

THE OBAMA ADMINISTRATION AND §2 OF THE SHERMAN ACT

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Introduction

Under the administration of President George W. Bush, the Antitrust Division was not enthusiastic about using §2 of the Sherman Act to pursue anticompetitive single-firm conduct. Indeed, the Division brought only three, relatively minor §2 cases during that eight-year period.¹ Its most prominent contribution on the issue of single-firm conduct was the Division's §2 *Report*,² which was issued in September 2008 against a well-publicized dissent from several members of the Federal Trade Commission.³ That Report was formally withdrawn only eight months later, as one of the first major competition policy acts of the Obama Antitrust Division.⁴

As soon as President Obama was elected, withdrawal of the Section 2 Report was virtually a foregone conclusion. The Report was extremely tolerant of single-firm conduct, making it extraordinarily difficult to prove a violation in many areas, particularly those involving pricing and refusals to deal.⁵ If President Obama's antitrust

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¹ *United States v. Microsemi Corp.*, No. 1:08cv1131 (AJT/JFA), 2009 WL 577491 (E.D. Va. Mar. 4, 2009); *United States v. Amsted Indus., Inc.*, No. 1:07-cv-00710, 2008 WL 3198887 (D.D.C. July 15, 2008); *United States v. Daily Gazette Co.*, 567 F. Supp. 2d 859 (S.D.W. Va. June 19, 2008). One major monopolization decision decided during the Bush administration was *United States v. Dentsply International, Inc.*, 399 F.3d 181 (3d Cir. 2005), *cert. denied*, 546 U.S. 1089 (2006); however, the case was brought in January, 1999, during the Clinton administration.

² U.S. DEP'T OF JUSTICE, COMPETITION AND MONOPOLY: SINGLE-FIRM CONDUCT UNDER SECTION 2 OF THE SHERMAN ACT (2008), *available at* <http://www.usdoj.gov/atr/public/reports/236681.pdf>.

³ Statement of Commissioners Harbour, Liebowitz and Rosch on the Issuance of the Section 2 Report by the Department of Justice (Sept. 8, 2008), <http://www.ftc.gov/os/2008/09/080908section2stmt.pdf>. Chairman Kovacic issued a separate statement. William E. Kovacic, *Modern U.S. Competition Law and the Treatment of Dominant Firms: Comments on the Department of Justice and the Federal Trade Commission Proceedings Relating to Section 2 of the Sherman Act* (Sept. 8, 2008), <http://www.ftc.gov/os/2008/09/080908section2stmtKovacic.pdf>.

⁴ *See* Christine A. Varney, Assistant Attorney Gen., U.S. Dep't of Justice, *Vigorous Antitrust Enforcement in This Challenging Era 8* (May 11, 2009), <http://www.usdoj.gov/atr/public/speeches/245711.pdf>; Press Release, U.S. Dep't of Justice, *Justice Department Withdraws Report on Antitrust Monopoly Law* (May 11, 2009), http://www.usdoj.gov/atr/public/press_releases/2009/245710.pdf.

⁵ Specifically, the Department would not condemn pricing practices where price is above average avoidable cost. *See* U.S. DEP'T OF JUSTICE, *supra* note __, at 65–67. Moreover, the Department would apply this safe harbor when analyzing bundled discounts in markets with bundle-to-bundle competition, *see id.* at 105, and

enforcers were to act consistently with his own campaign positions⁶ they would very likely have ended up litigating against their own Report. Bitter experience with an earlier version of the Justice Department's Merger Guidelines taught that business firms are entitled to rely on antitrust guidelines. As a result, the Division cannot state a position declaring one standard and later bring an action seeking to establish a standard that is harsher on defendants.⁷ So if the Obama Antitrust Division was not to be noosed in by its own Report, it had to be withdrawn.

This essay suggests in brief outline some areas where more expansive enforcement of §2 by President Obama's administration is warranted, and others where the Division ought to move much more cautiously or not expand enforcement at all. Although my focus is on exclusionary conduct by single firms, which is the traditional concern of §2 of the Sherman Act,⁸ other antitrust provisions come into play as well. In particular, §1 of the Sherman Act⁹ and §3 of the Clayton Act¹⁰ can be brought to bear on conduct that is "unilateral" in economic form but multilateral in the sense that all distribution restraints involve a contract between two or more parties. For example, one notable development in recent law has been the increased use of §2 of the Sherman Act to pursue tying and exclusive dealing, although both of these typically involve an "agreement" among two or more firms. Exclusive dealing imposed on dealers meets the agreement requirements of both Sherman Act §1 and Clayton Act §3; however, the

loyalty discounts, *see id.* at 116. Even where conduct falls outside of the safe harbor, the Department would not condemn a bundled discount unless the "anticompetitive harms are substantially disproportionate to the benefits." *See id.* at 106. The Department also would not condemn a tying practice, even where the practice produces anticompetitive effects, unless "(1) it has no precompetitive benefits, or (2) if there are procompetitive benefits, the tie produces harms substantially disproportionate to those benefits." *Id.* at 90. Finally, the Department would use this "disproportionality" test when analyzing exclusive-dealing arrangements. *See id.* at 140.

⁶ Statement of Senator Barack Obama for the American Antitrust Institute 1 (n.d.), http://www.antitrustinstitute.org/archives/files/aai-%20Presidential%20campaign%20-%20Obama%209-07_092720071759.pdf ("As president, I will direct my administration to reinvigorate antitrust enforcement.")

⁷ *See United States v. Waste Mgmt., Inc.*, 743 F.2d 976, 982–83 (2d Cir. 1984) (rejecting the government's argument that ease of entry is relatively unimportant in determining whether a merger is anticompetitive where the government previously stated in its *Horizontal Merger Guidelines* that ease of entry is decisive).

⁸ 15 U.S.C. §2 (2006). Dominant firm exclusionary conduct is also covered by §5 of the Federal Trade Commission Act. *See, e.g., Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008) (noting that since "§ 5 [of the FTC Act] reaches all conduct that violates § 2 of the Sherman Act," application of "principles of antitrust law developed under the Sherman Act" is proper), *cert. denied*, 129 S. Ct. 1318 (2009).

⁹ 15 U.S.C. §1 (2006).

¹⁰ 15 U.S.C. §14 (2006).

conduct can be essentially unilateral in form, excluding rivals in ways that injure both the dealers and their customers.¹¹

The Relevance of Private Enforcement

One important consideration in determining the appropriate range of government enforcement is that private actions are likely to follow, and private plaintiffs will not share the prosecutorial discretion that we assume of the government agencies. This creates a need, as Joe Brodley observed already in 1995, for “effective integration of public and private enforcement.”¹² The long run impact of antitrust policy in the 1960s and 1970s provides good evidence of how powerful these effects can be. Beginning around World War II the government agencies brought numerous antitrust cases that took aggressive positions on tying,¹³ exclusive dealing,¹⁴ vertical,¹⁵ horizontal¹⁶ and conglomerate¹⁷ mergers; vertical nonprice restraints,¹⁸ the Robinson-Patman Act,¹⁹ and numerous other practices. Private plaintiffs promptly followed, creating an explosion of

¹¹ See, e.g., *United States v. Dentsply Int’l, Inc.*, 399 F.3d 181 (3d Cir. 2005), *cert. denied*, 546 U.S. 1089 (2006) (condemning exclusive dealing under §2); *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam), *cert. denied*, 534 U.S. 952 (2001) (condemning various exclusionary contracts imposed by Microsoft on software and internet developers).

¹² See generally Joseph F. Brodley, *Antitrust Standing in Private Merger Cases: Reconciling Private Incentives and Public Enforcement Goals*, 94 MICH.L.REV. 1, 3 (1995).

¹³ *N. Pac. Ry. v. United States*, 356 U.S. 1 (1958); *Times-Picayune Publ’g Co. v. United States*, 345 U.S. 594 (1953); *Int’l Salt Co. v. United States*, 332 U.S. 392 (1947) (aggressive condemnation of tying in the absence of any showing of market power, when tying product was patented).

¹⁴ *Standard Oil Co. v. United States (Standard Stations)*, 337 U.S. 293, 305 (1949).

¹⁵ *United States v. E. I. du Pont de Nemours & Co.*, 353 U.S. 586 (1957) (condemning vertical merger on the theory that by acquiring a major purchaser of its fabrics and automobile finishes acquiring firm would obtain unfair advantage over competing suppliers); *Ford Motor Co. v. United States*, 405 U.S. 562 (1972) (condemning Ford’s acquisition of Autolite spark plug on similar reasoning).

¹⁶ E.g., *Brown Shoe Co. v. United States*, 370 U.S. 294, 330 (1962); *United States v. Von’s Grocery Co.*, 384 U.S. 270 (1966).

¹⁷ E.g., *FTC v. Procter & Gamble Co.*, 386 U.S. 568 (1967). For a critique, see Joseph F. Brodley, *Potential Competition Mergers: A Structural Synthesis*, 87 YALE L. J. 1 (1977).

¹⁸ *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365 (1967) (vertical nonprice restraints per se unlawful), *overruled by Continental T. V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, (1977) (vertical nonprice restraints to be governed by rule of reason); see 8 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 1642 (3d ed. forthcoming 2010).

¹⁹ E.g., *FTC v. Borden Co.*, 383 U.S. 637 (1966); *United States v. Borden Co.*, 370 U.S. 460 (1962); *FTC v. Henry Broch & Co.*, 363 U.S. 166 (1960); *FTC v. Morton Salt*, 334 U.S. 37 (1948).

antitrust litigation, much of it trivial or even anticompetitive. Further, private plaintiffs continued to bring these cases long after the government had abandoned the aggressive positions it had taken earlier.²⁰

Of course, the government is not responsible for the subsequent actions of private parties. Section 4 of the Clayton Act expressly authorizes such lawsuits,²¹ and §5 makes government-obtained final judgments prima facie evidence of guilt in a subsequent private proceeding.²² But the purpose of the antitrust laws is to make the economy more competitive and progressive. Nuanced expansion at the behest of a government agency can easily turn into unrestrained aggressiveness at the hands of subsequent private plaintiffs. For example, the Justice Department may decide to pursue above cost discounting practices as anticompetitive, relying on robust models and limiting itself to clearly dominant firms. Private plaintiffs are likely to follow, pursuing situations that the government would never have challenged in the first place, involving weaker firms, gerrymandered market definitions, and a focus on intent rather than rigorous economic analysis.

One way to address this problem is to segregate the statutory provisions that the government enforces from those available to private plaintiffs. Section 5 of the Federal Trade Commission Act²³ once performed such a function, because it cannot be enforced by private parties.²⁴ Further, the Supreme Court concluded in the 1960s that §5 reached further than the Sherman Act did, enabling the FTC to pursue conduct that might not be reachable under the Sherman Act.²⁵ But today that distinction retains little vitality.

²⁰ *E.g.*, *Brunswick Corp. vs. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477 (1977). On the range of privately brought cases, see Christina Bohannon & Herbert Hovenkamp, *IP and Antitrust: Errands into the Wilderness* (Univ. of Iowa Legal Studies Working Paper, Paper No. 09-16, 2009), available at <http://papers.ssrn.com/abstract=1377382>.

²¹ 15 U.S.C. §15 (2006) (granting private treble damages action to any person who is injured in his business or property by an antitrust violation).

²² 15 U.S.C. §16 (2006).

²³ 15 U.S.C. §45 (2006).

²⁴ *Amalgamated Util. Workers (CIO) v. Consol. Edison Co.*, 309 U.S. 261, 268 (1940) (“Section 5 of the Federal Trade Commission Act does not provide private persons with an administrative remedy for private wrongs.” (quoting *FTC v. Klesner*, 280 U.S. 19, 25 (1929))); *Morrison v. Back Yard Burgers, Inc.*, 91 F.3d 1184 (9th Cir. 1996) (noting that there is “no private cause of action for violations of the Federal Trade Commission Act”); see also *Moore v. N.Y. Cotton Exch.*, 270 U.S. 593, 603 (1926) (“[R]elief in . . . cases under the [Federal] Trade Commission Act must be afforded in the first instance by the Commission.”).

²⁵ *FTC v. Brown Shoe Co.*, 384 U.S. 316, 321 (1966) (condemning exclusive dealing under FTC Act §5 in an unconcentrated market with low entry barriers, under an “incipiency” standard that feared greater harm in the future).

When the FTC challenges an exclusionary practice the courts generally interpret §5 according to Sherman §2 principles.²⁶

The underlying point should be clear, however: the government could function with more confidence in the social efficacy of its actions when pursuing conduct on the margin, if it knew that the standards created by a court decision could not automatically be used by private plaintiffs. Relatedly, the social cost of an incorrect government injunction is often far less than the large treble damage award that private plaintiffs can obtain. A case in point is *Conwood*, in which the defendant committed behavior that was certainly tortious, but almost equally certainly not an antitrust violation. The government's prospective injunction against a business tort that is incorrectly interpreted as an antitrust violation is likely to do little social harm. But in this case private plaintiffs were able to obtain more than a billion dollars in damages on the basis of a faulty expert report that violated elementary rules of statistics.²⁷

There is a related issue involving private actions, however. In some cases the injury caused by an antitrust violation is clear but proof of causation and damages eludes private plaintiffs. A case in point is restraints on innovation, which are discussed briefly below.²⁸ The economic harm caused by restraints on innovation can be enormous, perhaps far larger than those caused by traditional restraints on pricing or output. However, the results of innovation are extremely difficult to predict, making it impossible for many classes of private plaintiffs to show how they were injured by a particular restraint. In general, the government should pay more attention to restraints of this nature because it is the only practical enforcer. Its statutory mandate to "prevent and restrain"²⁹ antitrust violations does not require a showing that a particular person was injured, and it certainly does not require quantification of damages. As a result, the government acting as public antitrust enforcer should pay especially close attention to practices that restrain innovation unreasonably, but where difficulties in showing private-plaintiff causation and damages make private action unpromising.

In sum, government antitrust enforcement in particularly complex areas such as §2 of the Sherman Act should be guided by these principles:

1. Sensitivity to the fact that private plaintiffs will take advantage of whatever doctrine the courts develop in government-brought cases, but typically with little

²⁶ *E.g.*, *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008) (applying Sherman Act §2 standards in exclusionary practice proceeding brought under § 5 of the FTC Act), *cert. denied*, 129 S. Ct. 1318 (2009).

²⁷ *Conwood Co. v. United States Tobacco Co.*, 290 F.3d 768 (6th Cir. 2002), *cert. denied*, 537 U.S. 1148 (2003). See 2 PHILLIP E. AREEDA, HERBERT HOVENKAMP, ROGER D. BLAIR & CHRISTINE PIETTE DURRANCE, *ANTITRUST LAW* ¶¶309, 340a2, 399c2.

²⁸ See discussion *infra* text accompanying notes __.

²⁹ See 15 U.S.C. §25 (2006).

concern about the public effects of their litigation; private plaintiffs sue for private gain;

2. Somewhat less attentiveness in areas where private plaintiffs are fully able to both detect and to litigate abuses; in the general run of §2 cases “detection” of the conduct is not an issue, as it often is in cartel cases, because the conduct is publicly known; however, litigation can be very costly; and
3. more attentiveness in areas where the potential for harm is considerable but private plaintiff actions will likely fail, largely because of the great difficulty in showing private harm, causation, or damages.

The balance of this essay examines a few areas where expanded government antitrust intervention against single firm exclusionary conduct may be appropriate, focusing on vertical integration and vertical practices including refusals to deal, pricing and discounting practices, and practices that more directly implicate innovation and the intellectual property laws.

Vertical Integration

Vertical integration occurs when a firm exercises greater control than a simple purchase or sale with respect to some input or output. For example, an automobile manufacturer that begins producing its own sparkplugs or acquires its own dealership has integrated “upstream” into spark plug production or “downstream” into distribution. A franchisor that develops a long-term contractual relationship with a set of franchisees is also integrated vertically into distribution, although by contract rather than by ownership.³⁰

United States antitrust policy toward vertical integration has been inconsistent. During some portions of our history we have dealt with it under harsh, nearly per se rules, regarding it as inherently suspicious.³¹ By contrast, the orthodox Chicago School view

³⁰ On vertical integration by contract and otherwise, see Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978); OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975), and 2B AREEDA & HOVENKAMP, *supra* note __, ¶¶ 756–57 (3d ed. 2008).

