2Q^2 \\ TC_2 &= 0 \\ \Pi_2 &= TR_2 - TC_2 \\ &= 50Q - 2Q^2 \\ \frac{d\Pi_2}{dQ} &= 50 - 4Q \end{aligned}$$

$$Q_2 = 12.5; P_2 = 25, \Pi_2 = 312.5.$$

Consumer surplus = 10,000  
(under competition)

Consumer surplus = 1250  
(under competition)

Consumer surplus = 2500  
(under monopoly)

Consumer surplus = 312.5<sup>46</sup>  
(under monopoly)

It will be assumed that Alpha has a monopoly over market one and also operates within the perfectly competitive market two. Alpha therefore currently enjoys a profit of 2500. Being a profit-maximizing entity, Alpha would like to monopolize market two and, in so doing, acquire an additional 312.5 in profit. It will be assumed that the relationship between the two markets is such that the only consumers of the second product are those who also purchase the first product, and, as can be seen from the respective demand curves, that consumers value the latter at a higher level than the former. Therefore, the imposition of a tie-in will lead to the acquisition by Alpha of 100% market share in the second, tied market and the ostensible exclusion of all incumbent competition. Price theory can demonstrate why employing a tie will not facilitate the exercise or acquisition of additional market power to the detriment of consumers.

The Harvard School approach objected to such “monopolization” on the ground that two monopoly profits would be earned instead of one.<sup>47</sup> In essence, the traditional

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<sup>46</sup> Consumer surplus is the difference between the maximum amount consumers are willing to pay for a good and the amount they actually pay. *See, e.g.*, WALDMAN & JENSEN, *supra* note 17, at 34.

<sup>47</sup> *See, e.g.*, *Times-Picayune Publishing Co. v. United States*, 345 U.S. 594, 611 (1953) (“[T]he essence of illegality in tying agreements is [where] a seller exploits his dominant position in one market to expand his empire into the next.”); *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 6 (1958) (condemning tying arrangements, in part, “because the party imposing the tying requirements has . . . power or leverage . . . to appreciably restrain free competition in the market

view would be that Alpha would charge a single price for both products—assuming that they are bundled—of 75. This figure represents the sum of the monopoly prices of both the tying and tied goods. The most cursory application of price theory demonstrates why this is impossible.

By charging a price for the tying product that is 25 above the monopoly price level for that product *plus* the competitive price level for the tied product (which is zero in this case), consumers deciding whether to purchase the bundled good are faced with the prospect of purchasing a good that is 25 higher than it was before. The case is analogous to Alpha offering the tying product alone for 75 and the bundled good being given away for nothing—the scenarios are synonymous. Therefore, the demand curve for the tying good can be considered to be:

$$P = 100 - Q.$$

In attempting to charge a double monopoly mark-up, Alpha charges a price of 75. Therefore, the quantity produced and sold is 25. Alpha's profit is, therefore, 1875. It need hardly be pointed out that this is considerably less than the profit of 2500 it enjoyed before the imposition of the tie and the attempted double monopoly mark-up. It is clear that an attempt to earn a double monopoly profit will simply result in the firm effectively charging a price above the profit-maximizing, monopoly price in the tying market and earning a supracompetitive return on a fewer number of sales.

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for the tied product"); *United States v. Paramount Pictures*, 334 U.S. 131, 154-55 (1948) (holding that tying arrangements are "devices for stifling competition and diverting the cream of the business").

The error arises as a result of the flawed assumption that market share acquired and maintained via a tie is the same as market share acquired through other means which would allow the exercise of monopoly power. By reasoning as it did, Alpha neglected the fact that the second market is subject to perfect competition where the prevailing price is zero.<sup>48</sup> By imposing a tie and charging more than zero above the monopoly price in the first market, Alpha would be imposing a disutility on consumers—as they would be made pay more for the tied product than they otherwise would have to—which results in a declination in demand for Alpha’s goods in the first, tying market.

It follows that no profit-maximizing undertaking will employ a tie in an attempt to charge a double monopoly mark-up.

The foregoing model has been criticized by the post-Chicago School of antitrust economics.<sup>49</sup> These criticisms will, for the most part, be shown to be unfounded. Even having refuted the post-Chicago objections to the single monopoly mark-up constraint, however, adherence to it nevertheless places a lot of faith in microeconomics. If the best outcome is that we should be indifferent about a tie in terms of consumer welfare and market power, then if there’s any chance of the single monopoly mark-up constraint being violated, we would be better off banning the practice entirely. As this Article highlights a number of instances, albeit severely limited, in which consumer harm may flow from a tie-in, perhaps the U.S. courts are correct in their hostile approach. Crucially, however, a plethora of benefits associated with product tying exist. These are: efficiencies in the form of transaction cost reduction, complementary effects, and price discrimination. Let us consider these in turn.

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<sup>48</sup> Under perfect competition, price equals marginal cost.

<sup>49</sup> See, e.g., Nalebuff, *supra* note 7, at 21. See generally Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515 (1985).

#### *D. Transaction Cost Efficiency*

We, as consumers, purchase tied products all the time. Not only do we often do so without complaint, it is unequivocally in our best interests to have many products sold in bundled form. Indeed, consumers often wish that more tying would take place. A consumer who purchases an electronic good, only to get home to discover that “batteries are not included” experiences an annoyance which will undoubtedly be within the personal experience of the reader. That the manufacturer of the electronic good in question may hold a dominant position in the market in question, and hence be subject to possible antitrust scrutiny if it employed a tie, will do little to ease the frustration of the consumer.

There are innumerable examples of firms engaging in explicit product ties without any hint of commensurate antitrust attention or consumer displeasure. In these circumstances, the efficiencies inherent in a tie far outweigh any objectionable consequence of the practice.<sup>50</sup> So, for example, cars are usually sold with a spare tire, shirts are sold with buttons attached, computers are purchased from original equipment manufacturers with much software pre-installed, shirts come with buttons, and meals are sometimes sold a la carte. In these and many other instances, transaction costs are dramatically lowered by tying arrangements and thus should unequivocally be viewed as legal.<sup>51</sup>

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<sup>50</sup> *See, e.g.,* CARLTON & PERLOFF, *supra* note 8, at 319.

<sup>51</sup> These examples alone prove the fallacy of the Warren Court’s reasoning that “tying arrangements serve hardly any purpose beyond the suppression of competition.” *United States v. Loew’s, Inc.*, 371 U.S. 38, 47-48 (1962).

In such circumstances, it can hardly be argued that the tie-ins are anti-competitive or that consumer welfare is being damaged. Quite to the contrary, tie-ins evidently serve a pro-competitive, efficiency-enhancing objective.<sup>52</sup>

#### *E. Complementary Effects*

We already know that a tying firm won't charge a price higher than the combination of the monopoly price of one product and the competitive price of the other. An interesting question, though, is whether a tying firm, having gained a monopoly in both the tying and tied markets, will ever charge a price *lower* than the combination of these prices. The answer is yes! This is due to complementary effects.

A firm will rarely employ a tie other than between complementary products. Importantly, complementary effects can lead to higher output and lower prices when two or more complementary products are sold by one manufacturer rather than several. Carlton & Perloff describe the phenomenon as follows:

“[W]hen a single firm prices two complementary products, it takes into account that lowering the price on one product will stimulate demand for the other. This demand effect creates an incentive for the firm to set lower prices for both products than would be set if each product were sold by a different firm. Thus, one should expect lower prices and consumer benefits . . . .”<sup>53</sup>

Some have posited, however, that a tie between complementary products in variable proportions is inherently objectionable as an instance of objectionable leverage. If true, this seriously undermines the foregoing economic analysis demonstrating the

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<sup>52</sup> See, e.g., Evans & Salinger, *supra* note 7, at 40–41.

<sup>53</sup> CARLTON & PERLOFF, *supra* note 8, at 638.

existence of the single monopoly mark-up constraint. Professor Bowman representatively writes:

“If two products complement each other . . . the price which maximizes return from the sale of one will depend upon the price at which the other sells . . . when two complements are used in variable proportions . . . the cross-elasticity of the complements creates the condition calling for two distinct prices in order to maximize profit, just as if a single firm had the monopoly of each product. When product complementarity is involved, the higher price charged for product B is not a substituted means of charging for product A . . . the result of the tie-in is to create the equivalent of another monopoly, a monopoly over product B for use with product A. The tie-in thus yields the equivalent of monopoly by a single seller over both A and B. Leverage is present; and the tie-in provides the leverage, since the price and output of one product will necessarily affect the price and output of the other . . . the tie-in creates the equivalent of a new monopoly of B in addition to the monopoly of the complementary product A.”<sup>54</sup>

But this analysis is severely deficient. A tying arrangement between two complementary products is not at all the same “as if a single firm had the monopoly of each product.” If that were the case, the tying firm would set marginal revenue equal to marginal cost and produce the monopoly level of output in each of the tying and tied markets without regard to the other. But we have already seen how a monopoly price being set for one complementary product will reduce the demand not only for it, but also for its complement. Were one of two different firms to each have a monopoly over one of two complementary products, neither would internalize the negative externality of its decision to reduce output to the monopoly level. In contrast, where one firm “monopolized” both markets through product tying—an extraordinarily difficult thing to do, as we have seen—it will reduce the prices of both goods to find the profit-maximizing balance between raising price to earn supracompetitive profits and lowering price to

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<sup>54</sup> Ward S. Bowman, *supra* note 7.

increase the demand for both goods. This price will be lower than where two monopolists each held one of the two markets respectively.

Two illustrative scenarios will be assessed and both will involve two markets comprised of complementary products: the first scenario will involve both markets A and B being monopolized whilst in the second scenario Market A will be monopolized and market B will be perfectly competitive. The ensuing instructive examples will demonstrate how Professor Bowman's conclusion is erroneous.

#### Scenario 1:

The first scenario is quite simple, though the inference created thereby powerful. Alpha is the monopolist of good A in market one, while Beta is the monopolist of good B in market two. In this case, either one of Alpha or Beta are as likely as the other to attempt to tie its sales to the goods in the other market. Both could increase their profits by entering the other's market, employing a tying arrangement to link the two markets under a single price and lowering the constituent prices of both goods so as to maximize the complementary demand-effects.

It is clear in these circumstances that product tying would increase allocative efficiency. It also illustrates Professor Bowman's misconception. While both markets one and two will remain to an extent "monopolized," due to the fact that market power will still be exercised in both, the level of output will be higher than it would in a situation where Alpha and Beta did not enter each other's markets.

## Scenario 2:

Alpha is, once again, the monopolist of good A in market one, except now market two is subject to competition.

What is the effect of Alpha's decision to tie the sale of good A to the purchase of good B? Professor Bowman would have us believe that the effect of the tie-in would be to yield "the equivalent of monopoly . . . over both A and B."

There are two points. First, even if Alpha obtains a monopoly market share in market two, it will necessarily be true that consumers from the first, tying market will be better off in the short-run as a result of the tie, though consumers in the tied market will be worse off. It is possible to make this observation, as price in the tying market will have to be reduced to avail of the complementary demand conditions of selling the tying and tied goods together. *A different question is whether overall consumer welfare, aggregating markets one and two, will be higher or lower.* On these facts, consumer welfare would rise, though this need not invariably be the case and will depend on the relationship between the demand curves. However, *as the consumers comprising market two need to derive greater utility from market one in order for monopolization to follow from a tie, it is more likely than not that the reduction in price in market one will outweigh the rise in price in market two, in terms of the ensuing effects on consumer welfare.* The worst possible outcome is that net consumer welfare will remain level; were it to decrease it, the single monopoly mark-up constraint would be violated.

It follows that the complementary effects inherent in most tying arrangements are a source of consumer welfare-enhancing efficiency and, therefore, counsel for legality.

## *F. Price Discrimination*

A firm with market power may seek to increase the level of its supracompetitive profits by engaging in price discrimination. By charging its customers who greatly value its product a higher price than it charges those who value it less, an undertaking in a dominant position may be able to increase its monopoly profits. In the case of perfect price discrimination, a monopolist will charge each consumer her reservation price. As a result, the competitive level of output is produced, so that there is no allocative inefficiency, though all consumer surplus is transferred to the monopolist. As there is no misallocation of resources, many would argue that perfect price discrimination is to be encouraged rather than forbidden by the antitrust laws.

However, there is some force to the observation that a competition policy seeking to maximize consumer welfare ought to condemn a practice that unequivocally decreases the wealth of consumers to the advantage of undertakings enjoying a dominant position. As against that observation, however, it is also true that, absent the price discrimination, consumers whose reservation prices are above the cost of manufacturing the good, but below the monopoly price, would be denied access to it where they otherwise would not. Accordingly, price discrimination is most likely to be of benefit to people of lower socio-economic background who may have been priced out of the market absent the discrimination. Accordingly, price discrimination may serve an equitable, as well as an efficiency-oriented, goal.

An undertaking may employ a tie so as to approximate the result achieved by direct price discrimination. To do so, a firm with monopoly power can tie its main product to a necessary complement. By charging a price for the tying product equal to the reservation price of the consumer whose utility derived from the product equals the marginal cost of producing the good, the firm would ensure that all consumers who value the tying product more than its cost of production can afford to purchase it. However, the tying firm would insist that its customers purchase the necessary complement from it alone. The discrimination arises in that some consumers will use the tying product more than others and thus will require more of the tied product. By charging a supracompetitive price for the tied product, a firm can extract more profit from heavy users of the tying product than light users. The principle is precisely analogous to charging a higher, direct price to a consumer whose price elasticity of demand is lower than another's.

Crucially, tying arrangements, utilized as “metering devices,” may solve the ubiquitous problem faced by monopolists seeking to price discriminate—namely, the problem of access to information about consumers’ reservation prices—as consumers will self-select into their respective roles by their level of use of the tying product.

The fundamental issue that emerges, however, is whether product tying in the form of price discrimination ought to be allowed under the antitrust laws. It is submitted that the answer should be yes. While price discrimination is likely to reduce the level of consumer surplus of those consumers who would purchase the good with or without the discrimination, that effect is likely to be outweighed by the gains in allocative efficiency where the level of discrimination approximates perfection.

Nevertheless, we must be cautious, for that approximation can never be exact. With a supracompetitive price in the tied market, some restriction in output in the tying market will take place. As long as there is some level of information symmetry, purchasers of the tying product will take into account the supracompetitive price in the tied market and elevate the price of the tying product accordingly. Hence, the marginal purchaser—one who values both the tying and tied goods at their marginal costs of production—will purchase neither, if either is sold at a supracompetitive level. In other words, tying arrangements as metering devices for price discrimination cases necessarily fail to achieve perfect, first degree discrimination. Accordingly, pure allocative efficiency is not realized.

However, the extent of the restriction should not be exaggerated. While first-degree price discrimination is highly unlikely to be observed in the real world in any context, a tying arrangement used as a metering device, properly implemented, may come close to approximating that result.<sup>55</sup>

There is a further beneficial feature of the use of such a tying arrangement. As it will be to the distaste of heavy users of the tied product, the tying arrangement will create an additional competitive advantage for a firm seeking to enter the market. When that fact is combined with the prospect of the incumbent firm enjoying greater returns due to the discriminatory tie-in, it follows that the incentive and ability of potential competition to successfully enter the relevant market or markets is markedly increased. Therefore, the employment of price discrimination may encourage entry into the monopolized, tying

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<sup>55</sup> It should be noted that it is in the interest of the tying firm to implement the tie-in as perfectly as possible so as to increase its profits.

market at a faster rate than would otherwise exist, thus cutting short the period of monopolization.

In addition to the equitable and efficiency goals highlighted above, a *per se* standard of legality for price discrimination would save the extraordinarily high cost of employing the legal system. Combining all these points, the optimal solution appears to be to allow price discrimination. Accordingly, the use of product tying toward that end should also be legitimate.

An important point must be raised here. Many academic commentators have advocated the position that price discrimination ought, in fact, to be struck down entirely. Specifically in the context of tie-ins being utilized as a metering device by which to achieve price discrimination, Professor Barry Nalebuff has recently argued that such facilitating tying arrangements ought to be prohibited for having a net welfare reducing effect:

“One might first expect that price discrimination would fall under the efficiency umbrella . . . [but] discrimination is never perfect in practice and, thus, is not as efficiency-enhancing as this argument (and elementary textbooks) would suggest. The reason is that customers will go to great lengths to avoid being subject to price discrimination and firms will go to great lengths to ensure consumers cannot escape. These wasteful efforts may cause such large distortions that the end result is a reduction in social welfare.”<sup>56</sup>

The shortcoming associated with Professor Nalebuff’s position, however, is that his concerns will by no means apply in many of the situations in which price discrimination may arise. It is unclear what “great lengths” consumers can in fact go to in attempting to avoid price discrimination through product tying. Insofar as the

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<sup>56</sup> Nalebuff, *supra* note 7, at 21.

discriminatory tie imposes a disutility upon a consumer, it renders him more likely to refuse to purchase the tying good and creates a source of competition advantage by which rivals can take his business. In effect, the disfavored tie increases the real price of the tying product and Professor Nalebuff's point amounts to little more than a truism.