³¹ *E.g.*, *Eastman Kodak Co. v. S. Photo Materials Co.*, 273 U.S. 359 (1927) (condemning Kodak’s switch to self-distribution and termination of independent dealer). See ARTHUR R. BURNS, *THE DECLINE OF COMPETITION* (1936) (advocating aggressive action against vertical integration); HENRY SIMONS, *A POSITIVE PROGRAM FOR LAISSEZ-FAIRE* 20–21 (1934) (similar, although somewhat less aggressive). Other sources are discussed in ELLIS W. HAWLEY, *THE NEW DEAL AND THE PROBLEM OF MONOPOLY* 218–22 (1966). For a history of attitudes toward vertical integration in the United States, see Herbert J. Hovenkamp, *The Law of Vertical Integration and the Business Firm, 1880-1960*, __ Iowa L.Rev. __ (2009) (Univ. of Iowa Legal Studies Research Paper, Paper No. 08-40, 2009) available at <http://papers.ssrn.com/abstract=1268328>.

was that virtually all vertical integration is benign and precompetitive and should be condemned only when it facilitates collusion.³²

Most tying and exclusive-dealing arrangements arise in the context of contractual vertical integration.³³ The law of unilateral refusal to deal also generally presents a problem of vertical integration. The defendant is typically a firm operating at two or more market levels. The refused rival is typically a firm that requires that an input at one level be shared so that it can compete with the defendant at the second level.³⁴

Anticompetitive Contracts; Nonforeclosing Ties

The government's use of §2 to pursue tying, exclusive dealing, and related practices, as in *Dentsply*³⁵ and *Microsoft*,³⁶ is justified for two reasons. First, the structural requirements for §2 are more severe than for §1, and purely vertical practices

³² E.g., Robert Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157 (1954); Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925 (1979); see also 3B AREEDA & HOVENKAMP, *supra* note __, ¶¶ 756–62 (3d ed. 2008). For an intermediate perspective seeing substantial risks from vertical integration in the presence of monopoly power, see Joseph F. Brodley, *Post-Chicago Economics and Workable Legal Policy*, 63 ANTITRUST L.J. 683 (1995).

³³ E.g., *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984) (hospital's long-term contract with anesthesiological firm), *remanded to* 764 F.2d 1139 (5th Cir. 1985); *Eastman Kodak Co. vs. Image Technical Servs., Inc.*, 504 U.S. 451 (1992) (Kodak provided aftermarket parts only to its own authorized service technicians as part of vertical integration into servicing; on remand, the Ninth Circuit ultimately condemned this practice. 125 F.3d 1195 (9th Cir. 1997), *cert. denied*, 523 U.S. 1094 (1998)); *United States v. Dentsply Int'l, Inc.*, 277 F. Supp. 2d 387 (D. Del. 2003) (manufacturer's long term relationship with dealers), *rev'd*, 399 F.3d 181 (3d Cir. 2005), *cert. denied*, 546 U.S. 1089 (2006); *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 29 (D.D.C. 1999) (restraints as part of long-term contracts establishing computer software development network), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam), *cert. denied*, 534 U.S. 952 (2001).

³⁴ E.g., *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004) (vertically integrated telephone company allegedly refused to provide interconnection services to less integrated firm); *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585 (1985) (defendant engaged in both provision and sales distribution of skiing services refused to share distribution with rival). Cf. Case T-201/04, *Microsoft v. Comm'n*, 2007 E.C.R. II-1, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET> (European Union, Court of First Instance; Microsoft controlled both primary operating system and software for its own servers; required to share protocols with rivals who provided competing server software).

³⁵ *United States v. Dentsply International, Inc.*, 399 F.3d 181 (3d Cir. 2005), *cert. denied*, 546 U.S. 1089 (2006).

³⁶ *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam), *cert. denied*, 534 U.S. 952 (2001).

are unlikely to be significantly anticompetitive unless the firm imposing them is dominant in its market.³⁷ While these practices are bilateral in form, they are generally unilateral in the sense that they are initiated by sellers and rarely requested by dealers. That fact serves to distinguish them from vertical “intra-brand” restraints, such as resale price maintenance and nonprice vertical restraints, which dealers often request.

Nevertheless, because exclusive dealing and most tying are created by contract, challengers can invoke the more aggressive “restraint of trade” standard imposed by §1 of the Sherman Act, or the “may substantially lessen competition” standard of §3 of the Clayton Act. These standards are generally implicated when a covered restraint reduces market output and raises aggregate prices. Such a restraint is “naked” when judicial experience has identified practically nothing in the way of benefits, and the nature of the restraint indicates that it will reduce output or raise prices. Thus naked price fixing is said to be unlawful per se under §1 of the Sherman Act. Exclusive dealing and tying virtually never fall into this category. Ties that fail to exclude a significant rival from the market may restrain trade, but only rarely.³⁸ In sum, the twin requirements of (1) a dominant firm and (2) anticompetitive exclusion, justify the use of §2 as the principle vehicle for addressing exclusive dealing and tying.

The second justification for increased use of §2 to pursue unreasonably exclusionary vertical contract practices is that §2 is much less categorical about specifying the behavior it condemns. Over the years, the law of tying arrangements in particular has developed technical thresholds, such as the separate-products requirement,³⁹ that have served to limit the reach of overly aggressive substantive rules. The law of monopolization dispenses with these and requires only that the defendant be a dominant firm, or “monopolist,” and that the practice be unreasonably exclusionary. For example, in *Microsoft* the government claimed that Microsoft unlawfully “tied” the Windows operating system and the Internet Explorer browser. It also claimed that Microsoft acted unlawfully when it “commingled” the code for the two programs, effectively turning them into one, as they have been ever since 1995. The tying claim, which was contractual, harkened back to an earlier era in which Microsoft sold Windows and IE as separate programs but required buyers to take both together. Commingling the code produces largely the same result, but looks more like a matter of product design and a unilateral refusal to sell a different product than the one the defendant is actually selling. That is, the tying claim becomes one of unilateral refusal to deal.⁴⁰

³⁷ The most important exception is when the firm is also engaged in horizontal collusion and the exclusive vertical contract acts as a collusion facilitator. For example, colluding manufacturers might impose exclusive dealing on their dealers in order to prevent the dealers from playing the manufacturers off against one another.

³⁸ See discussion *infra*, text at notes ___.

³⁹ See 10 AREEDA, ELHAUGE & HOVENKAMP, *supra* note ___, ¶¶ 1741–51 (2d ed. 2004).

⁴⁰ On the significance of this in network industries, see discussion *infra*, text at notes ___.

The D.C. Circuit choked on the traditional tying claim, writing at some length about the proper scope of the rule of reason vs. the per se rule,⁴¹ and also about whether the OS and the browser were separate products, which is a requirement of tying law under §1 of the Sherman Act or §3 of the Clayton Act.⁴² It fashioned an idiosyncratic single-shot rule of reason for ties of operating system software to application software, and remanded the tying claim. The Government ultimately abandoned it. However, in the same decision that court also condemned the “commingling” of OS and browser code under §2 because it excluded rival browsers unreasonably.⁴³

Consider also the *Kodak* case, which involved Kodak’s decision to supply repair parts for photocopiers only when the service was conducted by its own technicians. When the Supreme Court decided this controversial case in 1992, the issue was formulated as the “tying” of service and parts: you cannot have my parts unless you also buy my service. The Supreme Court found the claim plausible and even suggested that the practice might be unlawful per se.⁴⁴ The case was remanded for trial. While the facts did not change, along the way the claim morphed into one of refusal to deal; namely, that Kodak refused to sell parts to independent service providers.⁴⁵ In sum, the distinction between tying and refusal to deal becomes largely semantic in a situation where market circumstances force customers to take the dominant firm’s primary product. For example, if pre-breakup telephone monopolist AT&T refused to provide technical data so that rivals could make telephones, is it tying its own phones to the system, or simply refusing to deal?⁴⁶

⁴¹ See *Microsoft*, 253 F.3d 34, 89–95 (discussing per se rule and rule of reason).

⁴² *Id.* at 85–89. On the separate products requirement in tying law, see Areeda, Elhauge and Hovenkamp, *Antitrust Law* ¶¶1741-1751 (2d ed. 2004).

⁴³ *Id.* at 66 (upholding district court’s finding that Microsoft “commingled” browser and platform code and stating that such “commingling has an anticompetitive effect”).

⁴⁴ *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451 (1992). See also *id.* at 486-487 (Scalia, J., dissenting) (noting that tying arrangements are subject to a rule of per se illegality).

⁴⁵ *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195 (9th Cir. 1997), cert. denied, 523 U.S. 1094 (1998).

⁴⁶ *Cf.* Case T-201/04, *Microsoft v. Comm’n*, 2007 E.C.R. II-1, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET> (European Union, Court of First Instance; condemning refusal to share protocols for server software to non-Microsoft providers).

Section 2 has effectively enabled courts to place substance over form, while limiting the universe of actionable tying and tying-like behavior to that which involves dominant firms. Both of these are positive developments.

Nonforeclosing ties, which are tying arrangements that do not cause harm by excluding rivals, may extract higher prices from some customers, but the case for condemning them on that ground is very weak.⁴⁷ The means of extraction is usually a form of price discrimination, and the typical result is that, while some consumers are harmed, others are benefitted. While some instances of price discrimination reduce welfare or result in higher consumer prices in the aggregate, most do not and segregating the two sets is extremely difficult. Many if not most price-discrimination ties that are encountered in antitrust cases probably increase output, making a broad rule condemning them unwise. This is particularly likely to be true if a tying arrangement involves a lower price in the tying product, where the dominant firm has power, and a transfer of at least a portion of the monopoly overcharge to the tied product.⁴⁸

While the economic literature on price discrimination and tying focuses on monopolists, many challenged ties occur in markets where the defendant has no more market power than generally results from product differentiation. Indeed, most franchise ties, which are variable proportion, occur in competitive albeit product differentiated markets.⁴⁹ In those cases a tie that includes a substantial price reduction in the tying product can increase the number of tying product sales significantly. The true monopoly case is the rare, but hardly unheard of, worst case scenario.

At least since Ward Bowman wrote his well known article challenging the tie-in leverage theory in 1957, it has become conventional to say that variable proportion ties are price discrimination devices.⁵⁰ Under Bowman's analysis a firm has market power in some durable good such as a computer printer. It then requires users of the printer to purchase its own consumable ink cartridges, transferring all or part of the monopoly overcharge from the printer to the ink and using the ink as a "counting device." As a

⁴⁷ For a contrary view, see Joseph F. Brodley, *The Economic Goals of Antitrust: Efficiency, Consumer Welfare, and Technological Progress*, 62 N.Y.U.L.REV. 1020, 1036 (1987).

⁴⁸ On the basic economics of price discrimination ties, see Herbert Hovenkamp, *Federal Antitrust Policy: the Law of Competition and its Practice* §10.6e (3d ed. 2005); Frederic M. Scherer & David M. Ross, *Industrial Market Structure and Economic Performance*, ch. 13 (3d ed. 1990).

⁴⁹ See, e.g., *See, e.g.*, *Siegel v. Chicken Delight, Inc.*, 448 F.2d 43 (9th Cir. 1971) (fast food fried chicken; tying of spices and supplies); *Kypta v. McDonald's Corp.*, 671 F.2d 1282 (11th Cir. 1982) (fast food; hamburgers and related products; tying of lease of location); *Queen City Pizza v. Domino's Pizza*, 124 F.3d 430 (3d Cir. 1997), cert. denied, 523 U.S. 1059 (1998) (pizza; tying of pizza dough, a commodity made of flour, oil, salt and water); *Little Caesar Enter., Inc. v. Smith*, 34 F.Supp.2d . 459 (E.D.Mi. 1998) (pizza; tying of paper plates and other products bearing franchisor's logo).

⁵⁰ Ward S. Bowman, *Tying Arrangements and the Leverage Problem* , 67 YALE L.J. 19, 23-24 (1957).

result, the printer manufacturer captures more profits from those who use the machine for more pages of printing..

In order to understand variable proportion ties one needs to know a little about the economics of price discrimination, which is generally classified into three kinds, or “degrees.”⁵¹ In perfect, or first-degree, price discrimination the seller sells each unit at the highest price that a buyer is willing to pay for it. First degree price discrimination extracts all surplus from consumers and gives it to the seller, but it also increases output to the competitive level. As a result, it increases general welfare (the sum of consumer and producer surplus) from the single monopoly price, but may reduce consumer welfare (consumer surplus alone). Second degree price discrimination occurs when a seller offers a price schedule that is made available to everyone, and buyers end up selecting their price according to where they position themselves on the schedule. Finally, in third degree price discrimination the seller is able to segregate customers into two or more groups based on willingness to pay, and charges them different prices. For example, the licensor who sells piped in *Muzak* might charge a higher price to commercial licensees than to home licensees, or a software vendor might offer lower prices to students but require them to provide evidence of their student status as a condition of purchasing.⁵²

Under well established economic doctrine, third degree price discrimination that reduces output also reduces welfare.⁵³ This result does not necessarily obtain for first and second degree price discrimination. If third degree price discrimination increases output its welfare effects are generally indeterminate but are much more likely to be positive when the practice brings a significant number of new buyers into the market.

One unfortunate result of the historical per se rule against ties⁵⁴ is that questions about how price discrimination works in tying arrangements are irrelevant, as are questions about the impact of the tie on output. As a result, antitrust litigation has not made records on these issues and we know much less about them than we should.

⁵¹ See ROBERT S. PINDYCK AND DANIEL L. RUBINFELD, MICROECONOMICS 383-386 (7th ed. 2008). The classification was developed by Arthur Cecil Pigou early in the twentieth century. See ARTHUR CECIL PIGOU, THE ECONOMICS OF WELFARE, II.17.6 (4th ed. 1932).

⁵² E.g., *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996) (licensing of database to commercial and residential users at different rates). See Christina Bohannon, *Copyright Preemption of Contracts*, 67 MARYLAND L.REV. 616 (2008).

⁵³ See Marius Schwartz, *Third-Degree Price Discrimination and Output: Generalizing a Welfare Result*, 80 Am. Econ. Rev. 1259 (Dec. 1990); Hal R. Varian, *Price Discrimination and Social Welfare*, 75 Am.Econ.Rev. 870 (1985); Richard Schmalensee, *Output and Welfare Implications of Monopolistic Third Degree Price Discrimination*, 71 Am.Econ.Rev. 242 (1981). This results has been known at least since the time of Arthur C. Pigou, who wrote during the first three decades of the twentieth century. See discussion *infra*, text at notes ___.

⁵⁴ See 9 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶1720 (2d ed. 2004).

However, a nonforeclosing tie that involves a price reduction in the tying product, as most probably do, increases consumer access to that product. There is no reason for thinking that such ties reduce welfare.⁵⁵ Variable proportion ties that involve reduced tying product prices generally serve to do two things. First, they change the *purchaser's* cost structure by giving it lower fixed costs but higher variable costs. For example, to the purchaser the printer is a fixed cost but the ink is a variable cost. A printer/cartridge tie that involves lower printer prices but higher ink prices serves to bring more printer customers into the market, although it also distorts usage decisions at the margin, because the ink price is higher. In addition, the increase in the seller output of printers can reduce costs significantly if a significant proportion of those costs is fixed.

Professor Elhauge's recent provocative article on tying and bundled discounts attacks variable proportion ties on the premise that they are a form of third degree price discrimination.⁵⁶ That position is contrary to the prevailing economic literature on the subject as well as the position taken in the *Antitrust Law* treatise,⁵⁷ but it is essential to Elhauge's argument that variable proportion ties nearly always reduce welfare.⁵⁸

Second and third degree price discrimination are very different practices, although some complex schemes may contain attributes of both.⁵⁹ In third degree price discrimination the seller divides customers into discrete groups based on observations about their willingness to pay. Prices that are offered to a lower price group are not made available to a higher price group.⁶⁰ For example, the owner of an intellectual property right might license it to commercial users at one rate and home users at a different rate.⁶¹

⁵⁵ For a contrary view, see Einer Elhauge, *Tying, Bundled Discounts, and the Death of the single Monopoly Profit Theory*, 123 Harv. L.Rev. (Dec. 2009). See discussion *infra*, text at notes __.

⁵⁶ See Elhauge, *id.* at __, criticizing 9 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶1711b4(B) (2d ed. 2004), which argues that variable ties are a form of second degree discrimination.

⁵⁷ See discussion *infra*, text at notes __.

⁵⁸ The argument developed here very briefly is from Erik N. Hovenkamp and Herbert Hovenkamp, *Tying, Price Discrimination, and Welfare* (Iowa Legal Studies Working Paper, Aug. 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443284.

⁵⁹ See Alan C. Deserpa, *A Note on Second Degree Price Discrimination and its Implications*, 2 REV.INDUS.ORG. 368 (1985).

⁶⁰ In the words of Arthur Cecil Pigou:

This degree, it will be noticed, differs fundamentally from either of the preceding degrees, in that it may involve the refusal to satisfy, in one market, demands represented by demand prices in excess of some of those which, in another market, are satisfied.”

ARTHUR CECIL PIGOU, *THE ECONOMICS OF WELFARE*, II.17.6 (4th ed. 1932).

⁶¹ See note __ *supra*.

This division into discrete groups that is characteristic of third degree price discrimination creates a discontinuity in marginal valuation, thus occasioning a welfare loss. For example, if the price to the high priced group is 8 and to the low priced group is 5, buyers in the high priced group will purchase until their marginal value falls to 8 and then stop, because they cannot purchase at a price of, say, 7.9, even though they wish to. Further, the 7.9 price is fully profitable to the seller, and the seller is actually selling to others at a profitable price of 5. As a result, the discrimination scheme takes a sale away from a high valuation customer, willing to pay 7.9, and shifts it to a low valuation customer.⁶² This has led economists since the time of Pigou and Joan Robinson to infer that third degree price discrimination reduces welfare if output is no greater under the discrimination scheme than it would have been under single-price monopoly.⁶³ If output is greater, as it would be if the price discrimination brings in a new grouping of customers that were not served at the single monopoly price, then welfare could be greater if the welfare gains in this new market exceed the losses in the higher priced market.