It may be fair to suggest that firms will expend resources ensuring consumers cannot escape. It is a well known prerequisite for successful price discrimination that arbitrage be prevented amongst consumers. But there are two points. First, in the context of tie-ins being employed as a metering device, a firm requiring its consumers under contract to purchase their requirements only from it needs only to ensure that consumers do not violate that contract. It is not apparent how enforcement of contracts—an everyday occurrence in the business world—can be construed as involving “great lengths.” Second, Professor Nalebuff provides no reason to believe that the costs associated with preventive behavior are likely to exceed the benefits that may flow from the tie.

Other leading commentators have argued for a similar prohibition on price discrimination generally, which, it may be assumed, would involve viewing price discrimination as an objectionable goal of a tying arrangement.<sup>57</sup> Judge Richard Posner has presented an additional argument in furtherance of the case for regarding price discrimination as malignant. He notes that a monopolist's increased profits as a result of engaging in price discrimination elevates the amount of wasteful expenditures it will be willing to spend in obtaining its monopoly.<sup>58</sup>

Issue may be taken with this position. If the fact of increased earnings by the winner spurs further competition to achieve monopoly, there seems to be no apparent

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<sup>57</sup> See, e.g., *In re Grand Caillou Packing Co.*, 65 F.T.C. 799, 865–869 (1964).

<sup>58</sup> POSNER, *supra* note 18, at 85.

reason why the likelihood of increased earnings will not also increase the constraining influence of potential competition. Knowing this *ex ante*, any incentive to engage in wasteful expenditures may be tempered. Furthermore, and perhaps most importantly given the emergence of high-technology markets, there may be many instances—particularly in intellectual property-based markets—where additional competition to establish the industry standard and obtain a monopoly may be wholly desirable.<sup>59</sup> This is especially likely to be true if the model of “creative destruction” is thought to apply, where any technology-based monopoly is likely to be transitory, as it will swiftly be replaced by the introduction of a new, superior technology, borne as a result of the repeated competition to establish the standard.

#### *G. Back to the Alpha Example*

We can now explain how the extreme hypothetical posed at Part I.C *supra* can be construed in a pro-consumer manner.

By tying widgets and blodgets, Alpha increased consumer utility by reducing transaction costs. As blodgets are necessary complements to widgets, they would have to be purchased separately by consumers anyway. The additional search and negotiations costs are saved by the tie-in. Having now obtained monopoly market share in both markets, Alpha is nevertheless incapable of increasing its profitability mark-up beyond the former level. Net consumer wealth cannot, therefore, be reduced. Moreover, Alpha now internalizes the complementary nature of the tying and tied products. Accordingly, the price of the tying product will be reduced from its former monopoly level and the

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<sup>59</sup> *See id.* at 203.

price of the tied product will be increased. This is nevertheless Kaldor-Hicks efficient, as the increase in wealth of consumers in the widget market will exceed the diminution of wealth in the blodget market. In the meantime, no elimination of rival blodget manufacturers will take place if they are more efficient than Alpha, for it will increase Alpha's profits to outsource production to them. Moreover, should a more efficient firm, Beta, wish to sell blodgets directly to consumers, it will not face a barrier to entry in the form of having to enter the market for widgets as well. This is because investment will be forthcoming from the capital markets as the entrant's superior efficiency will render the probability of post-entry insolvency low. In addition, a suitable joint venturer could be found who would enter the tying market and sell the resulting widgets to Beta for sale to consumers in the tied market.

As a result of the tie, net consumer welfare has clearly risen and no objectionable elimination of competitors has taken place, for the only ones displaced were less efficient than the tying firm. Consumer harm can only be inflicted by Alpha when the tie is cut. But as the tied market is not subject to insurmountable barriers to entry, any exercise of monopoly power in the tied market will be ephemeral. Crucially, any attempt on the part of Alpha to increase prices in that market to monopoly levels will be met with considerable consumer dissatisfaction. Upon the entry of rival blodget manufacturers, that dissatisfaction would likely result in critical loss of market share on the part of Alpha. Knowing this *ex ante*, Alpha is unlikely to raise prices to monopoly levels.

The foregoing analysis may appear to argue that tie-ins are incapable of harming consumers. Unfortunately, this is not the case. Situations do exist in which such harm can arise and it is to those instances that this Article now turns.

#### IV. THE VIOLABILITY OF THE SINGLE MONOPOLY MARK-UP CONSTRAINT

The post-Chicago School of antitrust analysis has questioned the inviolability of the single monopoly profit restriction.<sup>60</sup> This Article takes sharp issue with this view, believing that the constraint can never, in fact, be violated. This is *not* the same as saying, however, that product tying can never be employed to anticompetitive end. Rather, it is a way of saying that *as long as the tying arrangement stays in place, a double monopoly mark-up cannot be employed*. Interestingly, however, a broad consumer welfare standard may find harm even in the absence of allocative inefficiency, albeit in narrow circumstances. It will be shown that the possibility of allocative inefficiency arises only when the tie is cut, but that, paradoxically, the end of the tying arrangement likely renders any associated harm ephemeral.

This Part will seek both to demonstrate the limits of the single monopoly mark-up constraint as a predictor of benign market outcomes and to outline the shortcomings of the leading academic authors who have considered the issue.

The classic Chicago School found tying arrangements inherently benign.<sup>61</sup> This position is unconvincing and four situations will be highlighted in which consumer harm may flow from a tie. These are: instances of regulation, efficiency asymmetry, barriers to entry, and certain new economy industry settings. A ubiquitous feature in all of these

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<sup>60</sup> See, e.g., HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY 370-72 (1994); Evans & Salinger, *supra* note 7, at 40; Warren S. Grimes, *Antitrust and the Systemic Bias Against Small Business: Kodak, Strategic Conduct, and Leverage Theory*, 22 CASE W. RES. L. REV. 231, 253-61 (2001).

<sup>61</sup> See, e.g., BORK, *supra* note 2, at 365 (“[I]t is safe to say that suppression of competition is the one function not accomplished by . . . [tying] arrangements.”).

situations will be extreme assumptions, unlikely to be met in real life. It follows that tying arrangements should enjoy a strong presumption of validity, though this presumption should be stronger in the case of fixed-proportions bundling than for variable-proportions requirements contracts. The reason for this distinction lies in the probability of information asymmetry, from which consumer harm may flow.

Before considering the possible instances of consumer harm flowing from tying arrangements, however, it is important to consider the post-Chicago criticism of the single monopoly profit constraint.

#### *A. Professor Kaplow: Reviving the Leverage Theory*

In 1985, Professor Louis Kaplow produced a highly influential article aimed at reviving the discredited theory of monopoly leveraging and exposing a number of the weaknesses contained in the classic Chicago School analysis of the economic effects of product tying.<sup>62</sup> Noting that school's position that extension of monopoly via tying is impossible, Professor Kaplow argues that there may be a number of circumstances where the pure transfer of monopoly power from one market to another may be highly objectionable. Unfortunately, the work is rather abstract and conclusory, lacking the specific illustrations required to render Professor Kaplow's points convincing.

Professor Kaplow seeks to discredit the single monopoly mark-up constraint by arguing that it fails to distinguish between the exercise of monopoly power in tying and tied markets. In effect, he argues that even if only one monopoly mark-up can be charged, it does matter which market it's charged in. Professor Kaplow proceeds by analogizing

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<sup>62</sup> Kaplow, *supra* note 49.

how market power is exercised with a terrorist carrying a single stick of dynamite. He writes:

“The basic mistake in [the Chicago School’s] central thesis is that antitrust law should be indifferent to the exploitation of monopoly power because extant power is a fixed sum and thus will result in the same damage regardless of how it is deployed . . . Consider the case of a terrorist on the loose with one stick of dynamite. The fixed sum thesis posits that since the power is fixed—that is, the terrorist has one and only one dynamite stick—we should be indifferent to where the dynamite is placed. It is all too obvious, however, that the potential damage resulting from power in this context . . . is overwhelmingly dependent upon how it may be used.”<sup>63</sup>

This, standing on its own as it does in the article, is insufficient to accurately carry the point, for it is difficult to relate to the specific facts of any particular monopolist. In addition, Professor Kaplow makes two critical errors.

First, he gives the impression that a monopolist may be able to employ its market power through product tying far more feasibly than is likely to be the case in the real world. We have already seen that such “freedom” is, for the most part, illusory. An undertaking, even one with monopoly power within a certain market, is not free to exercise that power in any market it chooses. Just to gain market share in a tied market—distinct from market power, as provided by the single monopoly profit constraint—requires more than monopoly market power in the tying market. It requires that the only consumers of the tied product be those who also consume the tying product and derive a higher level of utility from the latter. These are extreme assumptions. Moreover, unless the tying firm has a complete monopoly in the tying market, any attempt to impose an

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<sup>63</sup> *Id.* at 516.

unwanted tie on consumers will lead them to shift their purchases to the tying firm's rivals. Even where a pure monopoly exists, the existence of an unwelcome tie provides an avenue of competitive advantage for a firm wishing to enter the tying market. The analogy with the terrorist looks weak.

Professor Kaplow's second fundamental error lies in thinking that there is necessarily a difference in societal wealth depending on where a monopolist's power is exercised. Professor Kaplow's concerns can be conclusively demonstrated to be baseless with respect to fixed proportions bundling. Where two products are tied in fixed proportions, the level of wealth is precisely the same. Where requirements contracts in variable proportions are at issue, it is in all but the most limited circumstances—such as where the tying market is subject to price regulation—immaterial from which market the monopoly rent is said to come. In general, the inherent efficiencies in a tie, the realization of complementary effects, and efficiency-enhancing price discrimination combine to ensure a consumer-welfare enhancing outcome.

In the regulatory context, however, a company may bypass its regulation by exercising monopoly power in the free tied market instead of the regulated tying market. This leads to a wealth transfer from consumers to the monopolist, but interestingly not to a significant diminution in industrial output and allocative efficiency. These considerations will be assessed in Part IV.B *infra* and ultimately found to warrant prohibition.

Whatever about the variable proportions example, Professor Kaplow's point can be entirely eviscerated with respect to bundling. Where goods are sold in fixed proportions, it doesn't make the slightest difference whether the monopoly power is

exercised over the tying or tied market, for the single price paid by the consumer will be exactly the same. Therefore, the misallocation of society's resources through the exercise of monopoly pricing and the level of overall output will both be the same, as will the overall price.

Thus, Professor Kaplow's statement that "just as it matters where the terrorist leaves the stick of dynamite, it also matters how a firm chooses to exercise the power that it has" is facile and conclusory. It assumes that the firm has the same freedom to choose where to exercise its market power as does the terrorist in choosing his target and that the difference in damage caused by the monopolist's choice of target is comparable. But, in the vast majority of cases, a firm has the ability neither to alter market outcomes with a tie-in nor to change consumer behavior by seeking to exercise power in one tied market over another.

The genuine instances in which tying arrangements may be capable of harming consumer welfare will now be addressed.

### *B. The First Danger: Barriers to Entry and Industry Regulation*

A classic Harvard School argument against tying is that it serves an exclusionary function, by erecting barriers to entry.<sup>64</sup> A firm wishing to enter the tied market must first

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<sup>64</sup> See, e.g., *Jefferson Parish Hospital Dist. No. 2 v. Hyde*, 466 U.S. 2, 12 (1984) (holding that tying arrangements "create barriers to entry of new competitors in the market for the tied product").

enter the tying one, in circumstances in which it would otherwise choose not to. It will be demonstrated that this concern is without substance.

Objectionable exclusion may be defined as the exclusion of an equally or more efficient competitor. Importantly, should a situation arise in which a potential or actual competitor in the tied market is able to provide the relevant product or service at lower cost than the tying firm, it is highly unlikely that entry will be foreclosed. This is so for several reasons.

First, it is in the economic self-interest of the incumbent firm engaged in product tying to contract with the more efficient company; that is, to effectively outsource production.<sup>65</sup> Doing so will lower the tying firm's costs and increase its profits. Should a tying firm decline to contract with a more efficient potential entrant, it will be acting contrary to its first order condition for profit maximization.

Second, even if the incumbent acts irrationally and forecloses entry, the potential, more efficient, entrant has a strong incentive to enter the market anyway. This raises the somewhat controversial issue of whether having to enter two markets instead of one constitutes a significant barrier to entry. But this also demonstrates the considerable weakness of the "entry barriers" objection to product tying, for it is based on the assumption that the tying firm will behave contrary to its own financial interest.

An anticompetitive outcome will arise only if there is an efficiency asymmetry between the tying firm in the tying market and the potential entrant and any joint venturers. Take the situation where the incumbent is more efficient in producing the tying product than the potential entrant, but less efficient in producing the tied product. In this situation, the efficient outcome would involve the potential entrant entering the tied

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<sup>65</sup> See Coase, *supra* note 43.

market.<sup>66</sup> Imagine Alpha is the incumbent engaged in product tying while Beta is the potential entrant.

There are a number of points to make here. First, that Alpha may be more efficient than Beta at manufacturing the tying product does not mean that Beta will be unable to find a third party who would be more efficient than Alpha and who would be willing to engage in a joint venture with Beta. Second, the current asymmetry in efficiency does not alter in any way the fundamental observation that it is in Alpha's interest to contract with Beta.

Nevertheless, in the necessarily restricted and likely to be illogical circumstances where Alpha nonetheless refuses to accommodate Beta, economic efficiency may be damaged. Even then, however, such harm must be weighed against the increased efficiency caused through the joint sale of complementary products. Assuming *arguendo* that there are no efficiencies in this case, does it follow that product tying in this particular market should be struck down? The answer is yes, though this requires a quixotic assumption that the courts will be able to reliably differentiate relatively efficient from inefficient complaining rivals. It is interesting, nonetheless, to note that the tying market need not be characterized by barriers to entry for a tie-in to have an anticompetitive effect in this example. This will typically not be the case.

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<sup>66</sup> It may also be efficient for the potential entrant to enter the tying market in this case where the incumbent is a monopolist in that market. Where the less efficient firm's perfectly competitive price is less than the monopoly price of the more efficient firm, the former's presence is capable of having a constraining effect on the latter's behavior, thereby improving the allocative efficiency of the market. For the present purposes, however, we shall focus on entry into the tied market, as we are concerned with the alleged creation of barriers to entry thereto.

A more serious issue does arise with respect to entry barriers, however. The single monopoly profit constraint lasts only as long as the accompanying tie. When that tie is severed, the relevant firm will be capable of raising price.

Imagine that a monopolist begins tying the sale of its monopolized good to a neighboring market where there is competition. Assume that the conditions are such that monopolization of the tied market takes place. We have seen that the tying firm will not be able to enjoy a monopoly profit in excess of that which originally existed. Once monopolization of the tied market has taken place, however, the tying firm can sever the tie. At this moment, the constraint no longer applies

We now arrive at a critical issue: the ubiquitous question of barriers to entry. If the tied market is characterized by entry barriers, the tying firm will be able to sever the tie and earn monopoly profits in both the tying and tied markets. But an important fact should be noted: the relevant issue is the extent of barriers *after* the tie has been severed, *not* the extent of barriers during the time of the tie. Accordingly, the traditional argument that tie-ins create entry barriers by requiring a potential entrant to enter both the tying and tied markets together— provided by the Harvard School, embraced by the Warren Court, and perpetuated in existence to present day—is irrelevant. Why? Because any barrier created by such a tying arrangement will no longer exist when the barrier issue becomes illuminative on the question of market power.