By contrast, in second degree price discrimination everyone is offered the same price schedule, with different prices for differing quantities or product varieties.⁶⁴ A quantity discount scheme is one example. Another is division of transportation tickets by classes. For example, airlines might offer first class and coach tickets, or advance purchase and immediate purchase fares. The same fare structure is available to everyone, but different customers make different choices based on their circumstances and willingness to pay, and profitability is higher for some classifications than for others. Customers may even switch among price classifications in repeated purchases.

To be sure, second degree price discrimination may lead to its own inefficiencies, but they are much different inefficiencies than third degree price discrimination encounters. The one problem second degree price discrimination does *not* typically encounter is discontinuities in marginal substitution. For example, if first class flying is too straining on a person's budget as she does more of it, she is always free to shift part or all of her purchases to second class. As Pigou and others have noted, as the number of classifications in a second degree price discrimination scheme is increased the scheme

⁶² In Pigou's words: "This degree [third], it will be noticed, differs fundamentally from either of the preceding degrees, in that it may involve the refusal to satisfy, in one market, demands represented by demand prices in excess of some of those which, in another market, are satisfied." Arthur Cecil Pigou, *The Economics of Welfare* II.17.6, at 254-255 (4th ed. 1932).

⁶³ See *ibid.* See also JOAN ROBINSON, *THE ECONOMICS OF IMPERFECT COMPETITION* 205-206 (1933).

⁶⁴ Gordon Mills, *Retail Pricing Strategies and Market Power* 26 (2002) (difference between second and third degree price discrimination is that in second degree discrimination seller cannot distinguish customers into diverse groups, but rather they self select according to a pricing schedule that is the same for all).

comes closer to approximating first-degree, or “perfect,” price discrimination,⁶⁵ under which each individual customer pays his or her reservation price and output increases toward the competitive level.⁶⁶ In practice, few second degree schemes reach anything close to that level of classification. However, variable proportion ties theoretically permit an infinite number of degrees depending on the number of tied units a purchaser buys.

So what type of price discrimination are variable proportion ties? Clearly, they are not first degree price discrimination. To be sure, a well executed printer/ink tie could accurately make prices proportional to the number of *copies* a person prints, but it could not control for the fact that different purchasers place different values on each copy. For example, both a law firm drafting legal opinions on securities offerings and a printer of handbills about garage sales might print 1000 pages weekly. As a result, if they purchased under the same tying arrangement they would pay the same amount per print. But given what is at stake the law firm might value the printouts at many dollars per page, while the handbill printer values them at only a few cents. The variable proportion tie will not capture these differences in valuation and will thus permit at least some consumers to retain surpluses.⁶⁷

The economic literature generally deals with variable proportion ties as second degree price discrimination.⁶⁸ First of all, as noted above, third degree price discrimination involves a seller’s prior segregation of groups of customers based on

⁶⁵ In perfect price discrimination every individual buyer is charged his reservation price and output is restored to the competitive level. Welfare is higher than under monopoly pricing, although consumers’ surplus is lower.

⁶⁶ Pigou, note __ at II.17.11:

It is readily seen that the effects of monopoly *plus* discrimination of the second degree approximate towards those of monopoly *plus* discrimination of the first degree. as the number of different prices, which it is possible for the monopolist to charge, increases; just as the area of a polygon inscribed in a circle approximates to the area of the circle as the number of its sides increases....

Accord Deserpa, note __ at 370-371; Scherer and Ross, note __ at 495.

⁶⁷ Another reason variable proportion ties are not first degree price discrimination is that the tying product, which is a fixed cost, creates a “two part” pricing problem roughly analogous to the one encountered in public utility pricing. For example, the presence of the fixed cost printer, whose costs must be distributed over printed output, entails that perfect price discrimination cannot be attained, at least when the price of the tying product is something other than zero. See Erik N. Hovenkamp and Herbert Hovenkamp, Tying, Price Discrimination, and Welfare (Iowa Legal Studies Working Paper, Aug. 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1443284.

⁶⁸ See, e.g., JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 147 (1998) (ties a form of second degree price discrimination). See also Richard A. Posner, *Vertical Restraints and Antitrust Policy*, 72 UNIV. CHI.L.REV. 229, 236 (2005) (same).

willingness to pay.⁶⁹ Tying does not; rather, the tying firm selects the products and places them on the market, with the same price schedule to all. Customers identify themselves by selecting the portion of the schedule that they want.

For one part of the theory of variable proportion ties the distinction between third and second degree price discrimination is crucial, and ties clearly resemble second degree discrimination more.⁷⁰ Professor Elhauge argues that even if a price discrimination tie should increase output, welfare consequences are negative because the discrimination scheme switches output from high value purchasers (that is, high intensity users) to low value purchasers.⁷¹ This is clearly true of *third* degree price discrimination, and a principal reason for its inefficiencies. To return to the previous example, suppose a discrimination scheme divides customers into two discrete classes where arbitrage is impossible, and charges prices to the two classes of 8 and 5, respectively. Buyers in the first group will purchase down to the point that the marginal value they place on the incremental purchase (i.e., their marginal rate of substitution) is 8, but they will not purchase more. As a result, a sale to someone in this group at a price of 7.9 is left unmade, even as sales are being made to the lower price group at a price of 5. So to the extent that third degree price discrimination shifts output away from the higher value group and toward the lower value group, the discontinuity guarantees that the value of the marginal sale that is lost to the higher priced group is greater than the value of the marginal sale that is made to the lower price group.⁷²

However, this is not the case with the variable proportion tie. To be sure, the tie reduces fixed costs to the buyer and increases marginal costs, and any marginal cost

⁶⁹ On this point see GORDON MILLS, *RETAIL PRICING STRATEGIES AND MARKET POWER* 26 (2002) (difference between second and third degree price discrimination is that in second degree discrimination seller cannot distinguish customers into diverse groups, but rather they self select according to a pricing schedule that is the same for all).

⁷⁰ See Erik Hovenkamp & Herbert Hovenkamp, *Tying, Price Discrimination*, note ___.

⁷¹ See Elhauge, note ___ at ___ [TAN 75] (“reallocates some output from high value buyers to low value buyers”).

⁷² For example, if 100 units are lost to buyers in the high priced group who were willing to pay 7.9, but no more and these same hundred units were picked up in the lower price group at a price of 5, to someone who valued them at 5.1, then output would be the same but welfare would be reduced. See also Schmalensee, note ___ at 242-243:

For any fixed total output of the monopolized product, efficiency requires that all buyers have the same marginal valuation of additional units. (If all buyers are households, they must have the same marginal rate of substitution between the good involved and any numeraire good.) Selling the same product at different prices to different buyers induces different marginal valuations and produces what Robinson terms “a maldistribution of resources as between different uses.”

(quoting Joan Robinson, *The Economics of Imperfect Competition* 206 (1933).

increase is a distortion. But under the variable proportion tie the distortion is continuous across the demand curve and is the *same for everyone*. For example, suppose that the monopoly price for the printer is \$400 and the competitive ink price is 2¢ per printed page. The monopolist uses a variable proportion tie, cutting the printer price to \$300 but tying ink and charging 4¢ per printed page for the ink. To the customer the printer is a fixed cost and the ink is variable, so the tie has the effect of reducing fixed costs but increasing variable costs.⁷³ The marginal cost of 4¢ per copy is the same for all buyers at all places on the demand curve, from those that print the most to those that print the least. Each buyer will print copies up to the point that marginal value for that buyer drops to 4¢. As a result, in equilibrium the less intensive user and the more intensive user both value the marginal print at 4¢ and there is no transfer at the margin from higher to lower value. On a per page basis the value of sales lost in the upper region of the demand curve is precisely equal to the value of sales lost in the lower region. If such a tie increases output (measured by printed pages) it very likely also increases welfare. This lack of discontinuity in marginal valuation is also why it seems appropriate to characterize variable proportion ties as instances of second degree price discrimination.

Variable proportion ties typically involve a reduction in the price of the tying product to something less than its standalone profit maximizing price, with the monopoly overcharge and even part of the competitive return transferred to the tied product. Many variable proportion ties of complementary products (e.g., printer and ink cartridges, or cameras and film) involve sales of the tying product at cost or less,⁷⁴ or sometimes even

⁷³ As a result of these lowered fixed costs some purchasers who bought prior to the tie are benefitted from the arrangement; all new purchasers brought in by the tie are benefitted. See Hovenkamp & Hovenkamp, note ___.

⁷⁴ For example, in one of the earliest variable proportion tying cases *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912), the patentee sold its mimeograph machine at less than its costs but tied ink, stencils and other supplies and assessed a high markup on those. See *A.B. Dick Co. v. Henry*, 149 F.424, 425(C.C.N.Y. 1907) (“The evidence establishes that the complainants sell the machines at a loss, less than the actual cost of making, relying on sales of supplies therefor for a profit. The complainants have sold about 11,000 of these machines under this license restriction.”). See also *Static Control Components, Inc. v. Lexmark Int’l, Inc.*, 487 F. Supp. 2d 830 (E.D. Ky. 2007) (printer manufacturer received lower price for cartridges subject to a restriction requiring a single use and replacement with another Lexmark cartridge than if sold without the restriction); and see Tony Smith, “Xbox 360 costs third more to make than it sells for,” *The Register* (Nov. 24, 2005), available at http://www.theregister.co.uk/2005/11/24/xbox360_component_breakdown/ (last visited July 20, 2009) (noting Microsoft’s strategy of below cost sale of hardware game box, accompanied by high prices for Microsoft’s own games plus royalty rates on license fees from independent game producers). In marketing this is sometimes called razor + blade pricing, and it applies to goods that are tied by technological incompatibility as well as those that are contractually tied. See Wesley R. Hartmann & Harikesh S. Nair, *Retail Competition and the Dynamics of Consumer Demand for Tied Goods* (Stanford Business School Working Paper, Dec. 2007), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1085009. See also Ricard Gil & Wesley R. Hartmann, *Why Does Popcorn Cost so Much at the Movies? An Empirical Analysis of Metering Price Discrimination*, Stanford Univ. Graduate School of Business Research Paper, Jan. 2008, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1088451 (movie theaters tie concession food products by prohibiting attendees from bringing in their own; high food prices are offset by lowered admission prices). And see FREDERIC M. SCHERER, *INDUSTRY STRUCTURE, STRATEGY AND PUBLIC POLICY* 308-311 (1996) (study of automobile industry and technologically tied aftermarket parts,

at a price of zero.⁷⁵ The result is higher output of the tying product and variable returns from each customer depending on the number of units they purchase of the tied product. This is also typically the case of franchise ties, where the entry price of the franchise is typically relatively low or occasionally zero, thus making franchising an attractive route for small local entrepreneurs, but the tied products (very common staple products or services) are sold at an overcharge.⁷⁶ The result of such arrangements is that many more potential franchisees can afford a franchise, thus increasing output. The franchisor's profits are changed from a fixed up front entry fee to an overcharge that varies with output. As a result, the higher the output of the franchise the more profitable it is.⁷⁷

These facts suggest that most variable proportion tying arrangements are benign without even considering production or distribution cost savings, including economies of joint provision or improved quality control that independently justify ties. Further, even a variable proportion tie that reduces output cannot be shown to reduce welfare except in the unusual case where no customer benefits from the tie.⁷⁸

where manufacturer's strategy is to charge low prices for cars and high prices for the parts); Erwin A. Blackstone, *Restrictive Practices in the Marketing of Electrofax Copying Machines and Supplies: The SCM Corporation Case*, 23 J. INDUS. ECON. 189 (1975) (copy machine makers tied low priced copiers to high priced paper); Christopher Soghoian, *Caveat Venditor: Technologically Protected Subsidized Goods and the Customers who Hack Them*, 6 NW.J. TECH. & INTELL. PROP. 46 (2007) (providing several examples, focusing on technological ties).

⁷⁵ See, e.g., *Kentmaster Mfg. Co. v. Jarvis Products Corp.*, 146 F.3d 691 (9th Cir. 1998), amended, 164 F.3d 1243 (9th Cir. 1999) (defendant provided durable meat cutting equipment at no charge to meat cutters but charged high prices for aftermarket parts). Cf. a common distribution mechanism of soft drink dispensing machines, which provides the machines to owners of locations where vending occurs at a price of zero, but the machine may stock only that supplier's brand of soft drinks. See <http://www.vendingsolutions.com/coke-vending-machines/> (Coca-Cola; free dispensing machine to plant locations containing 40 employees or more, but only Coca-Cola products can be dispensed in the machine). See also Patrick Bolton, Joseph F. Brodley, & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 Geo.L.J. 2239, 2277 & n. 199 (2000), who would not find predatory pricing in *Kentmaster* if the price of the combination of durable good and aftermarket parts is above cost.

⁷⁶ E.g., *Siegel v. Chicken Delight, Inc.*, 448 F.2d 43 (9th Cir. 1971) (franchisor charged no franchising fee or royalty, but required franchisees to purchase tied products at higher-than-market prices).

⁷⁷ See Roger D. Blair and Francine Lafontaine, *The Economics of Franchising*, ch. 3 (2005) (most up front franchise fees very low in relation to value of business); Steven C. Michael, *The Extent, Motivation, and Effect of Tying in Franchise Contracts*, 21 Managerial and Decision Econ. 191 (2000) (tying in restaurant franchises less a function of market power than of nature of equipment employed); Benjamin Klein & Lester Saft, *The Law and Economics of Franchise Tying Contracts*, 28 J.L. & Econ. 345 (1985); Roger D. Blair and David L. Kaserman, *Vertical Integration, Tying and Antitrust*, 68 *Am. Econ. Rev.* 397 (Jun., 1978) (on equivalence of variable proportion tying and vertical integration; results in a more optimal use of downstream inputs and probable output increases); see also F.R. Warren-Boulton, *Vertical Control with Variable Proportions*, 82 J.Polit.Econ. 783 (1974).

⁷⁸ See Erik Hovenkamp & Herbert Hovenkamp, note ___ at ___.

Finally, the economies that can result from such ties are pervasive and can be substantial, thus explaining the wide variety of ties that exist in competitively structured markets, including those for franchises and computer printers.⁷⁹ As a result, the core concern of exclusive dealing and tying-arrangement analysis is not leverage. Rather, it remains concerned principally with the unreasonable exclusion of rivals, which is also the core concern of §2 of the Sherman Act. That statute does not reach simple output reducing practices. But market exclusion is unlikely to result from practices imposed by a single firm unless it meets the market-share standards ordinarily required for unlawful monopolization.

Networks and Refusals to Deal

In its 2004 *Trinko* decision, the Supreme Court made it very difficult for an antitrust plaintiff to prove that a defendant violates §2 when it unilaterally refuses to deal with a rival.⁸⁰ The *LinkLine* price squeeze decision five years later reiterated this view.⁸¹ European competition law is more aggressive.⁸² However, even the European *Microsoft* decision, which required Microsoft to share server software protocols with rival server producers, applied to a network industry in which Microsoft had a well established a course of dealing with its rivals.⁸³ The EU tribunal ordered Microsoft to share protocols

⁷⁹ On the manifold sources of cost savings and product improvement that results from ties, see 9 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶¶1712-1718 (2d ed. 2004).

⁸⁰ *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

⁸¹ *Pac. Bell Tel. Co. v. LinkLine Commc'ns, Inc.*, 129 S. Ct. 1109, 1118 (2009) (“There are . . . limited circumstances in which a firm’s unilateral refusal to deal with its rivals can give rise to antitrust liability.”); see Erik N. Hovenkamp & Herbert Hovenkamp, *The Viability of Antitrust Price Squeeze Claims*, 51 *ARIZ. L. REV.* 273 (2009).

⁸² See European Commission, DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses (Dec. 2005), at §9, available at <http://ec.europa.eu/competition/antitrust/art82/discpaper2005.pdf>. As a general proposition, the EU condemns refusals to deal only in “exceptional circumstances.” See Christian Ahlborn & David S. Evans, *The Microsoft Judgment and Its Implications for Competition Policy Towards Dominant Firms in Europe*, 75 *ANTITRUST L.J.* 887, 889 (2009). A court will not require a firm to deal unless the refusal would eliminate competition. After this requirement is met, a court will impose liability upon a firm for refusing to deal if the refusal would prohibit the introduction of a new product. *Id.*

⁸³ Case T-201/04, *Microsoft v. Comm'n*, 2007 E.C.R. II-1, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET>. The Court of First Instance (CFI) held that the elimination of competition element was satisfied because Microsoft’s refusal would eliminate future competition in the server market. Furthermore, the CFI held that the new-product element was satisfied because Microsoft’s rivals’ lack of access to server protocol would impede the innovation of new servers.

that would enable rival manufacturers of networking software to run their systems transparently on a system dominated by Windows computers.⁸⁴

A “server” is a computer on a network whose principal job is the storage and organization of files such as email communications, web pages, and other information that the individual members of a network might share. Some of these servers operate on Microsoft operating systems, while others operate on alternative, mainly Unix-based or other open source systems. Unless Microsoft supplies the producers of these rival server systems with complete, up-to-date operating protocols the rival systems cannot function as well with Windows-based computers as Microsoft’s own server software. The server system market had in fact been developed by Microsoft’s rivals before Microsoft entered that market, and Microsoft initially provided them with interoperability protocols. Only after it entered the market itself did it begin withholding essential data.⁸⁵

As a general matter, courts of general jurisdiction are not effective institutions for determining when a firm acting unilaterally has a duty to deal with rivals and what the scope and terms of any dealing obligation should be. These are regulatory concerns, and are typically highly technical. Further, this is not a problem that can be solved by *ex post* application of treble damages rules. That makes the problem worse because it forces firms to act at their peril in uncertain territory. The scope and terms of any duty to deal can be highly controversial, even in the regulatory context, and treble damages after the fact will force firms to behave inefficiently in order to avoid antitrust liability. So antitrust liability for unilateral duties to deal should be extremely narrow.