Accordingly, tie-ins should be subjected to higher levels of scrutiny when the tied market is subject to considerable barriers to entry. As a general matter, however, we can be skeptical about the existence of such barriers.<sup>67</sup> Mere expense involved in entering a

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<sup>67</sup> See, e.g., BORK *supra* note 2, at 310-29, 374 (arguing that entry barriers are “one of the law’s most potent empty concepts” and have been grossly exaggerated).

market should not suffice, nor should efficiencies of incumbent firms, such as economies of scale or lower costs of production. As competition policy seeks to promote consumer welfare, viewing efficiencies as constituent elements of a dominant position punishes firms for success and for benefiting those consumers.<sup>68</sup>

That stringent capital requirements exist in relation to entering a market used invariably to be regarded as a barrier to entry that increased the potential market power of incumbent firms.<sup>69</sup> Under this view, barriers to entry in the form of heavy capital requirements for entry decrease the elasticity of demand for incumbent firms. That view has, however, come under attack and the opinion is now widely held that capital markets operate at least reasonably efficiently so that undertakings wishing to enter a market may do so by borrowing the money it requires. From this point of view, stringent capital requirements for entry into a market do not equate to a barrier to entry.<sup>70</sup> Nevertheless, certain entry barriers do exist.

One instance of genuine entry barriers arises in markets where risk is associated with entry coupled with high investment costs. Here, the cost of capital may be rendered excessively high due to the risk of insolvency upon entry.<sup>71</sup> This will impede access even to efficient markets. Where such outcomes are likely, a potential entrant may face a considerable barrier to entry in the form of high cost of capital. Nevertheless, such instances are rare.

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<sup>68</sup> See the famous comments of Judge Learned Hand in *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 430 (2d Cir. 1945) (“a single producer may be the survivor out of a group of active companies, merely by virtue of his superior skill, foresight and industry . . . The successful competitor, having been urged to compete, must not be turned upon when he wins.”).

<sup>69</sup> See JOE S. BAIN, *BARRIERS TO NEW COMPETITION* 15 (Cambridge, MA: Harvard University Press 1956).

<sup>70</sup> See GEORGE J. STIGLER, *THE ORGANIZATION OF INDUSTRY* 67 (Irwin 1968).

<sup>71</sup> Entry barriers are most likely to exist where Bertrand competition with homogenous products or limit pricing by the incumbent monopolist may be expected to follow entry.

By far the most worrisome form of entry barrier is provided by government regulation. In fact, it is within this context that product tying warrants special scrutiny. Here, the relevant entry barrier exists with respect to the tying market.

Firms providing an essential service or product will often be granted a statutory monopoly and subjected to price regulation, particularly in the natural monopoly context. Rate of return or price cap regulation seeks to impose a pricing regime that will approximate perfect competition. Accordingly, even though a regulated firm granted a statutory monopoly will enjoy a monopolistic position and potential monopoly power, that power cannot be exercised. A firm may attempt to employ a tying strategy to transfer this power to a tied market where it can be exercised. Is this objectionable?

The Chicago School holds that it is not. Representatively, Professor Bowman argued that such tying by a regulated company is benign due to the fact that no additional market power has been created.<sup>72</sup> Under this “fixed-sum” hypothesis, he argued that no antitrust objection should follow as the undertaking in question has not increased its market power:

“Only when freedom to set the price of the monopolized product is denied can a tie-in of two products used in fixed proportions become useful . . . The imposition of a tie-in under these circumstances determines the identity of the seller, but the amount of the tied product actually sold will not differ at all from that which could be sold if the optimum price for the tying product were set. The seller has only established a new method of exercising his already existing monopoly in the regulated product. Leverage, therefore, does not exist when the proportions of the two products are fixed.”<sup>73</sup>

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<sup>72</sup> See, e.g., Bowman, *supra* note 7, at 21-23.

<sup>73</sup> *Id.* at 22.

It is true that a regulated monopolist, engaged in bundling, cannot restrict output in the tied market even if it successfully leverages monopoly power to that market. As output in the tying market is at the competitive level by virtue of regulation, the number of tied goods sold cannot be reduced, for they are sold in fixed proportions. Therefore, allocative efficiency cannot be hindered by a regulated monopolist's bundling strategy. In this respect, Professor Bowman is undoubtedly correct. His error arises in concluding that a lack of allocative inefficiency renders the practice in question benign. An important question remains to be asked: what of consumer welfare? A regulated monopolist's exercise of monopoly power in a tied market, even if it does not restrict output, still involves a transfer payment from consumers and, in the absence of any off-setting benefit, may be a valid ground for forbidding the tie.

In the regulated industry setting, there is no concomitant gain to accompany the wealth transfer. This stands in marked contrast to the phenomenon of price discrimination discussed in Part III.F *supra*. Nevertheless, a per se condemnation of bundling in the regulatory context would be myopic, for countless manifestations of inherent efficiencies will be found there, as everywhere. Where there is no restriction in output, no distortion in market outcomes, yet a significant likelihood of efficiencies, per se illegality seems improper. Instead, the burden should be on a regulated firm to demonstrate the existence of demonstrable efficiencies inherent in its bundling activities. Nevertheless, this is far removed from the Chicago position that the practice is innately benign.

In stark contrast, it can unequivocally be concluded that variable proportions tie-ins in the regulated industry setting should be struck down. Here, a consumer decides on the quantity of the tied good to purchase after the sale of the tying good. Accordingly, an

increase in price in the tied market will reduce both output and allocative efficiency. This clearly violates the Chicago approach to consumer welfare and, hence, should be prohibited.

The wary reader may protest that this Article's condemnation of variable proportions tie-ins in the regulated industry setting contradicts its earlier approval of price discrimination. After all, a regulated monopolist will use variable proportions tying contracts to differentiate amongst its customers on the basis of the intensity of their demand. As in the pure price discrimination example in Part III.F *supra*, a low price will be charged in the tying market (here by law, not by choice), so won't the outcome be the same? The answer is no.

There is a critical distinction: in the regulated industry setting, the exercise of monopoly power is not inevitable. The opportunity cost of allowing a regulated firm to extract monopoly rents from a tied market is the possibility of pure allocative efficiency.<sup>74</sup> If requirements contracts are banned, the regulated monopolist will not be able to suppress output and extract consumer wealth. Outside of the regulatory setting, the legal system relies on the free market to remedy manifestations of market power. When subjected to regulation, natural market forces are severely eroded. Accordingly, we cannot rely on the market to remedy tying repercussions as we do elsewhere. Hence, striking requirements contracts in regulatory settings will forward the goals of competition policy.

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<sup>74</sup> The assumption that regulated industry is subject to perfect price control is, unfortunately, somewhat quixotic! Nevertheless, the point holds true that product tying as a means of price discriminating can *never* achieve allocative efficiency, while regulation, at least in theory, can.

### *C. The Second Danger: Inherent Unfairness to Consumers*

When a firm enjoys a monopolistic position in a given market, it is axiomatic that it possesses a level of control over its customers.<sup>75</sup> Depending on the price elasticity of demand at the competitive price level in the market, there may be a vast array of prices a monopolist can choose to sell at, which will all have different effects on consumer wealth. Of course, the central economic objection to monopoly is that the undertaking will sell goods at a price higher than the marginal cost of manufacturing the product. Despite the unquestionable harm this inflicts upon consumers, the law elects not to prohibit monopoly pricing, except in certain, well-defined regulatory instances.. However, the law does attempt in many cases to prohibit further abuse of consumers by a monopolist and a law prohibiting the coerced acceptance of products not necessarily desired by consumers would arguably be a quintessential manifestation of that principle.

When information asymmetries exist between seller and consumer, whereby the former is in the position of superior information, the seller may be able to bypass the boundaries created by the single monopoly mark-up “constraint.” The circumstances in which such an outcome is most likely to arise are in situations of requirements tie-ins, as opposed to bundling. Where both the tying and tied products are presented as a bundled unit for the consumer’s attention, the ability of the seller to conceal disadvantageous price or other terms with respect to the tied good is necessarily limited. In contrast, where the focus of the sale is on the tying product only, with the tied good being the subject of a

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<sup>75</sup> See WARD S. BOWMAN, PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL 164 n.7 (1973).

contractual obligation on the part of the purchaser, it is more likely that a seller will be able to charge an above monopoly mark-up with respect to the tied product by, perhaps, concealing the exploitative pricing term in a contract of adhesion. With a consumer's focus on the immediate price of the tying product which he is about to purchase, such diminutive, though highly disadvantageous, terms buried within the provisions of a complex contract may escape some consumers' attention. In such situations, a seller may be able to charge two monopoly prices. This is the first consumer welfare objection.

Nevertheless, there is little need to employ antitrust laws in this setting. The process by which sellers conceal disadvantageous price terms is already regulated by contract law. The doctrines of misrepresentation, undue influence, unconscionable bargain and the like adequately protect consumers from the foregoing harm.

But there is also a second objection; one not dependent on information asymmetries.

Whereas the first objection arose in the context of variable proportions tie-ins, the second objection applies to both bundling and requirements tying arrangements. To demonstrate how this second objection may arise, assume that a monopolist employs a tying strategy and charges the profit-maximizing price equal to the sum of the monopoly price in the tying market and the competitive price in the tied market. It has already been shown that allocative efficiency is unaffected by such a business practice and that attempting to charge any more than this summed price will not be profit-maximizing. However, it can also be demonstrated that consumer welfare can be adversely affected, which may be a valid ground for deeming a practice illegal.

Where a consumer's reservation price in the tying market is equal to the monopoly price and his reservation price in the tied market is equal to the competitive price, he will accept the tying arrangement,<sup>76</sup> though his consumer surplus will be zero. If the joint price is raised even an infinitesimal amount, he will not purchase the tied goods and deadweight loss will result. In the former circumstance, the tying arrangement has no impact whatsoever on either deadweight loss or consumer welfare.

Consider the situation, however, where a consumer values the tying good at a level greater than the monopoly price—let us arbitrarily employ the figure ten. Thus, when such a consumer purchases the tying good at a monopoly price of six, she enjoys a consumer surplus of four. Assume also that the consumer does not value the tied product a great deal, so that the utility she gains from purchasing it is less than the competitive price for that product—we shall again create an arbitrary figure of two to represent the gulf between the price of the good and the value it would confer on the consumer. In the absence of a tie, the consumer would purchase the tying product, but not the tied one. Consumer surplus would be four.

Imagine now, however, that the monopolist in the tying market employs a tying strategy, with the single, joint price again equaling the sum of the monopoly price in the tying market and the competitive price in the tied market. The consumer will still purchase the bundled goods, but in doing so will only gain a consumer surplus of two. It is clear that an objectionable instance of disutility has been imposed on the consumer and this is a legitimate factor counseling for the prohibition of the tie. Of course, the diminution in consumer wealth is equaled exactly by the gain to the tying firm—there is

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<sup>76</sup> Though, more technically, he will be indifferent between purchasing and not purchasing the tied goods.

no deadweight loss or allocative inefficiency. It still follows, however, that there is a clear economic objection to product tying on the basis of consumer protection.

Nevertheless, it does not automatically follow that tie-ins should be struck down on this basis. This is so for a number of reasons. First, on a pragmatic level, this problem is systemic in tying scenarios. Accordingly, it is a cost that would have to be considered in the antitrust assessment of every tying arrangement. It is apt to be difficult to quantify and the extent of the harm caused likely to be slight. This latter prediction can be made on the basis of the fact that allocative inefficiency does not result—there is no market distortion. Second, the problem is likely to be self-correcting through natural market forces. Third, any negative impact imposed by a tie must be weighed against the potential gains society may derive therefrom.

Considering the self-correction principle first, it is appropriate to begin by noting that it is unlikely that a firm, even a monopolist, will be able to impose such a disutility on its customers for any sustained period. If some consumers are being hurt by the tie, they will be ready and willing to purchase from a new entrant into the tying market who offers the product in question without insisting on a tying arrangement. This fact is rendered even stronger by the fact that a monopolist that coerces its customers into accepting products they do not want will suffer a significant loss of goodwill, which will aid any potential entrant's attempt to move into the market. Where the market is likely to self-correct insofar as consumer welfare is concerned and there are a potential plethora of legitimate, efficiency-enhancing justifications for the practice of tie-ins, which represent the second ground, there is good reason to decline to automatically strike tying

arrangements on the basis of consumer protection. It is clear, however, that the issue returns to the ever-present question about barriers to entry.

A principle of ubiquitous and determinative importance throughout the economic analysis of product tying, the significance of the concept of barriers to entry is no less pressing here. It would seem to be the case that where a tying market is one characterized by low or at least practically surmountable entry barriers—as it apt to be the case in the vast majority of situations—then the efficiency-maximizing approach is to decline to condemn the tie as being contrary to the competition laws unless other features of the tie call for such prohibition. On the other hand, if it can be shown that entry into the market is likely to be frustrated, then a strong argument exists for striking the tie unless other efficiency-enhancing aspects of the tie outweigh the harm to consumer welfare.

## V. PRODUCT TYING IN THE NEW ECONOMY

The so-called “new economy,” in which technological progress has led to the development of markets predominantly producing output in the form of intellectual property,<sup>77</sup> has created a plethora of new questions for antitrust policy. This is so as traditional antitrust jurisprudence has been aimed at those industries with eventual rising average costs in production.<sup>78</sup> New economy industries are not characterized by such cost functions, but rather by continuously declining marginal cost in production. This is because the product development cycle revolves around initial capital-intensive

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<sup>77</sup> See, e.g., POSNER, *supra* note 7, at 246.

<sup>78</sup> *Id.* at 245.

investment followed by cheap, or virtually free, dissemination.<sup>79</sup> Antitrust policy in traditional markets aims to increase competition in *production*. Doing so leads, *ceteris paribus*, as well as to elevated productive and allocative efficiency. In the new economy, it may be that the most important form of competition is in establishment. The unique economic nature of new economy industries requires a novel approach for antitrust in tying cases. Accordingly, this Part will first present an overview of the economics of network industries and will then proceed to apply those economics to tying arrangement scenarios.

#### *A. The Economic Consequences of the New Economy*

The first point is that network industries are characterized by positive externalities in consumption, alternatively known as network externalities or network effects. Essentially, the value to each consumer increases as the number of consumers utilizing the product in question rises.<sup>80</sup>

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<sup>79</sup> *Id.* at 246.

<sup>80</sup> The classic example involves telephony. A telephone is of no use to someone if no one else also has a telephone. The value to any person with a phone will increase as the number of people subscribing to the telephone network rises. In contrast, traditional markets, such as markets for automobiles, clothing, food, drink and so on, have no such characteristics—when someone purchases a car, he cares little, if at all, about whether other people are also purchasing similar vehicles. This, of course, is not to say that network effects are entirely absent from traditional industries. Indeed, in this example there may be negative externalities in consumption—as the number of people owning and using cars increases, the value to a particular person of owning a car may decline due to congestion. It will be noted, however, that some positive network externalities remain—for example, as the number of cars increase, the number of garages, independent sellers and so on also increase, which all add to the value to any one person owning a car. Nevertheless, the fact remains that the kind of network effects associated with traditional products are typically modest in comparison to the characteristics of markets for intellectual property.

The significance of network effects is that they lead—inexorably if the effects are strong enough—to a situation where a “winner takes all” situation emerges as a result of “tipping effects.” In such circumstances, the first product or standard to achieve widespread consumer acceptance may capture the entire market, even if subsequent alternatives are of lower cost. As the value of purchasing the relevant good to the incremental buyer increases further as consumers continue to purchase the product, there is a natural tendency toward monopolization. It should be clear why the traditional model emphasizing competition does not apply to this situation: it is unlikely that even an oligopolistic structure can survive, as consumers’ utility is maximized by having one standard only. The result is that firms engage in competition in a radically different way.<sup>81</sup>

A counteracting feature of network industries, however, is that beneficial competition may instead occur in establishment, rather than production.<sup>82</sup> The argument is that firms will initially compete on the basis of quality and, to a lesser extent, price, on the belief that consumers are likely to elect the standard or product that conveys the highest utility. However, the efficiency of this model may not be infallible. It is possible that a “winner takes all” structure can lead to the kind of “gold rush” that may be socially wasteful.<sup>83</sup>

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<sup>81</sup> See, e.g., OZ SHY, *THE ECONOMICS OF NETWORK INDUSTRIES* 3 (Cambridge University Press 2001).

<sup>82</sup> See, e.g., POSNER *supra* note 7, at 248.

<sup>83</sup> Imagine that twenty firms compete to establish a new standard for word processing on PC computers. Due to the strong network effects associated with the program, monopolization is certain to result and the degree of learning with the software is such that consumers are effectively “locked-in.” As a result, the winner will enjoy future monopoly profits indefinitely.<sup>83</sup> We will assume that all ten firms will innovate to equivalent degrees of success and will therefore each have, ex ante, a 5% chance of winning. Imagine that there are two markets that the firms could enter. In the first market, there is little or no risk, so that each firm could employ its capital

Is this objection necessarily determinative? The initially surprising answer is no. If we believe that competition to establish a standard increases the eventual quality of the standard thus established, the issue becomes one of whether the value of the capital foregone by the firms which were unsuccessful in setting the standard is exceeded by the greater utility passed onto consumers by the superior technology. If we expect the latter to indeed outweigh the former, the issue then is whether the allocative inefficiency caused by monopoly is greater than the value created by the technology.