But that is not to say that such duties should never exist at all. Liability can make sense in network industries, such as computer operating systems and applications software, in which the network has evolved with multiform participation and cooperation is necessary for the network’s continued efficient operation. The case for compelled dealing is stronger if the network developed in a cooperative regime and a dealing order serves mainly to preserve a pre-existing practice rather than create a new one.

In *Aspen*, the Supreme Court limited its holding to a situation in which a dominant firm had “invited” a smaller rival into a sharing regime and, once resources were committed in that direction, abandoned the regime without a good explanation.⁸⁶ In

⁸⁴Id., ¶¶181, 186 (need for “transparent” interconnection so that the identity of the server software is invisible to the operator).

⁸⁵ See *id.*, ¶565, referring to the lengthy discussion in the decision of the European Commission; and see *Microsoft Corp.*, Commission Decision No COMP/C-3/37.92/EEC (E Com Mar 24, 2004), findings ¶¶587-636. See, e.g., finding ¶ 588 (“Once Microsoft’s work group server operating system gained acceptance in the market, however, Microsoft’s incentives changed and holding back access to information relating to interoperability with the Windows environment started to make sense.”).

⁸⁶ *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 603 (1985) (defendant monopolist “elected to make an important change in a pattern of distribution that had originated in a competitive market and had persisted for several years”).

that case, the previous sharing regime itself created the baseline duty and market participants, including consumers, had adjusted their commitments based on it. United States antitrust law continues to acknowledge, at least by lip service, a duty to deal when a firm makes an unjustified change in a course of dealing to which it has previously committed itself, to the detriment of the market and its consumers.⁸⁷ The EU also recognizes liability for the unreasonable termination of existing relationships.⁸⁸ I believe Devlin, Jacobs and Peixoto undervalue this history of collaborative network development when they argue that the European *Microsoft* decision constituted “a radical extension of preexisting EC law” creating “a Damoclean threat to ex ante innovation.”⁸⁹ In assessing allegedly anticompetitive practices in collaborative networks it is critical to ask how the network developed prior to the point when the dispute arose. Innovation in jointly provisioned networks is capable of going down many paths, and dominant firms may be in a position to select paths simply because they render the technology of rivals incompatible. We will very quickly lose the social gains to be had from collaborative networks if we permit one dominant firm to run away with all of the private gains once it is in a position to do so.⁹⁰

A common feature of networked markets is that the collective action of more than a single producer and buyer is necessary to make the market work. For example, a network’s output is often a set of complementary goods or services offered by multiple sellers, such as local and long distance communications or computer hardware and software. Networks frequently show economies of scale in consumption, which are sometimes called “network effects.” This means that customers value the network more as it becomes larger and has a greater number and variety of participants. For example, a telephone is worthless as a communication device if it cannot be connected to anyone else’s telephone. Further, telephones become more valuable as they can be linked into a single system and the number of users increases. An optimal system would permit everyone to talk to everyone else. The same thing is true today of computers, which are hardly free standing boxes. They communicate with the world via the internet, and depend on compatibility among both users and many types of suppliers. To the extent

⁸⁷ See *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 410 (2004) (emphasizing that the defendant had never engaged in voluntary dealing with AT&T, but did so only under compulsion of federal interconnection requirements). See also 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶772e (3d ed. 2009).

⁸⁸ DG Competition Discussion paper, note ___ at §9.2.1 (recognizing special classification for “termination of an existing supply relationship”).

⁸⁹ Alan Devlin, Michael Jacobs and Bruno Peixoto, *Success, Dominance, and Interoperability*, 84 *IND.L.J.* 1157, 1162 (2009).

⁹⁰ On the strongly collaborative nature of some networks, see YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006).

that the installed base of a particular type of computer becomes larger, software becomes more profitable to write and cheaper to purchase. This makes the software market today a far cry from the market in the 1950s, where software was often developed to be run on a single mainframe computer and often cost hundreds of thousands of dollars per copy.⁹¹

While networks typically involve a great deal of cooperation among sellers of complementary products, these sellers are often rivals as well. For example, a pair of banks issuing Visa credit cards act as partners when clearing a credit card transaction, but as competitors in issuing the cards themselves or competing for merchant accounts. Sometimes, these relationships show up in counterintuitive ways. If the Browns and the Steelers are playing against each other on Channel 3 and the Bears and the Lions are playing on channel 8, who are the competitors and who are the complements? The Browns and the Steelers are complements because it takes the two teams to make a football game; the same is true of the Bears and Lions. But the two *games* are competitors with each other, in the sense that a viewer will likely watch one or the other, and the games may compete for advertising dollars. A week later, in a different pairing of games, their roles may be reversed.

Many of our larger networks involve numerous sellers. For example, today the telecommunications network contains thousands of firms and AT&T is but one of many players. In the not too distant past, however, AT&T was a monolith that controlled virtually the entire network, including local telephone service, long distance and even the manufacture and distribution of instruments. Other networks are dominated by a single firm in some portions but competitive in others. A good example is the national power grid, which is characterized by competition at the wholesale level but statutory monopoly and price regulation at the local retail level. Still others, such as the national highway system, are largely owned and controlled by the government.

When we speak of networks, the term “dominance” can mean two different things. First, it can speak of a firm that dominates its network; second, it can refer to a network that dominates at least one of the markets in which it operates. On the first meaning, a network does not need to have a dominant firm in order to function well. Rather, it must have a set of rules, or protocols, to govern what is placed on the network, how transacting occurs, and the like. Networks are often created by joint ventures of firms, such as standard-setting organizations, nationwide moving companies, or sports leagues, that develop rules for coordinating their behavior. For example, FTD (Florists’ Transworld Delivery) is a network of florists that permits customers to order in one place

⁹¹ See Nicholas Economides & Lawrence J. White, *Networks and Compatibility: Implications for Antitrust*, 38 EUR. ECON. REV. 651 (1994); Michael L. Katz & Carl Shapiro, *Network Externalities, Competition and Compatibility*, 75 AM. ECON. REV. 424 (1985).

and a recipient to receive flowers in a distant place. FTD was organized in 1910, when 15 florists agreed to serve each other's customers in distant cities by managing orders over the telegraph. Today the network contains approximately 45,000 florists around the world. In order to do their business, the FTD members may have to coordinate such things as classification of bouquets or plants, pricing, delivery terms, and collection of fees. But none of this rule making requires a dominant firm controlling the entire system. Similarly, in the NFL a team might be "dominant" in the sense that it has a good win/loss record, but the teams are all equals in terms of their decision making status within the network.

Further, not all networks dominate markets. Pulling against increased attractiveness of ever-larger networks is increases in the costs of sustaining and managing them. Sports leagues are a good example of networks that can quickly become too large. There are only so many games that can be played in a season, and only so many ways to organize playoffs. As a result the most popular sports today are organized into multiple conferences or leagues in which only a subset of teams routinely play each other. For example, the NCAA has just under 1300 member schools (as of 2009),⁹² but only a small portion of these actually face each other in any athletic event. Rather, within each major sport the NCAA is divided up into numerous conferences based on size of the school, geography, or other factors.

If a network is nondominant in either of these two senses, competition is likely to emerge, giving customers both the advantage of networking and of competitive price and output. If the network does not contain a dominant firm, then its members will be able to compete along any avenue for which network coordination is unnecessary. For example, NCAA teams must agree on game rules, player eligibility, and schedules, but they can compete on individually sold admission tickets. If the network itself is one of many, then there should be competition among networks. Once again, customers will have the value of the network plus competitive price and output.

Many networks, including telecommunications, the electric power grid, and natural gas have been the subject of price regulation by government agencies. The most commonly given rationale is natural monopoly, which occurs when a firm's costs decline as output increases to the point that service by one firm is cheaper than by any combination of two or more.⁹³ For example, it is much cheaper for a single electric

⁹² See <http://ncaa.org/wps/ncaa?key=/ncaa/NCAA/About%20The%20NCAA/Membership/> (last visited July 20, 2009).

⁹³ If economies of scale require more than 50% of the market for lowest cost production and there are no diseconomies of very large size then any single firm will always have lower costs than two or more.

utility to run lines to houses than to have multiple firms running lines and offering competitive service. However, our ideas about the scope of natural monopoly have changed very considerably over the last thirty years. Many markets traditionally viewed as natural monopolies in reality can function better under competition in at least a portion of their activities. For example, the markets for telecommunications, electricity and natural gas began with top-to-bottom price and output regulation and single firm dominance. But they have evolved toward a more constrained kind of regulation that is designed to encourage competition among multiple firms on the network. Part of the change has been driven by technology. For example, long distance telecommunication became more competitively structured with the rise of wireless forms of communication. But the main change has been in the theory of regulation, which has evolved two important principles: First, the costs of traditional price and output regulation are high and the results always suboptimal, particularly when the influence of special interests is considered. Second, and as a result, the “scope” or domain of regulation must be defined as narrowly as possible. To be sure, there may be a core, such as local electrical service, where there are not good structural alternatives to price-regulated monopoly, but the latter should be permitted to exist only in those niches and competition encouraged to emerge elsewhere.⁹⁴

The result has been significant experimentation with partial deregulation, which usually entails a hard look for portions of the market where competition is possible. At the same time we have generally kept regulatory institutions in place to oversee those areas where competition seems to work less well. What most of these experiments in partial deregulation have in common are “interconnection rules,” which are rules that require the natural monopoly portion of the market to interconnect with the competitive portion in a way that produces seamless operation of the system as a whole. Today telecommunications, electricity, and natural gas are among the previously regulated industries that are now heavily governed by competition plus interconnection rules.⁹⁵ In these instances the interconnection rules are imposed by the government. Other networks, such as FTD or sports leagues, also have interconnection rules, but these are created and enforced jointly by the firms that operate the network. For example, an agreed-upon game schedule in the NFL, specifying dates, times, places, and match-ups, is an internally created interconnection rule. Or an organization such as FTD is likely to

⁹⁴ See 1B Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶¶241-242 (3d ed. 2007).

⁹⁵ The Telecommunications Act of 1996 imposes strict interconnection rules upon telecommunications carriers. For example, all carriers have the duty to interconnect with other carriers and to not install incompatible networks. 47 U.S.C. § 251 (a)(1)–(2) (2006). Moreover, the Act requires local exchange carriers to provide other carriers with access to infrastructure at reasonable rates. *See* 47 U.S.C. § 251(b)(4).

have a rule requiring individual florists to fill the orders of other florists when the price and product is in line with what the organization offers.

Microsoft remains as an example of an unregulated firm that both dominates its network, and whose network dominates the market that it serves. This is troublesome to the extent that it limits both intra-network and inter-network competition. We have seen such networks in the past, such as the AT&T telephone network prior to the company's forced breakup by an antitrust decree in 1982.⁹⁶ But during the period of AT&T's dominance, it was also a price regulated firm governed by a federal agency as well as numerous state agencies which controlled local service. By contrast, Congress has never seriously considered imposing either comprehensive regulation or interconnection rules on the Windows system. Its principal regulation thus befalls the antitrust laws.

Most portions of the computer network as we know it today are competitive. Computer hardware is produced competitively, as is most applications software. The internet backbone is produced by a combination of regulated and competitive suppliers, and websites themselves are fiercely competitive. But Windows remains the gateway through which these network elements must pass. They must either be compatible or else they will not be able to interconnect. The crux of the European dispute with Microsoft over reasonable access for rivals' server software was that Microsoft was renegeing on previously made interconnection practices.⁹⁷

One problem that faces competition policy in network industries is increased path dependence.⁹⁸ Even for an individual firm operating in a discrete market, radical technological change is costly. But changes in networks can require the coordinated efforts of many firms. This explains the heightened concern for backward compatibility in computer networks. What this often means is that even highly creative innovations will not find a market, because there is no easy way to make them compatible with the rest of the network. This entrenchment tends to favor dominant firms that are heavily invested in the specific technology that dominates the network.

One obvious objection to all of this is that the market-dominating position of any firm in a network is not a law of nature. This includes Microsoft Windows. Over time, viable alternatives to Windows might develop that could co-exist with Windows. Or else

⁹⁶ United States v. AT&T Co., 552 F. Supp. 131 (D.D.C. 1982) (Modification of Final Judgment), *aff'd mem. sub nom.* Maryland v. United States, 460 U.S. 1001 (1983).

⁹⁷ Cf. Case T-201/04, Microsoft v. Comm'n, 2007 E.C.R. II-1, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET>.

⁹⁸ See HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION 277–304 (2005).

an alternative program might come into existence that would either supplant Windows or force Windows to be more compatible with other operating systems. That is to say, the Windows monopoly may not be “permanent.”⁹⁹

But this is true of most so-called natural monopolies—they are “natural” only because existing technology limits the available choices. The telephone system was a natural monopoly only until advancing technology permitted us to slice off many pieces of it and subject them to competition. Market arrangements rarely exist forever, and antitrust solutions are also for the short term. The *Microsoft* litigation and aftermath itself provide some evidence of this.¹⁰⁰ After a lengthy period of market dominance by Microsoft, the market for internet access programs (“browsers”) is becoming more competitive. Indeed, it was the threat of increased competition that resulted from the internet that motivated many of Microsoft’s anticompetitive actions in the first place. At the time of the antitrust decree condemning Microsoft of anticompetitive activities in the browser market,¹⁰¹ the market share of its Internet Explorer (IE) browser was in the neighborhood of 80%, but by 2009 usage shares for the various versions of IE had dropped below 50%, while its closest rival Mozilla Firefox held a roughly equal share.¹⁰²

The operating system story is a different matter. Microsoft’s share at the time of the antitrust decree was roughly 95% in a market that included the Apple OS. In 2009 its share seems to have fallen to approximately 91%, still leaving it with a very dominant position. The market share of the various versions of Linux have remained constant or edged up slightly over the last five years, to roughly 3.5% or 4%. The Apple OS share has also taken a small amount of usage share from Microsoft, and in early 2009 hovered at around 6%.¹⁰³

Whether either the decline in browser share or the lack of decline in OS share resulted from the antitrust decree is difficult to say. The decline in Microsoft’s browser share was very likely attributable in part to the widespread use of free and rapid

⁹⁹ For example, at this writing Google has announced that it will make available a rival operating system, at least for smaller Windows-compatible computers. For updates, see <http://googlesystem.blogspot.com/>.

¹⁰⁰ See *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999), *aff’d in part, rev’d in part*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam), *cert. denied*, 534 U.S. 952 (2001).

¹⁰¹ *Ibid.*

¹⁰² See w3schools.com, Browser Statistics, http://www.w3schools.com/browsers/browsers_stats.asp (last visited July 9, 2009).

¹⁰³ w3schools.com, OS Platform Statistics, http://www.w3schools.com/browsers/browsers_os.asp (last visited July 9, 2009).

downloading as a mechanism for acquiring access to browsers, as well as the fact that open-source alternatives such as Mozilla have innovated more aggressively than Microsoft. Ironically, even though the antitrust decision condemned Microsoft for bundling IE into the Windows OS, the consent decree which closed out the government's case permitted it to continue doing so. As a result, new computers shipped with Windows always have IE on them and rarely have a second browser. Nevertheless, today well over half of Windows' customers download and substitute a different browser. The consent decree also entitles computer manufacturer to ship machines without Windows installed, but in fact very customers opt for substitute operating systems. For the most part the Apple OS is used only on Apple machines.¹⁰⁴

Further, one likely explanation for even the small decline in Microsoft OS share during the period 2007-2009 was customer resistance to the Microsoft Vista operating system, which many users regarded as too clunky, too slow, and too prone to crash. Even in mid-2009, more than two years after Vista was released, its usage share was under 20% while the previous version, Windows XP, continued to claim nearly 70% of the market.¹⁰⁵ Vista seems to have been a very costly blunder, and it is amazing that Microsoft has been able to retain a 90+ percent OS share in the face of such an unpopular product.

Microsoft is a very innovative firm. But like most network leaders, it has also channeled innovation along a particular path and has seriously restrained the innovations of others.¹⁰⁶ One problem with dominated networks is that the interests of the dominant firm are not necessarily the optimal ones, but a dominated network leaves no good alternatives. For example, growing the network is typically a good thing because a larger network is more valuable to its users. However, growing the network is profitable to Microsoft only so long as it continues to dominate. If growing means accommodating rivals and more operating system competition within the network, Microsoft can be expected to resist network growth, as it did in the server software case. Indeed, in a competitive equilibrium even the firms in a network earn no more than the competitive rate of return.¹⁰⁷ To be sure, if customers are able to organize effectively they might be

¹⁰⁴ See *Apple, Inc. v. Psystar.*, 2009 WL 303046 (N.D.Cal. Feb. 6, 2009) (noting Apple's operating exclusivity policy and finding possible copyright misuse in filing of infringement claim against rival that produced a computer able to run on both Windows and the Apple OS). See Christina Bohannon, *IP Misuse and Foreclosure* (Aug. 2009, forthcoming).

¹⁰⁵ *Id.*

¹⁰⁶ See discussion *infra* text accompanying notes __.

¹⁰⁷ See Katz & Shapiro, *supra* note __ at 429 (network interconnection with a large number of firms moves toward a competitive equilibrium).

able to resist and force broadening of the network.¹⁰⁸ But customers are rarely in a good position to organize in this fashion, particularly if they are numerous and diverse.

This previously discussed regulatory background is important because at this writing, American and European antitrust enforcers differ on the question of dealing obligations, particularly in relation to Microsoft. American law is characterized by a deep hostility toward any antitrust rule compelling a single firm to deal with a rival. European law has been more sympathetic. In thinking about this problem it is wise to keep in mind the regulatory history just sketched out. Refusal-to-deal-rules are the antitrust equivalent of interconnection rules, and interconnection is the thing that enables competition in networks by forcing dominant firms to open themselves up along those avenues where competition is realistically attainable. The small computer network requires global compatibility, but as the history of networks makes clear, compatibility does not require dominance.

Antitrust rules may in fact be superior to statutory regulation as a device for creating and enforcing interconnection obligations. First, they are less likely to be affected by interest group pressures. Second, they are much more modest, generally imposing interconnection only in the presence of a history that justifies it, clear dominance, and relatively clear necessity if competition is to be created or maintained. Microsoft has received a handful of orders to share technology or keep access channels open where competition is possible, as in the browser market in the United States or the server software market in Europe. By contrast, the interconnection obligations imposed by the 1996 Telecommunications Act are global, requiring the dominant firms to share virtually everything they have.

To be sure, using antitrust to force interconnection imposes significant difficulties. The problems of determining interconnection prices and the scope of the obligation do not go away simply because the dispute occurs in a dominated network. Resolutions such as requiring nondiscriminatory treatment, or calling for ongoing monitoring of interconnection obligations are hardly perfect, but they are not uncommon in markets subject to more explicit regulation and almost certainly better in many situations than not requiring adequate interconnection at all.

Another reason for using antitrust to compel dealing in network markets is a history that serves to justify it. In the case of Microsoft, the network is what it is because of Microsoft's own anticompetitive choices. Simply condemning those choices is

¹⁰⁸ On this point, see Daniel F. Spulber, *Unlocking Technology: Antitrust and Innovation*, 4 J. COMPETITION L. & ECON. 915 (2008); Daniel F. Spulber, *Consumer Coordination in the Small and in the Large: Implications for Antitrust in Markets with Network Effects*, 4 J. COMPETITION L. & ECON. 207 (2008).

unlikely restore competition in a path dependent market where choices have lingering effects that can last far beyond the time that a court enjoins the practices themselves. Indeed, the history of the litigation against Microsoft has been a story of too little, too late. For example, Microsoft's practice of per processor licensing effectively killed off the only serious rival operating system before a court injunction was able to save it.¹⁰⁹

The allegations of anticompetitive practices that have been leveled against Microsoft are hardly limited to refusals to deal, although these represent an important core. The literature on both the United States and European antitrust cases against Microsoft is enormous, and here we provide little more than a cross reference.¹¹⁰ Many of the practices challenged in the *Microsoft* case were fairly conventional in antitrust lore. Further, condemnation seemed quite clearly warranted, given Microsoft's very significant market power. These practices included the "tie" of the Microsoft Windows operating system and the Internet Explorer browser; pressure placed on Intel to refrain from developing a Java-enabled chip that would quickly process instructions across multiple operating systems; pressuring Apple to use Internet Explorer exclusively in the Mac version of Microsoft Office; preventing computer makers from altering the desktop so as to emphasize non-Microsoft products; exclusive dealing agreements that prevented some internet access providers from using alternative browser Netscape; agreements that gave

¹⁰⁹ *United States v. Microsoft*, 56 F.3d 1448, 1451 (D.C. Cir. 1995). Under per processor licensing, a computer manufacturer had to pay a royalty on Windows for each computer (processor) it produced, whether or not that computer contained a copy of Windows. As a result, a rival could provide an operating system for a computer only if the consumer paid for two operating systems. The principal rival was IBM, whose OS/2 operating system failed commercially.

¹¹⁰ *E.g.*, HARRY FIRST & ANDREW I. GAVIL, MICROSOFT AND THE GLOBALIZATION OF COMPETITION POLICY: A STUDY IN ANTITRUST INSTITUTIONS (forthcoming); A. Douglas Melamed & Daniel L. Rubinfeld, *U.S. v. Microsoft: Lessons Learned and Issues Raised*, in ANTITRUST STORIES 287 (Eleanor M. Fox & Daniel A. Crane eds., 2007); WILLIAM H. PAGE & JOHN E. LOPATKA, THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE (2007); Wayne R. Dunham, *The Determination of Antitrust Liability in United States v. Microsoft: The Empirical Evidence the Department of Justice Used to Prove Its Case*, 2 J. COMPETITION L. & ECON. 549 (2006); Renata B. Hesse, *Counseling Clients on Refusal to Supply Issues in the Wake of the EC Microsoft Case*, ANTITRUST, Spring 2008, at 32; Philip Marsden, *Picking Over the CFI Microsoft Judgment of 17 September, 2007*, 20 LOY. CONSUMER L. REV. 172 (2008); David McGowan, *Between Logic and Experience: Error Costs and United States v. Microsoft Corp.*, 20 BERKELEY TECH. L.J. 1185 (2005); Renato Nazzini, *The Microsoft Case and the Future of Article 82*, ANTITRUST, Spring 2008, at 59; William H. Page & Seldon J. Childers, *Bargaining in the Shadow of the European Microsoft Decision: The Microsoft-Samba Protocol License*, 102 NW. U. L. REV. 332 (2008); Daniel F. Spulber, *Competition Policy and the Incentive to Innovate: The Dynamic Effects of Microsoft v. Commission*, 25 YALE J. ON REG. 247 (2008); Mehmet Bilal Unver, *Does a 'Rule of Reason' Analysis Emerge Out of Interoperability-Centric Concerns Under EC Law? A Critical Analysis in Light of EU Microsoft Case*, 12 INT'L J. COMM. L. & POL'Y 369 (2008).

software developers favored treatment if their programs excluded operation with Netscape or provided for better performance if Internet Explorer were used; and finally deception of application software developers to induce them to use versions of Java programming language that did not have cross-platform capabilities.¹¹¹

Each of these practices was designed to enable Microsoft to retain dominant control of the network. Microsoft's principal fear was that the combination of the Netscape browser and the Java multiplatform computing language would lead to the emergence of compatible, competitive operating systems that might vie with Windows. If that had happened, the computer network might have become a competitive, product-differentiated market something like a sports league. Users could select an operating system on the basis of features and price, and pretty much all the software and peripherals they needed would run on multiple systems.

The more interesting question concerns the legality of practices that reached beyond conventional antitrust analysis in the United States, and that serve to highlight the differences between the U.S. the EU Microsoft litigation. The most important of these practices fall under the heading of "refusal to deal," or the regulatory equivalent of interconnection obligations. The EU decree required that non-Microsoft workgroup servers be able to interconnect to a Microsoft-dominated system and operate seamlessly, just as if the entire collection of networks were run by a single firm. While the providers of rival server systems had not been driven out of the market altogether, their market shares had been falling while Microsoft's were rising. As a result, the decision did not reflect a finding a "indispensability," which had been characteristic of previous refusal to deal decisions under EU law, but perhaps something more like a "substantial threat" that if the market were left to run its course Microsoft would have taken over the server system market.¹¹² The underlying point was not the survival of rivals for their own sake. Rather, it was the competitiveness of a market that was fully capable of being competitive, provided that Microsoft did not use the Windows bottleneck in a way that would disadvantage rivals.

Should United States antitrust policy follow the European lead and develop more aggressive mandatory dealing rules for dominated networks? In *Trinko* the Supreme Court unanimously declined to create a dealing obligation in a highly networked

¹¹¹ See *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam), *cert. denied*, 534 U.S. 952 (2001). The litigation is summarized in 3 AREEDA & HOVENKAMP, *supra* note ___, ¶ 617 (3d ed. 2008), and *id.* at add. (Supp. 2009).

¹¹² See Ahlborn & Evans, *supra* note __.

industry.¹¹³ Although it did not make unilateral refusals to connect lawful per se, the Court left very little room for compulsory dealing under the antitrust laws.

But *Trinko* is idiosyncratic in one highly relevant sense. *Trinko* was decided against the backdrop of a regulatory provision contained in the Telecommunications Act that compelled nearly global interconnection.¹¹⁴ That Act required the very connection to independent local telephone service providers that was at issue in the antitrust decision. Indeed, Verizon's lack of cooperation had already been identified and condemned by both federal and state regulatory agencies.¹¹⁵ So *Trinko* really decided that it was not a good idea to bring antitrust in as an overlay to what telecommunications regulators were already doing, and apparently doing fairly well. Justice Scalia described these regulators as an "effective steward of the antitrust function."¹¹⁶

Refusals to deal in dominated, path-dependent networks can have a much different look than refusals to deal generally. They can resemble tying arrangements, in the sense that market dominance plus path dependence often serves to "tie" the disputed product to existing technologies.¹¹⁷ For example, consider European condemnation of Microsoft's refusal to provide effective server technology to rivals briefly discussed above.¹¹⁸ A superficial look from an American perspective sees this as a simple refusal to deal. Why should Microsoft be required to assist rivals by providing them with protocols which it has developed? But in a path-dependent world even a clearly superior or more cost-effective server produced by a rival cannot claim a market unless it achieves compatibility with the rest of the network. Microsoft is effectively saying, if you want access to our operating system network you must use our own server software on your local networks as well. This sounds much more like a tying arrangement than a simple refusal to deal. In fact, the refusal to deal closely resembles a "technological tie," in

¹¹³ Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004).

¹¹⁴ See note ___, supra.

¹¹⁵ *Trinko*, 540 U.S. at 412-413.

¹¹⁶ *Id.* at 413.

¹¹⁷ See Stanley J. Liebowitz and Stephen E. Margolis, Path Dependence, *Lock-in and History*, 11 J. L., ECON., AND ORG. 205 (1995); Joseph Farrell and Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM.ECON.REV. 940 (1986).

¹¹⁸ See discussion supra, text at notes ___.

which two products or services are tied together, not by a contract but rather by technological constraints that effectively require that they be used together.¹¹⁹

If Microsoft wrote a contract requiring people to use its own local network server software as a condition of their having access to the Windows operating system we would have little difficulty characterizing the conduct as a “tie” rather than as a refusal to deal. Under current law, ties are said to be per se unlawful, while refusals to deal are virtually per se lawful. As a matter of wise policy, both of these legal rules are incorrect. Tying is anticompetitive only part of the time, and refusals to deal in network industries where cooperation among rivals is required can be anticompetitive some of the time. This makes them grist for rule-of-reason treatment under §2. As noted previously,¹²⁰ one important and welcome development in tying law has been the use of §2, which applies only to dominant firms but is much less categorical about tying law’s technical requirements. Network refusals to deal can provide a good example.

The fact is that in today’s world almost nobody likes regulation. Use of antitrust to impose sharing obligations in dominated networks might strike some as excessively “regulatory,” but that is at least partly the point. Antitrust is being used as a substitute for regulation in a market in which broad regulation would not be in consumers’ interest but occasional ad hoc intervention could be. The goal should be a network in which all portions capable of competition be given a level playing field unrestrained by Microsoft’s self dealing. And this is not to cast aspersions on Microsoft, who is simply behaving as any profit-maximizing actor would under the circumstances. An expansion of antitrust may be a useful middle route between statutory regulation on the one hand, or a durable monopoly constantly spilling into adjacent markets on the other.

Exclusionary Pricing

The antitrust law of predatory and other forms of exclusionary pricing is both multi-faceted and technical.¹²¹ In general, the law is in a fairly good place, although somewhat on the underdeterrent side. Given the severe limitations on our abilities to make accurate assessments of conduct and to produce socially beneficial remedies, that is probably how it should be. Low prices are the core purpose of antitrust policy, and condemning prices because they are too low places courts in treacherous territory. For

¹¹⁹ See 10 PHILLIP E. AREEDA, EINER ELHAUGE & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1757 (2d ed. 2005).

¹²⁰ See discussion *infra*, text at notes __.

¹²¹ Pricing practices take up the entirety of Volume 3A of the ANTITRUST LAW treatise, third edition, occupying some 350 pages. See 3A AREEDA & HOVENKAMP, *supra* note __ (3d ed. 2008).

pricing claims in particular, the cost of false positives is very high in comparison to the cost of false negatives.¹²²

Two areas of predatory pricing law are problematic. The first is the “recoupment” requirement that the Supreme Court adopted in its *Brooke Group* decision.¹²³ The second is the one set of practices where the Supreme Court has had little to say—namely, discounting practices in which the nominal price of each item in a discounting structure is above cost.

Recoupment

In its *Brooke Group* decision the Supreme Court established two independent requirements for unlawful predatory pricing. First, the price must be below a relevant measure of cost, which by general consensus is average variable cost or some variation of marginal cost.¹²⁴ Second, there must be evidence that at the onset of the predatory pricing scheme the defendant had a reasonable prospect of “recouping” its predation investment. This requires a showing that the anticipated gains during a post-predation period of monopoly pricing, when discounted to present value, would likely exceed the anticipated investment in below cost pricing itself.

The European Union rejects the recoupment requirement in situations where the defendant’s prices are clearly shown to be below the relevant cost measure,¹²⁵ and I believe that the EU is correct on this point. A prolonged period of pricing below variable or marginal costs is irrational without anticipation of post-predation recoupment, and an explicit recoupment requirement as *Brooke Group* articulated it basically requires the plaintiff to prove the same thing twice, although in different ways. Further, the technical requirements for showing recoupment are so severe that it is almost impossible for a plaintiff to meet them in the vast run of circumstances. The one exception is where recoupment is obvious and can be accomplished in a very short time.¹²⁶ This recommendation is roughly consistent with one made by Bolton, Brodley and Riordan in 2000 that proof of recoupment should be relaxed if the evidence of predatory pricing is relatively strong.¹²⁷

¹²² On this point, see *id.* ¶723b.

¹²³ *Brooke Group, Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993).

¹²⁴ 3A AREEDA & HOVENKAMP, *supra* note __, ¶740a.

¹²⁵ See Case C-202/07, *France Telecom, S.A. v Comm’n*, 2009 WL 856647 (Apr. 2, 2009); Case C-333/94P, *Tetra Pak Int’l SA v Comm’n (Tetra Pak II)*, 1996 E.C.R. I-5951; DIRECTORATE-GEN. FOR COMPETITION, EUROPEAN COMM’N, DISCUSSION PAPER ON THE APPLICATION OF ARTICLE 82 OF THE TREATY TO EXCLUSIONARY ABUSES 35 (2005), available at http://ec.europa.eu/comm/competition/antitrust/art_82/discpaper2005.pdf; Cyril Ritter, *Does the Law of Predatory Pricing and Cross-Subsidisation Need a Radical Rethink?*, 27 WORLD COMPETITION 613 (2004).

¹²⁶ *E.g.*, *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005).

¹²⁷ Bolton, Brodley and Riordan, *Predatory Pricing: Response to Critique*, note __ at 2513-2514:

At the same time, any claim of predatory pricing must be dismissed once it appears that the structural requirements for successful predation are absent. Predatory pricing law presumes that firms behave rationally,¹²⁸ and no firm engages in costly, high-risk behavior¹²⁹ except at the prospect of a payoff large enough to make the cost and risk worthwhile.¹²⁹ If structural factors indicate that monopoly or oligopoly prices could not be maintained for a significant time after the predation campaign has destroyed or disciplined rivals, then the claim must be dismissed. But the *Brooke Group* decision measures the legality of alleged predation by the likelihood of recoupment under a particularly stringent test. *Weyerhaeuser*¹³⁰ reiterated these requirements and applied them to claims of predatory purchasing.¹³⁰ This test demands too much from plaintiffs when prices are clearly below average variable cost.