On this point, the nature of the technological market is such that the kind of objectionable monopolization associated with winner takes all markets is likely to be ephemeral.<sup>84</sup> This is so due to the high rate of technological innovation, whereby incumbent standards are apt to be rendered obsolete over relatively short amounts of time. Therefore, competition in achieving the industry standard is likely to outweigh the output-restricting effects of competition in production.

It follows that the overall consequence from an antitrust perspective of certain technological markets being characterized by network effects is that particular attention must be focused on the possibility of incumbent monopolists employing exclusionary practices to frustrate the process of creative destruction. This observation has powerful

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to earn \$1000 per annum. In the second market, which is our hypothetical market for word processing, the winner would earn \$100,000 and the losers nothing. At this point, the optimal outcome must be identified.

The optimal outcome would be for one of the twenty firms to enter the “winner takes all” market, earn \$100,000 and for the remaining nineteen firms to enter the “sure bet” market and earn a total of \$19,000. The total income in the two markets would be \$119,000.

Of course, the problem of collective action ensures that such an outcome will not be reached. Instead, each firm will invest in the winner takes all market until its expected return is equal to the opportunity cost of entering the sure bet market—namely, \$1000. Therefore, five firms will compete to establish the industry standard in the winner takes all market, while the remaining fifteen firms will invest in the sure thing market. The total income would be  $1 * \$100,000 + 15 * \$1,000 = \$115,000$ . There has been a social loss of \$4000 caused by wasteful competition.

<sup>84</sup> See, e.g., POSNER *supra* note 2, at 249–50.

ramifications for the current focus on product tying and bundling, for such practices may conceivably be employed to objectionable ends in high-technology, intellectual property industries characterized by externalities in consumption.

A second major feature of modern network industries is that consumers may face significant switching costs in attempting to move from an incumbent firm to a competitor. Such costs arise in the context of network industries due to the difficulty inherent in mastering many of the forms that intellectual property-based products take. Moreover, switching costs are increased further when consumers make additional investments on the basis of their understanding of the product in question.<sup>85</sup> An obvious example is provided by software applications or operating systems. Oz Shy writes:

“Learning to master a particular operating system such as Windows, UNIX, DOS, or a Macintosh takes time . . . It is an established fact that users are very much annoyed by having to switch between operating systems.”<sup>86</sup>

It ought to be immediately apparent that this characteristic will have significant repercussions for competition policy, for it will have an inevitable effect on the ability of superior competition to take market share away from established, incumbent rivals. Switching costs significantly decrease the price elasticity of demand for those consumers who are “locked-in,” meaning that an incumbent firm can further raise price.

A further result of switching costs is closely related to an effect caused by network externalities—namely, that there is likely to be highly significant, initial competition to attract as many consumers as possible. In the case of network effects, the initial

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<sup>85</sup> See, e.g., *Lotus Dev. Corp. v. Borland Int’l, Inc.*, 49 F.3d 807 (1st Cir. 1995), *aff’d*, 516 U.S. 233 (1996) (Boudin J. concurring).

<sup>86</sup> OZ SHY, *supra* note 81, at 4.

competition is to establish the industry standard so as to obtain a monopolistic position. With switching costs, the greater the market share a firm can initially obtain, the stronger its long-term market position will be. In both situations, one would expect to see extreme instances of price- and quality-based competition upon entry. Moreover, and most relevantly for the current assessment of product tying, firms are likely to provide bundled products so as to increase its customer base and to further augment the extent to which its customers are locked-in. It is clear that tying arrangements could conceivably be employed at a loss by a firm with significant financial resources so as to acquire market share ahead of a more efficient rival. Additionally, bundling could plausibly be employed to reinforce the dominant position of an undertaking within a market the consumers of which face switching costs. It follows, therefore, that tying arrangements must be viewed with additional scrutiny in markets where consumers may become “locked-in.”

#### *B. The Competitive Effect of Product Tying in Modern Network Industries*

The unique concern in the new economy setting is that tying may be employed not in the sense usually thought of—that is, by wishing to monopolize a tied market—but instead to consolidate market power within the tying market. By inducing consumers to utilize its products to a higher degree, a tying firm may induce “consumer lock-in” through network externalities. Once such lock-in has been established, the company may then be able to raise price in the tying market. Crucially, though, the tying product must not be one capable of on-line distribution, for if it is, barriers to entry will be dramatically lowered. Assume momentarily, then, that the tying product is for hardware and the tied

product is for software. A consumer's use of the tied product may induce "lock-in" with respect to the hardware.

If this concern is valid, tie-ins in the new economy setting could present a significantly greater threat than those appearing in more traditional settings. The foregoing economic assessment of tying—agnostic and skeptical in its approach—may not be universally applicable. Fortunately, a more insightful analysis reveals that this need not be true and that tying arrangements are as likely to be consumer-welfare enhancing in this environment as any other.

The concern of tying arrangements "locking" customers into high-technology markets is subject to the criticism that it rests on static analysis. Adding dynamic effects to the model may render the objectionable effects of the tie in these markets ephemeral.<sup>87</sup>

A defining feature of the many high-technology markets which are characterized by a high rate of innovation is that: (1) quality trumps price<sup>88</sup> and (2) innovation rates are so high that standards quickly become obsolete.<sup>89</sup> In the latter regard, a firm enjoying a dominant position within a winner takes all, intellectual property market will find itself quickly being displaced should it fail to keep up with technological developments. This fact is facilitated by the former feature of these markets, which markedly decreases barriers to entry.

When a firm's product, formerly the industry standard, is rendered obsolete by virtue of enhanced technology in the hands of rival contemplating entry, the relevant question is whether entry barriers are such as to prevent the emergence and ultimate

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<sup>87</sup> *But see* Steven C. Salop & R. Craig Romaine, *Preserving Monopoly: Economic Analysis, Legal Standards, and Microsoft*, 7 GEO. MASON L. REV. 617, 654-55, 663-64 (1999).

<sup>88</sup> *See* POSNER *supra* note 7, at 249-50.

<sup>89</sup> *See id.* at 249.

consumer acceptance of the rival technology. We have already seen how strong network effects and incompatibility can combine to create powerful barriers to entry. Ironically, however, it is the winner takes all characteristic causing entry barriers that also facilitates entry when a significantly superior standard emerges. Consumers in high-technology markets place a far greater emphasis on quality than on price. The result of this is two-fold: a superior standard, once introduced to an already-monopolized market, is likely to cause a swift movement away from the incumbent to the new entrant, and the new entrant can achieve this while charging prices higher than the prevailing market price for the outdated technology so as to recover the expense of research and development.

These insights bring us full circle: it appears, after all, that the economic distinction between tie-ins employed in the so-called “new economy” and traditional markets is not as significant as would first appear. The processes by which the markets operate are unquestionably different, but this may not alter the observation that natural, undisturbed market forces will pave an inevitable path toward efficient behavior in both contexts.

It does *not* follow from this insight that tie-ins cannot be employed to the detriment of consumers in high-technology markets. Instead, the competitive effects of a tie within such a market must be judged with respect to the level of continuing innovation within the field.

In addition, however, tie-ins could be employed in a traditional manner, though in the new economy setting. Here, a tying firm may seek to gain market share in a tied market. Importantly, the competitive issues are no different from traditional industries, though one aspect is noteworthy: barriers to entry in many intellectual property markets

may be unusually low when on-line distribution can take place. Accordingly, should a tying firm, having successfully “monopolized” a tied market for software, attempt to sever the tie and charge a monopoly price for the tied market, rivals wishing to enter the market may be able to do so instantaneously and at low cost.

In conclusion, tying arrangements within high technology, intellectual property-based markets must be subjected to a different form of antitrust scrutiny than those employed within more traditional contexts.<sup>90</sup> The fundamental observation that anticompetitive effect is unlikely to result remains the same, though the facts under which that assumption breaks down are markedly different. The level of innovation within the relevant market constitutes the fundamental target of the relevant antitrust analysis.