The recoupment requirement as *Brooke Group* articulated it demands not merely that post-predation monopoly prices be maintainable, but that they be of sufficient duration and magnitude to offset the costs of predation, even after adjusted for the risk and time value of the earlier investment in predation. Further, as the Supreme Court made clear, this test applies to predation claims brought under the Sherman Act and the Robinson-Patman Act alike.¹³¹ In the case of predatory pricing challenged as monopolization, the recoupment analysis includes such factors as the duration of the predation scheme and the depth of price cuts, both of which go to predation's costs,¹³² disposition of rivals' productive assets,¹³³ and barriers to entry or to expansion by surviving rivals.¹³⁴

Recoupment can be extraordinarily difficult to measure. It requires a precise market definition and consideration of such factors as entry barriers and rivals' ability to expand output. These facts are important to all §2 analysis. However, the additional recoupment requirements that a plaintiff actually provide evidence indicating that the monopoly "payoff" will be greater than the predation investment involves undue

... [I]f the evidence supporting a predatory theory were powerful, as might appear in a well-documented case of financial market predation, then a less rigorous approach to recoupment proof should be permissible. What we are suggesting amounts to a sliding-scale approach to proof of recoupment. The weaker the predatory theory, the more demanding the proof of recoupment must be, and vice versa.

¹²⁸ See 3A AREEDA & HOVENKAMP, *supra* note __, ¶725a.

¹²⁹ *Id.* ¶¶725–26.

¹³⁰ *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 549 U.S. 312 (2007).

¹³¹ On Robinson-Patman claims, see 3A AREEDA & HOVENKAMP, *supra* note __, ¶745.

¹³² *Id.* ¶¶727c, d.

¹³³ *Id.*

¹³⁴ *Id.* ¶¶729.

speculation and becomes a virtual rule of nonliability. When a price is clearly below average variable cost (or marginal cost) with no adequate alternative explanation, the firm's managers have calculated that such a payoff was worth the risk. No court is in a better position to make this calculation than the firms' managers themselves. In the case of predatory pricing challenged under the Robinson-Patman Act as an attempt to preserve or create a disciplined oligopoly, one must additionally analyze the market's conduciveness to oligopoly. Recoupment is even more difficult to measure in this setting.¹³⁵ That creates the perverse result that recoupment is harder to prove under the Robinson-Patman Act than under the Sherman Act, even though the Robinson-Patman Act was clearly intended to be more aggressive.

To be sure, in extreme cases that calculation could be quite manageable. For example, if entry is easy and quick, there might not be any recoupment period at all, and the claim could quickly be dismissed. At the other extreme, a case with high fixed costs and extraordinarily high entry barriers might evidence recoupment in just a few months' time.¹³⁶

But in the middle range, "dollars and cents" proof of requirement requires unacceptable amounts of speculation about the time it would take entry to occur, the ability of rivals to expand output or switch productive resources, the long-run ability of consumers to switch to alternative products or markets, changes in technology, and the like. The tribunal must be assured that the market is conducive to a prolonged period of monopoly or oligopoly pricing, but the plaintiff cannot reasonably be required to provide more.

Read closely, *Brooke Group* itself need not be interpreted to require a plaintiff to quantify the expected gain to be obtained from a post-predation period of monopoly pricing, and to show that this prospective gain was large enough, when time-adjusted, to compensate for the cost of predation. The *Brooke Group* Court said, "The plaintiff must demonstrate that *there is a likelihood* that the predatory scheme alleged would cause a rise in prices above a competitive level that would be sufficient to compensate for the amounts expended on the predation, including the time value of the money invested in it."¹³⁷ The operative word here is "likelihood," which in the context means "a good chance," or perhaps "reasonable probability."¹³⁸ A few sentences later the Court elaborated: "If market circumstances or deficiencies in proof would bar a reasonable jury from finding that the scheme alleged would likely result in *sustained supracompetitive pricing*, the plaintiff's case has failed."¹³⁹

¹³⁵ *Id.* ¶727e.

¹³⁶ *E.g.*, *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917 (6th Cir. 2005).

¹³⁷ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 225 (1993) (emphasis added).

¹³⁸ The Court also noted that "[e]vidence of below-cost pricing is not alone sufficient to permit an inference of probable recoupment." *Id.* at 226.

¹³⁹ *Id.* (emphasis added).

In sum, the plaintiff must show a “likelihood,” or good chance, that a below-cost pricing scheme would be followed by a period of “sustained supracompetitive pricing.” Given all the uncertainties in computing the costs of predation and the likelihood and duration of recoupment, all that is required in addition is a good chance that the entire scheme would be profitable. This requires a careful assessment of market structure and entry barriers, or the ability of existing rivals to survive and increase their own output. That is, we want to make sure that the market is prone to durable monopoly.

The best evidence of recoupment is the fact that the defendant’s managers dropped prices below average variable cost (or short run marginal cost) without a harmless alternative explanation. Further, the duration of those below-cost prices must be sufficient to warrant an inference of significant harm to rivals and that the prices were not simply a mistake. Such evidence serves to indicate that the firm’s own decision makers believed that the payoff to predation would be positive, and an antitrust tribunal cannot reasonably be expected to assess the market more accurately than a dominant firm’s own managers.¹⁴⁰

The *Brooke Group* decision exacerbates the ineffectiveness of antitrust law against oligopoly – a problem that is likely far more severe and ubiquitous than the problem of predatory pricing by monopolists. Indeed, B&W’s strategy here is similar to a standard model well known to economists, and it is most likely to occur in oligopolies subject to product differentiation.¹⁴¹ A new entrant or small firm offers a distinctive version of the product, earning healthy margins in a corner of the market, until an established firm imitates the product at temporarily low prices. The low-price invasion then either weakens the entrant or persuades it to accept price leadership. Discipline of the rival rather than destruction is typically the goal. The evidence in *Brooke Group*

¹⁴⁰ See Donald J. Boudreaux, Kenneth G. Elzinga & David E. Mills, *The Supreme Court’s Predation Odyssey: From Fruit Pies to Cigarettes*, 4 SUPREME CT. ECON. REV. 57, 73 (1995) (citing a set of less technical criteria as tending to establish the recoupment requirement and justifying further inquiry into price-cost relationships:

- Does the alleged predator currently confront substantial competition from noncollusive rivals (other than its intended victims) within the relevant market?
- Is entry into the relevant market devoid of high entry barriers?
- Do customers in the alleged market have credible counter-strategies that are likely to defeat a predatory scheme?
- Is the industry in rapid decline?

Only if the previous questions are answered in the negative would a court be justified in allowing the parties to undertake the expensive and complicated task of gathering and presenting data on price-cost comparisons.). Elzinga and Mills were the two authors that the Supreme Court relied on for the recoupment requirement in *Brooke Group*. See also Ritter, *supra* note __.

¹⁴¹ The theories are summarized in Thomas J. Campbell, *Predation and Competition in Antitrust: The Case of Nonfungible Goods*, 87 COLUM. L. REV. 1625 (1987).

showed that B&W's entry into the generic market resembled Liggett's so closely that customers were indifferent between them. As a result, wholesalers and retailers stocked only one of them, forcing Liggett either to surrender its generic business or to offer similar prices at heavy losses.

Moreover, a defendant's gain (potential recoupment) from predatory pricing can extend beyond the benefits of destroying or disciplining the plaintiff, for the predation may "signal" other incumbents what awaits their price competition or signal outsiders what awaits their entry. The predatory behavior can deter future competition *before* it occurs. In that event, the anticipated value of predation includes not only the benefit of disciplining the immediate target but also the benefit of discouraging future competition by others.¹⁴² Further, in a product-differentiated oligopoly, the identity of the "enforcer" is likely to be determined by proximity in the market rather than by size. That firm is most likely to be the one whose product most resembles the price cutter's product.

Although it accepted the principle that creating or reinforcing oligopoly could provide a payoff for predatory pricing, the Supreme Court doubted that tacit price coordination could ever occur among oligopolists engaging in occasional promotional discounts or in substantial nonprice competition. Even the cigarette oligopoly, the Court saw, functioned imperfectly. There was notable nonprice competition and some discounts and promotions.

But no oligopoly is perfect in setting and maintaining perfect allegiance to prices maximizing industry profits. There are likely to be a complex array of pricing formulas, promotions, and amenities that the Court correctly perceived as "imperfect" oligopoly. Nevertheless, no one has ever accused the cigarette industry of being highly competitive. In fact, its history was one of "textbook" oligopolistic price coordination,¹⁴³ as the majority itself acknowledged.¹⁴⁴ The Court's insistence that the industry changed its stripes in 1980 seemed too categorical, elevating general doubts about perfect oligopoly into universal truth.

Brooke Group thus makes too strong an assumption about the difficulties of oligopoly coordination, and thus about the usefulness of temporary periods of below-cost prices to discipline maverick firms. This likelihood increases when individual oligopolists operate in distinct market niches, and one "well behaved" oligopolist can use below-cost prices to target price cuts in the target firm's own niche, as happened in *Brooke Group* with generic cigarettes. In such a case, success of the scheme depends mainly on the predator's ability to convince the price cutter that cuts are going to produce greater losses than gains.

In general, *Brooke Group* seems to reflect lawyers' rather than economists'

¹⁴² See 3A AREEDA & HOVENKAMP, *supra* note ___, ¶ 727g (3d ed. 2008).

¹⁴³ *Brooke Group*, 509 U.S. at 245 (Stevens, *jj.*, dissenting).

¹⁴⁴ *Id.* at 212 ("[I]st prices for cigarettes increased in lockstep, twice a year, for a number of years, irrespective of the rate of inflation, changes in the costs of production, or shifts in consumer demand").

understanding of concentrated markets. Under the lawyers' understanding, explicit verbal agreements are regarded as highly dangerous to the point that they are illegal per se and even regarded as criminal acts. By contrast, nonverbal communications that fail to meet the common law "agreement" requirement are regarded as ineffectual. Economists are more likely to view words and acts as equally communicative, and to conclude that their force depends on the credibility of the threats they imply rather than the language in which they are stated.

Granted, the economics of oligopoly are technical and are subject to much dispute even among economists. But the facts in *Brooke Group* were particularly strong, and the conduct was unambiguous. Indeed, if oligopolistic coordination is so difficult, as *Brooke Group* suggests, it would be hard¹⁴⁵ to justify prevailing merger doctrine in the United States and most other countries.

Anticompetitive Discounting Practices

A discount is a price reduction that is typically attached to a condition. While the types of discounts that sellers offer are manifold, they can be roughly divided into single-product discounts and "leveraged" discounts, which include bundled discounts. A single-product discount is typically based on how much a customer buys, and they can very roughly be divided into "quantity" discounts and so-called "market share" discounts. Offers of such discounts can be uniform across customers or customer classes, or else they may be individually negotiated, with different customers receiving different prices for what appear to be identical transactions. Discounts may apply to single transactions or shipments, such as when the seller gives 10% off for truckload lots, or a 10% discount on a full case of wine. They may also be aggregated across a defined time period—such as when a seller offers a 10% discount to someone who purchases at least 1000 units, or perhaps who purchases at least 80% of its needs from that seller during a one year period. A discount is "leveraged" when it is aggregated across two sets of offerings and the dominant firm has monopoly power in one but not the other.¹⁴⁶ In short, discounting practices defy any simple classification scheme.

Discounts with express tying or exclusive dealing conditions are prohibited by §3 of the Clayton Act when the requisite anticompetitive effects are proven. For example, an offer of a 10% discount on the condition that the purchaser not purchase from a rival, or that it take a second product in conjunction with the first, is covered by that statute.¹⁴⁷

¹⁴⁵ See generally 4 ANTITRUST LAW, note __, ch. 9 (3d ed. 2009).

¹⁴⁶ See discussion *infra* text accompanying notes __.

¹⁴⁷ See 15 U.S.C. §14 (2006) ("It shall be unlawful . . . to lease or make a sale . . . or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement, or understanding that the lessee or purchaser thereof shall not use or deal in the goods . . . of a competitor . . . where the effect . . . may be to substantially lessen competition or tend to create a monopoly in any line of commerce.") (emphasis added).

Discounting is ubiquitous. It obtains in markets with every form of structure from the most competitive to the most dominated, and is an essential device by which markets “clear.” For example, sellers who find themselves with excess inventory or excess capacity may offer a discount to get sales up, while those who are producing all they can will be reluctant to do so. In the presence of substantial fixed costs any additional sale at a price sufficient to cover variable costs is profitable. For example, if prior to 6:00PM a restaurant tends to have empty tables, a fixed cost, it may offer early diners a discount, with the price still sufficient to cover the incremental cost of the food and service. Firms that have significant fixed costs and excess capacity nearly always have an incentive to offer discounts for higher quantities, because these additional sales incur only variable costs.¹⁴⁸ These strategies exist in both highly competitive markets and concentrated markets, and even absolute monopolists can profit from discounts that are used to clear excess capacity or to price discriminate in favor of customers who would not purchase the product at the monopoly price.¹⁴⁹

Many discounting practices are part of a system of contractual vertical integration, and are designed to establish or reinforce long-term relationships between suppliers and customers. This is particularly true of so-called loyalty discounts and at least some bundled discounts. Discounts can encourage stable supply relationships while nevertheless preserving more flexibility than outright ownership or more airtight contractual relationships. A dealer who gets preferential treatment in the form of a lower price for being a loyal Alpha dealer has considerably more freedom than one who simply signs a multiyear exclusive dealership contract. As a result, annualized discounts or the paying of bonuses is a common and precompetitive way of encouraging dealer loyalty.

Nevertheless, vertical integration does not justify selling at a loss in order to drive rivals out of business. That is to say, a firm like Intel may have a strong interest in using loyalty or market share discounts in order to maximize its sales with computer assemblers (OEMs) with whom it has ongoing production relationships.¹⁵⁰ But persistently selling to

¹⁴⁸ This has been known to economists since the beginning of the twentieth century. See Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 YALE L.J. 1017-72 (1988).

¹⁴⁹ See Daniel A. Crane, *Mixed Bundling, Profit Sacrifice, and Consumer Welfare*, 55 EMORY L.J. 423 (2006); 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); Bruce H. Kobayashi, *Does Economics Provide a Reliable Guide to Regulating Commodity Bundling by Firms? A Survey of the Economic Literature*, 1 J. COMPETITION L. & ECON. 707 (2005); Stan J. Liebowitz & Stephen E. Margolis, *Bundles of Joy: The Ubiquity and Efficiency of Bundles in New Technology Markets*, 5 J. COMPETITION L. & ECON 1 (2009).

¹⁵⁰ Intel Corp is used as an illustration here because it has been the subject of widespread competition and antitrust inquiry. See Case T-457/08 R, *Intel Corp. v. Comm’n*, 2009 C.M.L.R. 18 (EU investigation); *Enforcement Authorities*, KFTC Newsl. (Korea Fair Trade Comm’n), July 4, 2008, at 14, available at http://eng.ftc.go.kr/files/bbs/2008/KFTC_Newsletter_8.pdf; Press Release, Intel, Intel Statement on U.S.

OEMs at prices below cost requires an explanation, and vertical integration rarely supplies it.

A central question about competition policy toward discounts challenged as exclusionary practices is whether the test for them must be “cost based.” By and large the United States courts have required cost-based tests for all forms of discounting,¹⁵¹ although there are some exceptions, as well as differences about how cost should be measured.¹⁵²

The general case of single-product discounts

Ordinary predatory pricing rules are presumptively the best line of attack against single-product discounts that are alleged to be anticompetitive. Even the firm with fixed

Federal Trade Commission (June 6, 2008), *available at* <http://www.intel.com/pressroom/archive/releases/20080606corp.htm>; Press Release, Japan Fair Trade Comm’n, The JFTC Rendered a Recommendation to Intel K.K. (Mar. 8, 2005), *available at* <http://www.jftc.go.jp/e-page/pressreleases/2005/March/050308.pdf>. (To the extent it is relevant, HH was consulted by Intel in contemplation of the Korean proceedings).

¹⁵¹ *E.g.*, *Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883 (9th Cir. 2008) (bundled discount); *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039 (8th Cir.) (single product market share discount), *cert. denied*, 531 U.S. 979 (2000); *Virgin Atl. Airways Ltd. v. British Airways PLC*, 69 F. Supp. 2d 571 (S.D.N.Y. 1999), *aff’d on other grounds*, 257 F.3d 256 (2d Cir. 2001); *Invacare Corp. v. Respironics, Inc.*, No. 1:04 CV 1580, 2006 WL 3022968 (N.D. Ohio Oct. 23, 2006); *Masimo Corp. v. Tyco Health Care Group, L.P.*, No. CV 0204770 MRP, 2006 WL 1236666 (C.D. Cal. Mar. 22, 2006). For a critique of traditional cost-based tests requiring prices below average variable costs or average avoidable costs, see Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing, Strategic Theory and Legal Policy*, 88 *Geo.L.J.* 2239 (2000). Professor Brodley and his co-authors argued that average avoidable cost rather than AVC be the correct cost standard, a view that has acquired considerable traction since their article was published. They also argued, however, that prices above average avoidable cost should occasionally be condemned if they were below long-run average incremental cost. To an extent this meant that a firm would not be free to ignore the sunk costs of plant and other previous investment in making its pricing decision. See Kenneth G. Elzinga and David E. Mills, *Predatory pricing and Strategic Theory*, 89 *Geo.L.J.* 2475 (2001).

¹⁵² *E.g.*, *LePage’s Inc. v. 3M*, 324 F.3d 141 (3d Cir. 2003) (en banc), *cert. denied*, 542 U.S. 953 (2004); *Xerox Corp. v. Media Scis. Int’l, Inc.*, 511 F. Supp. 2d 372 (S.D.N.Y. 2007) (complaint stated a claim that loyalty discounts on aftermarket ink fillers for printers was unlawful; no reference to allegations that price was below cost). See also *Meijer, Inc. v. Abbott Labs.*, 544 F. Supp. 2d 995 (N.D. Cal. 2008), which rejected exclusive use of cost-based tests; however, its reasoning was ultimately rejected in a related decision from the Ninth Circuit involving the same defendant and facts. See *Doe v. Abbott Labs.*, 571 F.3d 930 (9th Cir. 2009).

costs and excess capacity cannot ordinarily make money by making incremental sales at a price below its short run marginal cost or average variable cost.¹⁵³

Should discounts be condemned even when the most fully discounted price is above average variable cost, or even above average total cost? The answer depends in part on whether the discount scheme enables the seller to leverage a monopoly component of its product offerings in a way that excludes rivals unreasonably from more competitive components. This is the central issue raised in cases involving so-called “bundled” discounts, although it arises in other settings as well.¹⁵⁴

For single-product-quantity and market-share discounts, the most important factor is that if the fully discounted price is above cost an equally efficient rival will be able to match the discount; however, not all rivals are necessarily equally efficient. To be sure, one can devise existence theorems showing possible equilibria in which the best strategy for a rival competing against above cost discounts is to exit from the market.¹⁵⁵ In this sense the literature on anticompetitive discounting is in much the same position as the literature on general predatory pricing has been since at least the 1970s. Economists have always been able to formulate above cost pricing strategies that a dominant firm can use in order to exclude rivals.¹⁵⁶ But if antitrust is to accept such possibilities it must have a reliable means of making empirical distinctions between harmful and harmless or even beneficial conduct.

Those who defend a harsh rule against quantity or market-share discounts frequently observe that the fully discounted price of the last unit is often below any relevant measure of cost, and may even be negative. For example, suppose that Farmer Brown sells corn at 10 cents per ear, or \$1.00 per dozen. A customer would like to have ten ears of Farmer Brown’s corn but would also like to have two ears of Farmer Green’s

¹⁵³ For a view more sympathetic to condemnation of above cost discounts, see Joseph F. Brodley and Ching-to Albert Ma, *Using Insights from Game Theory: penalty Contracts and Monopolizing Strategies*, 9-FALL ANTITRUST 6 91994); Joseph F. Brodley and Ching-t Albert Ma, *Contract Penalties, Monopolizing Strategies, and Antitrust Policy*, 45 STAN.L.REV. 1161 (1993).

¹⁵⁴ See discussion *infra* text accompanying notes ___.

¹⁵⁵ See Einer Elhauge How Loyalty Discounts can Perversely Discourage Discounting, 5 J.Comp.L. & Econ. 189 (2009) (although limiting his analysis to those loyalty discounts that “lack any efficiency justification” – id. at 192).

¹⁵⁶ See, e.g., Aaron S. Edlin, *Stopping Above Cost Predatory Pricing*, 111 YALE L.J. 941 (2002) (describing above cost anticompetitive pricing strategies); Patrick Bolton, Joseph F. Brodley & Michael H. Riordan, *Predatory Pricing: Strategic Theory and Legal Policy*, 88 GEO. L.J. 2239 (2000) (similar); Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284 (1977) (similar). For illustrations of traditional “limit” pricing strategies, see JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 367–74 (1988); W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, *ECONOMICS OF REGULATION AND ANTITRUST* 177–90 (4th ed. 2005).

corn, which has the same production costs as Farmer Brown's. The customer could purchase ten ears of Farmer Brown's corn for \$1.00 and two ears of Green's for ten cents each, at a total price of \$1.20. Or it could purchase the dozen from Farmer Brown for \$1.00. To say this differently, the effect of the quantity discount on a dozen ears of corn is that the cost of mixing corn from the two farmers increases when the customer wants only one dozen.¹⁵⁷

But basing liability on this type of "exclusion" goes way too far. First, Farmer Green can offer her own matching or even undercutting discount. Further, *every* discount scheme in which the discount is attached to a certain minimum purchase, whether measured by either absolute quantity or the purchaser's share, has this characteristic. If one looks only at the final price increment in the range where the discount operates, competing with that price may be impossible. Indeed, in the corn example if the customer wanted eleven ears of Farmer Brown's corn and one ear of Farmer Green's, Green would have to *pay* 10 cents to the customer in order to match the price that Farmer Brown was offering.¹⁵⁸ That is, in that particular case matching the discount would require Farmer Green to charge a negative price. In sum, an antitrust criterion that prohibited discounts where rivals were unable to match the price on the incremental units subject to the discount would stop most forms of discounting altogether.

Of course, an anti-discounting rule under §2 properly applies only to monopolists, and Farmer Brown is not a monopolist.¹⁵⁹ But monopolists also profit when they sell

¹⁵⁷ Using similar illustrations to argue against discounting practices is Robert H. Lande, *Intel's Alleged Schemes Affected U.S. Customers* 1–2 (Univ. of Balt. Legal Studies Research, Paper No. 2008-10, 2008), available at <http://ssrn.com/abstract=1145327>. Lande uses this illustration:

Imagine that Acme Computer buys 10 chips a month from Intel at \$8 each. Suppose AMD wanted to sell chips to Acme, and offered to sell it 2 chips at \$5 each. These lower AMD prices certainly would be beneficial for competition and consumers.

Suppose, however, that when Acme turned to Intel for the remaining 8 chips it needed, Intel replied that its prices had increased to \$10 per chip, but that if Acme purchased all 10 chips from Intel, their price would still only be \$8 each. Acme would quickly calculate that $8 \times 10 = \$10 \times 8$. In other words, under Intel's new pricing plan it is giving away the last two chips for free. It would make no sense for Acme to purchase any chips from AMD for \$5 each, or even for 1¢ each. From Intel's perspective it still gets the same \$80 from Acme Computer. In addition, its carefully designed "discount" has excluded [its rival AMD].

Id. Both Korea and Japan relied on reasoning of this type in condemning Intel's market share discounting program. See Kyung Bok Cho & Mark Lee, *Intel Fined in South Korea for Antitrust Rules Breach (Update3)*, BLOOMBERG.COM, June 5, 2008, <http://www.bloomberg.com/apps/news?pid=conewsstory&refer=conews&tkr=INTC:US&sid=a2mpgvYbaE1M>; Joe Nocera, *A.M.D. and Its War with Intel*, N.Y. TIMES, June 21, 2008, at C1.

¹⁵⁸ The customer could purchase eleven ears from Farmer Brown, foregoing the discount, for \$1.10, or the full dozen for \$1.00. So in order to purchase eleven ears from Brown and 1 ear from Green at a price of \$1.00, Green would have to compensate the customer 10 cents.

¹⁵⁹ Cf. Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 J. COMPETITION L. & ECON. 189 (2009); Denis Waelbroeck, *Michelin II : A Per Se Rule Against Rebates by Dominant Companies?*, 1 J. COMPETITION L. & ECON. 149 (2005), and John Temple Lang & Robert O'Donoghue, *Defining Legitimate Competition: How to*

more. Further, and critically, the social interest in larger output by monopolists is greater than that of competitor Farmer Brown. When the monopolist sells more, prices go down and volume goes up. When the competitor sells more those sales occur at the competitive price and will be made by someone else if a particular seller does not make them.

The story changes dramatically in favor of discounting if we assume the existence of fixed costs, and particularly fixed costs brought about by upfront innovation and development. In general, fixed costs can lead to excess capacity, and incremental sales out of excess capacity are both profitable and cost reducing as long as they are higher than the incremental cost that the seller incurs. Further, the characteristics of innovation costs that make them so conducive to discounting are, first, that they are fixed and, second, that they can be attributed across an entire finite production run of the product that results from them. That is, they do not have a U-shape, as some fixed costs do.

For example, suppose that development of a microprocessor chip costs \$1 million but production costs are \$100 apiece. In order to produce and sell this chip profitably the producer must recover both the \$1 million, which is fixed, and the \$100 in variable-production costs. If the producer can anticipate selling 1000 chips the breakeven price will be \$1100 per chip (\$1000 in amortized production costs plus \$100 in variable costs). However, if the producer can anticipate sales of 10,000 chips, then the breakeven price drops to \$100 to amortize fixed costs, plus \$100 in variable costs, or \$200. And if the producer anticipates sales of 100,000 chips, the chips can profitably be sold at a price of \$110. If the commercial life expectancy of this chip is, say, three years, then the seller has every incentive to sell all the chips it can during the three year period, and consumers will receive a substantial benefit in the form of lower chip prices.

Significantly, the price must be set today for a stream of transactions that will occur in the future. If there were only one customer the seller might say that the price of chips will be \$1100 if the customer agrees to purchase 1000 chips, \$200 each if the customer agrees to purchase 10,000, or \$110 if the customer agrees to purchase 100,000. All three prices are competitive in the sense that they return the fair value of the manufacturer's investment but no more. But the price declines radically as quantity rises.

Two characteristics of the microprocessor industry are high development costs, and rapid innovation, which entails relatively quick obsolescence of the current processor chip. As a result, a firm such as Intel knows up front that the production life of any particular chip will be relatively short, perhaps a few years, and that fixed costs must be amortized over whatever number of chips is sold during this production cycle. These facts make it essential for the manufacturer to assure itself about the quantity to be sold before it can set a price. Further, the more that will be sold the lower that price will be, thus benefitting customers.

Intel could simply set the low price, \$110, and hope that 100,000 of its chips will be sold. If the market is large enough and it obtains a large enough market share, perhaps

that will happen. But if a rival produces a comparable chip and offers the same price, there will not be enough room for both of them to make 100,000 sales.

Intel could also use quantity discounts. For example, if there were ten computer manufacturers who purchased chips, it could calculate the size of the quantity bundle and try to anticipate how many customers would qualify for the discount. If the quantity discount required a purchase of 10,000 chips and Intel anticipated that ten customers would purchase that amount, it could confidently bid a quantity discounted price of \$110 with a minimum purchase of 10,000 chips.

One serious problem with quantity discounts in such a setting, however, is that they can serve to concentrate the downstream market if computer manufacturers are of diverse size and only a subset qualify for the full discount. For example, suppose that there are ten computer manufacturers but that only three of them are large enough to qualify for the most highly discounted price. Intel's pricing schedule will have the consequence that these three firms have lower costs than their rival computer makers. This could enable them to fix prices,¹⁶⁰ thus reducing output. In an extreme case they might be able to set a price that is fully profitable to them, but that is so low that it drives smaller computer makers out of business. All of these results injure Intel, because it will sell fewer chips. But they will also injure customers, who do not prosper when the computer manufacture market becomes more concentrated and computer prices go up. In sum, quantity discounts may work fine when the number of firms able to take advantage of the largest discount is sufficient to maintain robust competition in the downstream market. But they may have results that are harmful to both the discounter and to consumers if only a few firms in the downstream market are large enough to claim the biggest discount.

In contrast, the percentage share discount serves to spread the discount evenly across all buyers, large and small. For example, suppose Intel estimates that its historical buyers in the aggregate sell approximately 125,000 units. It can offer its chip at a price of \$110 provided that it can be assured of 100,000 sales. In that case Intel might tell each customer that it will sell chips at the \$110 price, provided that the customer agrees to use Intel chips in at least 80% of its computers. Intel must still assume market risks, as well as the risks that a significant innovation by a rival will shift computer demand away from computers bearing its chips. But it will not have to bear the risk of computer makers playing two rivals off against each other and forcing prices below average total cost.

This is not to say that everything Intel has done was competitively harmless, but only that there are sound precompetitive reasons for market-share discounts, and that these reasons apply to dominant firms as well as competitors. They are devices for keeping the output of a particular microprocessor chip high, and in the process keeping its price down. A categorical rule condemning such practices will almost certainly result

¹⁶⁰ Most likely by agreeing with each other to sell the number of units that qualifies them for the maximum discount.

in higher prices, as firms will have to bid higher prices when they lack assurance of high output.

Further, a rule compelling linear pricing in a two-firm market would almost certainly invite collusion, and it would not need to be express. Currently Intel and AMD are in a highly competitive situation requiring them to bid aggressively for production runs of particular chips. Market-share-discount pricing that rewards the winner with a high share of a particular production run are inherently non-collusive because one firm wins only if the other loses. So the bidding has a winner-take-most-all quality.

Bundled discounts and related forms of discount leveraging

One can speak of a discount program as “leveraged” if it links goods in which the defendant has a high degree of monopoly power with goods in which it lacks power and thus are in competitive play. Bundled discounts of two or more different products fall into this category. However, the *Antitrust Law* treatise considers several other possibilities:

- A. In August *D* announces that it will give a 10 percent discount to anyone who agrees to purchase all of its needs for the year from it. The discount will apply retroactively to all goods purchased over the entire year. At the time of the announcement, Buyer, who uses 100 units of *D*'s good per year, has already purchased 60 units within the year. The discount (or rebate) will be attributed both to the goods already purchased and to the goods that remain to be purchased for the balance of the year.
- B. Buyer (1) has purchased and uses hardware that is compatible only with *D*'s technology, and that requires that at least 60 percent of Buyer's output be of *D*'s product; or (2) Buyer has preexisting contracts covering 60 percent of its output that specify the *D* input. *D* announced a 10 percent discount to anyone who takes all of its needs from *D*.
- C. The defendant and its customers operate in many geographic markets and the defendant aggregates a discount across all of them.¹⁶¹ The plaintiff operates in only one or a small number of these markets. By cumulating a discount across all the buyers' operations in all areas, the smaller firm can steal a buyer's single outlet only by offering a discount that is prohibitively large. To illustrate, Borden might offer a large discount to A&P that tops out when A&P purchases Borden milk in all of its stores across the country. A small dairy in Milwaukee wishing to sell only to the Milwaukee store would then have to offer a discount that did not merely match the Milwaukee discount, but also that compensated buyers for lost discounts in other

¹⁶¹ See *Info. Res., Inc. v. Dun & Bradstreet Corp.*, 294 F.3d 447, 449 (2d Cir. 2002) (“Among the principal allegations is that Nielsen [defendant] would offer ‘favorable pricing conditions if Nielsen’s services were purchased in a considerable number of countries, including, at least, one country where IRI [plaintiff] was present.’”).

areas where the Milwaukee dairy does no business.¹⁶²

What all of these situations have in common is that the discount serves to link two different sets of purchases.¹⁶³ For one set, the dominant firm has a monopoly, but for the other set, competition exists. However, by attributing the discount over the full range of monopoly and competitive choices, the rival is placed into a position that not only must it match the discount on the competitive product, but it must also compensate the customer for the foregone discount on the monopoly product.

The Antitrust Modernization Commission has defended an “attribution” test to assess whether the price of bundled discounts is exclusionary, and that test in fact works equally well for the alternative scenarios described above. Under the attribution test, one attributes the entire discount to the competitive product and asks whether the resulting price of that product falls below the appropriate measure of cost.¹⁶⁴ This test is designed to determine whether the bundle in question is capable of excluding an equally efficient rival. This test seems about right, although with some fairly severe qualifications. Most importantly, the test is overdeterrent when the products in the bundle are subject to joint costs or sold in variable proportions, or when the bundle contains many products rather than just two.¹⁶⁵ As a result, the attribution test can be no more than a starting point in the competitive analysis and is best regarded as a safe harbor.

The much tougher question is the extent to which the attribution test, or some version of it, can be applied to the other forms of leveraged discounts given in the

¹⁶² 3A AREEDA & HOVENKAMP, *supra* note __, ¶ 749e (3d ed. 2008).

¹⁶³ Brodley and Ching-to Albert Ma observed the relevance of such linkages already in *Contract Penalties*, note __.

¹⁶⁴ See ANTITRUST MODERNIZATION COMM’N, REPORT AND RECOMMENDATIONS 12 (2007), available at http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf:

Courts should adopt a three-part test to determine whether bundled discounts or rebates violate section 2 of the Sherman Act. To prove a violation of Section 2, a plaintiff should be required to show each one of the following elements (as well as other elements of a Section 2 claim): (1) after allocating all discounts and rebates attributable to the entire bundle of products to the competitive product, the defendant sold the competitive product below its incremental cost for the competitive product; (2) the defendant is likely to recoup these short-term losses; and (3) the bundled discount or rebate program has had or is likely to have an adverse effect on competition.