## VI. A NEW LEGAL STANDARD

Adherents to Chicago and post-Chicago thought believe that U.S. antitrust law governing tying arrangements is in dire need of review.<sup>91</sup> The case for rejecting the modified per se rule is compelling.<sup>92</sup> Nevertheless, disagreement exists on what the ideal legal standard should be.

Chicagoans have called for a per se legal approach.<sup>93</sup> For the many reasons discussed above, this would not be an ideal outcome. Instances have been highlighted in

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<sup>90</sup> See, e.g., Debra J. Aron & Steven S. Wildman, *Economic Theories of Tying and Foreclosure Applied—And not Applied—in Microsoft*, 14 FALL ANTITRUST 48, 48 (1999).

<sup>91</sup> See, e.g., Evans & Salinger, *supra* note 7, at 37; BORK *supra* note 2, at 381.

<sup>92</sup> See, e.g., Keith N. Hylton & Michael Salinger, *Reply to Grimes: Illusory Distinctions and Schisms in Tying Law*, 70 ANTITRUST L.J. 231 (2002).

<sup>93</sup> See, e.g., BORK *supra* note 2, at 365.

which consumer harm can follow the initiation of tying arrangements. A legal standard failing to recognize and counter such instances would be inherently flawed.

Post-Chicagoans, although hard to pin down as a single group, would typically desire a rule of reason approach, in which dynamic game theoretic models could be employed to identify anti-competitive outcomes.<sup>94</sup> Demonstrable information asymmetries would likely render the tying arrangement suspect, as would accumulation of monopoly market share in a tied market. Empirical observation would play a key role.

This Article advocates neither position. An ideal rule must recognize, first, that the vast majority of tying arrangements—even those employed by firms with market power—are apt to be efficiency- and consumer welfare-enhancing and, second, that the instances in which anticompetitive effect may arise are isolated. Coupled with Judge Easterbrook's commendable view that courts should err on the side of permissibility,<sup>95</sup> the law should be agnostic with respect the likelihood of consumer harm. This level of skepticism should not, however, rise to the level of deniability.<sup>96</sup> The assessment of product tying scenarios should proceed as follows:

First, actual monopoly power on the part of the tying firm is a sine qua non for consumer harm. Where a tying firm is dominant, but not a monopolist, no tie-in should be held illegal. In other words, where a tying firm does not have a monopoly in the tying market, tie-ins should enjoy per se legality.

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<sup>94</sup> See, e.g., Keith N. Hylton & Michael Salinger, *Tying Law and Policy: A Decision-Theoretic Approach*, 69 ANTITRUST L.J. 469, 472 (2001).

<sup>95</sup> Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1 (1984) (arguing that a marginally anticompetitive practice allowed will eventually be eroded by natural market forces, though a consumer-welfare enhancing practice struck down will have its beneficial effects lost forever).

<sup>96</sup> Accord POSNER, *supra* note 7, at 251.

A strong presumption of legality should exist in all other cases, save the following:

- ❖ Tying arrangements entered into by regulated monopolists should be construed with high levels of scrutiny. Variable proportions requirement contracts should be subject to per se prohibition. Fixed proportions bundling, on the other hand, should be regarded as presumptively illegal, though that presumption could be rebutted upon a showing of overriding efficiencies.
- ❖ Where a tied market is subject to unusually strong entry barriers, greater scrutiny should arise. This scrutiny should only rise to the level of condemnation, however, if the relationship between the tying and tied markets is such that monopolization of the latter is likely to follow a tie-in. The constituent elements of this relationship are: the tying firm must possess a monopoly, or virtual monopoly, in the tying market, the only consumers of the tied product or those that consume the tying product, and the tying product must confer higher levels of utility than the tied product.
- ❖ In the new economy setting, there are two possibilities: tie-ins may be employed to reinforce a dominant position in a tying market, or to monopolize a tied market. Taking the former situation: tying arrangements must be construed in light of the level of continuing innovation in the field and the level of consumer lock-in inherent in the market. Where innovation is slow or cyclical and where network effects are especially strong, product tying must be closely scrutinized.

With respect to product tying as a means of monopolizing a tied market, the usual skepticism should apply. An absolute defense should be a showing by the tying firm that entry barriers to the tied market are especially low. This is likely to be the case in those intellectual property-based industries where on-line dissemination of rival products may be instantaneous and unusually cheap.

Other situations in which harm could conceivably arise are so attenuated as to be unworthy of address. For instance, harm may occur in the rare circumstance where a tying firm is relatively efficient in producing the tying product, but inefficient in producing the tied product, yet refuses to contract with a more efficient firm in the tied market. The rarity arises from the fact that the act would be contrary to the tying firm's self interest. Judge Easterbrook's construction should apply here, for the market inefficiency will inevitably break down. Moreover, rendering the tie illegal in those circumstances would enable inefficient firms to argue that they were being excluded from the tied market. This would ultimately lead to greater levels of harm than good. As excluded rivals' statements would be non-credible, the courts would inevitably struggle to accurately assess the legitimacy of their claims. In sum, the risk of Type II errors by the courts would be prohibitive.

#### CONCLUSION

There is a reason why the Chicago School has yet to appreciably influence the courts in the realm product tying: the economic phenomena at issue are strongly counter-intuitive. Tying represents a unique situation in which the possession of significant market share may not equate to market power. Moreover, the instigation of a tying

strategy by a firm with market share demonstrably damages rivals. Although the courts have some experience in dichotomizing harm to competitors and harm to consumers, one inevitably struggles to conclude that tie-ins eliminating competitors are benign from consumers' perspective.

It is in such a context that the classic Harvard School approach—most clearly applied by the Warren Court—proves convincing to many. The complex price theoretic explanations for the phenomena at issue sit in conflict with the conclusions that seem both apparent and obvious. If there is an ultimate test for the role of economics in antitrust law, product tying is it. So far the law has failed this test by declining to adopt an economically rigorous approach. Indeed, it was in the context of product tying that Milton Friedman—one of the last half century's most prominent economists—recently declared in exasperation that the antitrust laws should be scrapped for doing more harm than good.<sup>97</sup>

Nevertheless, there is some ground for hope. In the not too distant past, the Supreme Court opined that “tying arrangements serve hardly any purpose beyond the suppression of competition.”<sup>98</sup> This erroneous view has now been rejected and the possibility of consumer-welfare enhancing tying arrangements has been recognized.<sup>99</sup> Better yet, there has been some retreat from the per se approach.

The first example of a modern move in American law away from per se illegality exists with respect to physical integration. Where two goods are physically integrated,

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<sup>97</sup> Milton Friedman, *The Business Community's Suicidal Impulse*, [http://www.cato.org/pubs/policy\\_report/v21n2/friedman.html](http://www.cato.org/pubs/policy_report/v21n2/friedman.html).

<sup>98</sup> *United States v. Loew's, Inc.*, 371 U.S. 38, 47-48 (1962) (citing *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293, 305-06 (1949)).

<sup>99</sup> *See Illinois Tool Works Inc. v. Independent Ink, Inc.*, 126 S.Ct. 1281, 1286-87 (2006) (citing *United States Steel Corp. v. Fortner Enterprises, Inc.*, 429 U.S. 610, 622 (1977)).

which, as an economic matter, is analogous to a bundle, the law is dramatically different. Here, legality is effectively presumed and only where a showing that the integration serves no consumer purpose will illegality follow.<sup>100</sup>

The second arises with regard to the new economy. The *Microsoft* case saw the D.C. Circuit enunciate a rule of reason approach to product tying in the context of high-technology, software markets.<sup>101</sup> This is a tremendously encouraging decision and one that is consistent with the economic analysis conducted heretofore.

Nevertheless, Harvard thinking remains firmly engrained in much of the law governing product tying. This Article has attempted to demonstrate the critical shortcomings of the current law by focusing on Chicago-oriented principles of microeconomics. Interestingly, however, the Chicago position itself has been too facile, for situations do exist in which product tying may be utilized in a manner detrimental to consumers.

Accordingly, the author has sought to identify the deficiencies of the Chicago approach to tying and to advocate a legal standard by which to satisfy what ought to be the sole goal of antitrust—the maximization of consumer welfare.

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<sup>100</sup> See, e.g., *Response of Carolina, Inc. v. Leasco Response, Inc.*, 537 F.2d 1307, 1330 (5th Cir. 1976); *Hylton & Salinger*, *supra*, note 94, at 472.

<sup>101</sup> *United States v. Microsoft Corp.*, 147 F. 3d 935, 949–50 (D.C. Cir. 1998).