¹⁶⁵ See Erik Hovenkamp & Herbert Hovenkamp, *Exclusionary Bundled Discounts and the Antitrust Modernization Commission*, 53 ANTITRUST BULL. 517 (2008) (test needs to be adjusted to take joint costs, or economies of scope, into account); Herbert J. Hovenkamp & Erik N. Hovenkamp, *Complex Bundled Discounts and Antitrust Policy*, __ Buff.L.Rev. __ (2009) (Univ. of Iowa Legal Studies Research Paper, Paper No. 09-07, 2009), available at <http://papers.ssrn.com/abstract=1344536> (test does not work well when proportions of goods in the bundle can be varied at customers’ option, or when the bundle includes many more than two goods).

preceding illustrations.¹⁶⁶ For example, suppose that a firm offers a market share discount of 10% to those who take at least 90% of their needs from that firm. While the fully discounted price is above cost, that plaintiff claims that as a practical matter customers are committed to purchase 60% of their needs from this seller anyway. If the rival is to get anything more than the remaining 10% it will have to compensate customers for the foregone discount on the 60% that they must purchase in any event. As a result the dominant firm is able to take 90% of the market out of competitive play,¹⁶⁷ rather than the 60% that is out of play anyway because of customer pre-commitments.

The attribution test makes good sense when products are distinctive and not good substitutes for each other, the customer presumably needs both independently, and one can observe who is producing one, who produces both, and so on. Even that point can be exaggerated. For example, in *PeaceHealth* the defendant was bundling primary, secondary, and tertiary health care. While these three terms have distinctive meanings, the three products involved employ a great many¹⁶⁸ overlapping inputs, including much administration and costly durable equipment.

¹⁶⁶ See discussion, text at notes ___, supra.

¹⁶⁷ See *Masimo Corp. v. Tyco Health Care Group, LP*, No. CV 02-4770 MRP, 2006 WL 1236666 (C.D. Cal. Mar. 22, 2006). The defendant offered a forty percent discount on pulse oximetry sensors to customers (hospitals) who purchased at least ninety percent of their needs from it. The sensors had to be used in conjunction with durable and costly monitors, in which the defendant had a very large installed base. The plaintiff argued that the only way it could match the discount was to compensate the customers for the costs of replacing the monitors. The court observed:

As shown at trial, oximetry monitors are expensive pieces of equipment that have a usage life of 5 to 7 years. Stand-alone monitors made by a particular manufacturer are typically compatible with only one kind of sensor. Once a hospital has purchased a particular manufacturer's monitor, it must purchase compatible sensors and can only purchase non-compatible sensors if it buys additional monitors. This was the market environment in which Masimo first began to sell its products.

Id. at *5.

Further,

Although the Market Share Discount agreements appear to have been terminable on short notice on their face, the jury could reasonably have concluded that in practice they were not. A number of hospitals were financially locked into purchasing a fixed amount of Tyco sensors to support their installed Tyco monitors. These hospitals were locked into those purchases for the duration of the useful life of their installed Tyco monitors. This fixed demand for Tyco sensors for an extended period of time, when combined with the Market Share Discounts, effectively prevented the hospitals from purchasing sensors outside of the Market Share Discount agreements on short notice. The jury therefore, could reasonably conclude those agreements were de facto exclusive.

Id. at *6. See also Elhauge, *Loyalty Discounts*, note __ at 193 (distinguishing “free” buyers from “loyal” buyers).

¹⁶⁸ *Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883 (9th Cir. 2008).

One should not abandon a cost-based test simply because it is claimed that some customers are “locked in” to purchase a sizeable proportion of their needs from the defendant and the discount scheme requires them to purchase even more. Cutting a price in order to sell more of something often involves throwing in some different thing, perhaps something that rivals cannot easily match. So such claims should require evidence of clear lock-in that results in a significant and durable advantage to the dominant firm.

Exclusionary Practices Involving Intellectual Property Rights

Introduction

Maintaining the optimal rate of innovation requires two things, an effective IP policy and an effective competition policy. Within our current system these have distinctive but sometimes overlapping and even potentially inconsistent roles.¹⁶⁹ The patent approval process in the United States is heavily regulated by the Patent Act,¹⁷⁰ which assesses basic requirements; by the PTO, a regulatory agency whose scrutiny of patent applications is strict; a specialized Board of Patent Appeals and Interferences (BPAI);¹⁷¹ and appellate supervision by a specialized court, the United States Court of Appeals for the Federal Circuit. As a result, the patenting process itself is largely immune from antitrust review processes. At risk of some oversimplification, activities regulated by a federal agency are immune from antitrust scrutiny to the extent that the agency (a) has jurisdiction over the activity; (b) the challenged practice was actually made known to the agency for its review; and (c) the agency is doing its job adequately rather than simply rubber stamping what a private actor requests.¹⁷² Today it seems quite fair to say that the patent review process is heavily and adequately regulated insofar as antitrust is concerned, with the exception for surreptitious activities that were withheld from the PTO or one of the other patent-reviewing tribunals. To be sure, this possibility is substantial, given the *ex parte* nature of patent applications. It is relatively easy for a patent applicant to omit essential references or evidence of past use or sales without detection.

In sharp contrast to the patent application and review process, once a patent “goes out the door,” so to speak, most of this supervision comes to an end. What this generally entails is that *pre*-issuance policy making concerning the patenting process largely befalls the PTO and related tribunals, while post-issuance policy making mainly falls to the antitrust laws. Further, often IP law provides a clearer route to an appropriate remedy

¹⁶⁹ See Bohannon & Hovenkamp, *Errands*, *supra* note __.

¹⁷⁰ 35 U.S.C. (2006).

¹⁷¹ 35 U.S.C. §6 (establishing BPAI and outlining its structure and jurisdiction).

¹⁷² See generally *Credit Suisse Sec. (USA) LLC v. Billing*, 551 U.S. 264 (2007); 2A AREEDA & HOVENKAMP, *supra* note __, ¶¶ 240-243 (3d ed. 2007).

than antitrust law does, largely because IP law can focus on conduct without becoming overly involved with structure. The *Rambus*¹⁷³ and *Qualcomm*¹⁷⁴ decisions illustrate both parts of this. Rambus is one of several decisions involving firms that participated in a standard-setting process while surreptitiously writing continuation claims on a previously filed patent application.¹⁷⁵ Under current law, a patent applicant may be entitled to an indefinite number of “continuations,” or opportunities to perfect or expand its patent claims. Once accepted, the relevant date that these expanded claims become enforceable is the date that the patent application was first filed. This makes it possible for an applicant to file a patent application and then write claims on the subsequently developed technology of others. Once recognized, these claims can be enforced against this technology even though its inventors could not reasonably have found a claim that covered it in the existing patent application, even assuming that the application had been made public.¹⁷⁶

The law of patent continuations cries out for a legislative or administrative fix from within Patent Law.¹⁷⁷ Whether the conduct should count as an antitrust violation is another matter. A §2 violation requires not merely misrepresentation but also market power and anticompetitive exclusion. Further, detection is not a problem and the conduct is readily litigated by private plaintiffs, mainly in infringement litigation in which both the IP issues and antitrust issues can be raised. While Rambus’ writing of continuation applications before the PTO was fully supervised by that agency, its participation in a private standard-setting process was not. Nothing in the *patent act* required Rambus to disclose its continuation applications to the other participants in that process. So the conduct portion of the antitrust issue reduced mainly to the question whether the antitrust laws should independently impose a disclosure obligation that the patent laws themselves did not impose.

The *Qualcomm* case comes closer to breach of promise than to misrepresentation. There, a firm participating in standard-setting proceedings made promises about licensing of its IP rights and later reneged on them. In that case, an estoppel doctrine from within patent law seems more appropriate than an antitrust action and can lead to fairly

¹⁷³ *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008), *cert. denied*, 129 S. Ct. 1318 (2009).

¹⁷⁴ *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008), *cert. dismissed*, 129 S. Ct. 2182 (2009).

¹⁷⁵ For other decisions, see 3 AREEDA & HOVENKAMP, *supra* note __, ¶ 712 (3d ed. 2008).

¹⁷⁶ See Bohannon & Hovenkamp, *supra* note __.

¹⁷⁷ See *Tafas v. Doll*, 559 F.3d 1345 (Fed. Cir. 2009) (striking down severe limits on patent continuations as inconsistent with statutory provision that patents be enforceable from the date of original application), *vacated and reh’g granted*, No. 2008-1352, 2009 WL 1916498 (Fed. Cir. July 6, 2009); see also Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63 (2004).

aggressive remedies, including reduced royalties or even royalty-free licensing.¹⁷⁸ Bringing in antitrust requires not only assessment of a complex market structure but also consideration of how a breach of a promise about royalty rates counts as “exclusionary.” By contrast, patent law estoppel applies without regard to market structure or whether qualifying exclusion of rivals occurred.

The distinction between pre- and post-issuance conduct is also relevant in *Walker Process* situations. In *Walker Process*, the Supreme Court held that one who filed an infringement lawsuit on a patent that had been obtained through false statements on the patent application could be guilty of an antitrust violation.¹⁷⁹ In its recent *Dippin’ Dots* decision, the Federal Circuit limited *Walker Process* to situations in which the patentee had not merely lied on its patent application, but where there was also additional, independent evidence of fraudulent conduct.¹⁸⁰ The patent applicant had in fact made numerous sales of the patented product more than one year prior to filing of its application. Under the Patent Act’s “on sale” bar,¹⁸¹ these sales prevented issuance of the patent. However, the PTO did not know about the sales and issued the patent. Many years later the patentee filed infringement suits against infringers.

One problem with the on-sale bar is that prior sales are often not of public record. As a result, the PTO is critically dependent on the statements of patent applicants. Nevertheless, the Federal Circuit held that while the fraud was intentional and sufficient to render the patent invalid, a showing of antitrust liability requires something more. To the Federal Circuit this meant some kind of evidence of fraudulent conduct other than the untruthful affidavit denying prior sales itself.¹⁸² But this seems to ignore two things. First, there was clearly evidence of “something more,” which was the post-issuance patent infringement suit itself. The patentee had not only committed the fraud during the application process, but after issuance it used the fraudulently obtained patent to try to exclude rivals from its market. Second, a *Walker Process* antitrust case always involves something more in that the structural requirements for the monopolization offense must be met. If the patent is relatively minor or if market entry is easy then the conduct will not be an antitrust violation because the antitrust plaintiff will be unable to establish durable monopoly power.¹⁸³

¹⁷⁸ See *Qualcomm*, 548 F.3d at 1022–24 (applying equitable estoppel).

¹⁷⁹ *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965); see 3 AREEDA & HOVENKAMP, *supra* note __, ¶ 706 (3d ed. 2008).

¹⁸⁰ *Dippin’ Dots, Inc. v. Mosey*, 476 F.3d 1337 (Fed. Cir.), *cert. denied*, 128 S. Ct. 375 (2007).

¹⁸¹ 35 U.S.C. §102(b) (2006).

¹⁸² *Dippin’ Dots*, 476 F.3d at 1347–48.

¹⁸³ On these requirements, see 3 AREEDA & HOVENKAMP, *supra* note __, ¶ 706a3 (3d ed. 2008).

Restraints on Innovation

In one area in particular, public antitrust enforcers can make a significant contribution to monopolization law in innovation-intensive markets, and that is anticompetitive restraints on innovation. The welfare gains from innovation almost certainly exceed the available gains from squeezing price monopoly out of the economy.¹⁸⁴ But an important corollary of this proposition is that the harm caused by an act that restrains innovation can cause far greater harm than a restraint on simple output or pricing. The antitrust enforcement problem is that the consequences of an unmade innovation are so radically indeterminate. This tends to make private enforcement, with its strict requirements of harm, causation and damages, ineffectual.¹⁸⁵

The *Microsoft* litigation provides a good example. Netscape's internet browser incorporated Sun Microsystems's Java computer language. This language contained broad cross-platform translation capabilities that threatened to increase the compatibility of non-Microsoft operating systems with the Microsoft's Windows OS. Software developers could write their applications software with Java protocols, and then Java could translate instructions so that the software could run smoothly on a variety of different operating systems.¹⁸⁶ Sun's slogan for Java was "write once, run anywhere."¹⁸⁷ Indeed, Chairman Bill Gates feared the "commoditization" of the operating system that might result.¹⁸⁸ The fear was that Windows would have become one of many offerings in a product-differentiated market for operating systems, which people could choose to purchase on the basis of price and features. In order to be effectively deployed, however, multi-platform Java required a microprocessor chip specifically designed to run Java's instructional sets. Intel launched a program to develop such a chip; however, it abandoned the program under pressure from Microsoft, including a threat that Microsoft would pull its support for Intel as a producer of processor chips for Windows operating

¹⁸⁴ See Robert M. Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J.ECON. 65 (1956); Robert M. Solow, *Technical Change and the Aggregate production Function*, 3 REV. ECON. STATISTICS 312 (1957). For a summary of Solow's contribution and work since the 1950s see FREDERIC M. SCHERER AND DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 613-617 (3d ed. 1990). The idea that innovation contributes more than competitive pricing to economic growth comes from Joseph Schumpeter, "The Process of Creative Destruction," in *CAPITALISM, SOCIALISM, AND DEMOCRACY*, ch. 7 (1942).

¹⁸⁵ Herbert Hovenkamp, *Restraints on Innovation*, 29 CARDOZO L. REV. 247 (2007).

¹⁸⁶ JAMES GOSLING, BILL JOY, GUY STEELE & GILAD BRACHA, *THE JAVA LANGUAGE SPECIFICATION* (3d ed. 2005).

¹⁸⁷ See *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 29 (D.D.C. 1999).

¹⁸⁸ *Ibid.* (Fact finding 72: In May, 1995, Gates warned Microsoft employees that Netscape's multiplatform strategy using Java threatened to create an "Internet Tidal Wave" that might "commoditize the underlying operating system.").

systems. The government challenged this action and the D.C. Circuit eventually condemned it.¹⁸⁹

Subsequently, private plaintiffs challenged the Intel microprocessor exclusion as well, but the Fourth Circuit ultimately denied them a recovery, largely because of the speculative nature of harm, causation, and damages.¹⁹⁰ The plaintiffs were seeking damages based on the consumer losses that occurred because the Java-enabled cross-platform chip had never been developed as a result of Microsoft's interference. The plaintiffs believed that both the price and quality of Intel-based computing would have been significantly better under multiplatform competition. Of course, this required considerable speculation about whether Intel would ever have brought its Java chip program to completion, whether it would have been a market success, and most of all what its market impact would have been. As the court observed:

It would be entirely speculative and beyond the competence of a judicial proceeding to create in hindsight a technological universe that never came into existence. . . . It would be even more speculative to determine the relevant benefits and detriments that non-Microsoft products would have brought to the market and the relative monetary value . . . to a diffuse population of end users.¹⁹¹

The Fourth Circuit then concluded:

At bottom, the harms that the plaintiffs have alleged with respect to the loss of competitive technologies are so diffuse that they could not possibly be adequately measured. The problem is not one of discovery and specific evidence, but of the nature of the injury claimed.¹⁹²

¹⁸⁹ See *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C.Cir.) (en banc) (per curiam) (“The District Court held that Microsoft also acted unlawfully with respect to Java by using its ‘monopoly power to prevent firms such as Intel from aiding in the creation of cross-platform interfaces.’ In 1995 Intel was in the process of developing a high performance, Windows-compatible JVM [“Java Virtual Machine,” or environment in which Java acted as a channel between software and alternative operating systems]. Microsoft wanted Intel to abandon that effort because a fast, cross-platform JVM would threaten Microsoft’s monopoly in the operating system market. At an August 1995 meeting, Microsoft’s Gates told Intel that its ‘cooperation with Sun and Netscape to develop a Java runtime environment . . . was one of the issues threatening to undermine cooperation between Intel and Microsoft.’ Three months later, ‘Microsoft’s Paul Maritz told a senior Intel executive that Intel’s [adaptation of its multimedia software to comply with] Sun’s Java standards was as inimical to Microsoft as Microsoft’s support for non-Intel microprocessors would be to Intel.’” (citations omitted) (alteration in original)), *cert. denied*, 534 U.S. 952 (2001).

¹⁹⁰ *Kloth v. Microsoft Corp.*, 444 F.3d 312 (4th Cir. 2006).

¹⁹¹ *Id.* (quoting the lower court, 127 F. Supp. 2d 702, 711 (D. Md. 2001)).

¹⁹² *Id.*

These conclusions capture the truly formidable task that private plaintiffs face in pursuing innovation restraints. Particularly when the restraints occur at an early stage, predicting the results is an exercise in pure speculation.¹⁹³ Because private plaintiffs must show both causation of harm and amount of recoverable damages, claims based on innovation restraints are often impossible to maintain. When the government is acting as antitrust enforcer, however, it need prove only that a violation occurred. As a result, this is one area where the Justice Department and the Federal Trade Commission should assume a greater role than they have in the past.

Conclusion

The Obama administration was elected with a mandate for political and legal change, and clearly it extends to United States competition policy and the antitrust laws. But in the area of §2 enforcement, which is traditionally very costly in relation to payoffs, the new administration should choose wisely. Expansion for its own sake would almost certainly do more harm than good. On the other side, areas clearly exist where expansion seems called for, particularly in innovation intensive markets.

¹⁹³ If the innovation is far along, then the speculation becomes much less. *See, e.g.*, *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988) (forced removal of fully completed innovative electrical conduit from the market through manipulation of standard-setting association that influenced municipal building codes).