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The Obama Administration and Section Two of the Sherman Act


Herbert J. Hovenkamp

University of Pennsylvania Carey Law School

Author ORCID Identifier:

 [Herbert Hovenkamp 0000-0002-4583-5162](https://orcid.org/0000-0002-4583-5162)

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**THE OBAMA ADMINISTRATION AND SECTION 2 OF THE
SHERMAN ACT**

HERBERT HOVENKAMP*

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* Ben V. & Dorothy Willie Professor of Law, University of Iowa College of Law. Thanks to Christina Bohannon and Erik Hovenkamp for reading and commenting on a draft. This piece is dedicated to Professor Joe Brodley, with my respect and admiration.

INTRODUCTION

Under the administration of President George W. Bush, the Antitrust Division (the “Division”) was not enthusiastic about using Section 2 of the Sherman Act¹ to pursue anticompetitive single-firm conduct. Indeed, the Division brought only three, relatively minor Section 2 cases during that eight-year period.² The Division’s most prominent contribution on the issue of single-firm conduct was its *Section 2 Report* (“Report”),³ which it issued in September 2008 against a well-publicized dissent from several members of the Federal Trade Commission.⁴ The Justice Department formally withdrew the Report only eight months later, as one of the first major competition policy acts of the Obama Antitrust Division.⁵

¹ 15 U.S.C. § 2 (2006).

² *United States v. Microsemi Corp.*, No. 1:08cv1311 (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. 2008). One major monopolization decision decided during the Bush administration was *United States v. Dentsply International, Inc.*, 399 F.3d 181 (3d Cir. 2005), which held that an exclusivity policy imposed on dealers by Dentsply, the market-dominating manufacturer of artificial teeth, violated Section 2 of the Sherman Act. The Justice Department, however, initiated the case in January 1999, during the Clinton administration. See *United States v. Dentsply Int’l, Inc.*, 277 F. Supp. 2d 387, 390 (D. Del. 2003), *rev’d*, 399 F.3d 181.

³ 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>.

⁴ Statement of Commissioners Harbour, Leibowitz and Rosch on the Issuance of the Section 2 Report by the Department of Justice 1-2 (Sept. 8, 2008), available at <http://www.ftc.gov/os/2008/09/080908section2stmt.pdf> (criticizing the Report for focusing more on firms’ interests than on consumer welfare, and for essentially protecting firms with monopoly or near monopoly power). FTC Chairman William 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 1-2, 5 (Sept. 8, 2008), available at <http://www.ftc.gov/os/2008/09/080908section2stmtKovacic.pdf> (expressing disappointment that the DOJ and FTC did not issue a joint report and discussing the import of historical perspective and intellectual influences in forming successful antitrust enforcement policy).

⁵ See Press Release, U.S. Dep’t of Justice, Justice Department Withdraws Report on Antitrust Monopoly Law (May 11, 2009), available at http://www.usdoj.gov/atr/public/press_releases/2009/245710.pdf; Christine A. Varney, Assistant Attorney Gen., U.S. Dep’t of Justice, Vigorous Antitrust Enforcement in This Challenging Era, Remarks as Prepared for the Center for American Progress 8 (May 11, 2009), available at <http://www.usdoj.gov/atr/public/speeches/245711.pdf> (withdrawing *Section 2 Report*, in part because of the Report’s “overly lenient approach to enforcement”).

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.⁶ If President Obama's antitrust enforcers were to act consistently with his own campaign positions,⁷ they very likely would have ended up litigating against their own Report. Bitter experience with an earlier version of the Justice Department's Merger Guidelines demonstrated that business firms are entitled to rely on antitrust guidelines. As a result, the Division could not state a position declaring one standard and later bring an action seeking to establish a standard that is harsher on defendants.⁸ Thus, the Obama Antitrust Division's hand was forced: unless the Division withdrew the Report, the Division would continue to be noosed in by it.

This Essay suggests, in brief outline, some areas where more expansive enforcement of Section 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 Section 2 of the Sherman Act,⁹

⁶ Specifically, the Department would not condemn pricing practices where the price is above average avoidable cost. *See* U.S. DEP'T OF JUSTICE, *supra* note 3, at 65-67 (while average avoidable cost is usually the best cost measure for evaluating claims of predatory behavior, it sometimes may be too difficult to assess). Moreover, the Department would apply this safe harbor when analyzing bundled discounts in markets with bundle-to-bundle competition, *see id.* at 105, and 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." *Id.* at 106. The Department also would not condemn a tying practice, even where the practice produces anticompetitive effects, unless "(1) it has no procompetitive 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.

⁷ Senator Barack Obama, Statement for the American Antitrust Institute 1 (2007), 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.").

⁸ *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).

⁹ 15 U.S.C. § 2 (2006) (condemning "any person" who monopolizes or attempts to monopolize "any part of the trade or commerce among several States"). Section 5 of the Federal Trade Commission Act also covers dominant firm exclusionary conduct. *See, e.g.*, *Rambus Inc. v. FTC*, 522 F.3d 456, 462 (D.C. Cir. 2008) (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).

other antitrust provisions come into play as well. In particular, Section 1 of the Sherman Act¹⁰ and Section 3 of the Clayton Act¹¹ 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 Section 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 Section 1 of the Sherman Act and Section 3 of the Clayton Act; however, the conduct can be essentially unilateral in form, excluding rivals in ways that injure both the dealers and their customers.¹²

I. THE RELEVANCE OF PRIVATE ENFORCEMENT

One important consideration in determining the appropriate range of government enforcement is that in the private enforcement actions that are likely to follow, private plaintiffs will not share the government agencies’ prosecutorial discretion. This creates a need, as Joe Brodley observed already in 1995, for “effective integration of public and private enforcement.”¹³ 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;¹⁴ exclusive dealing;¹⁵ vertical,¹⁶ horizontal¹⁷ and

¹⁰ 15 U.S.C. § 1 (“Every contract . . . or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared illegal.”).

¹¹ *Id.* § 14 (prohibiting formation of exclusive contracts, leases, or sales that have the effect of lessening competition or creating a monopoly).

¹² *See, e.g.*, *United States v. Dentsply Int’l, Inc.*, 399 F.3d 181, 196-97 (3d Cir. 2005) (condemning exclusive dealing under § 2); *United States v. Microsoft Corp.*, 253 F.3d 34, 59-64, 67-77 (D.C. Cir. 2001) (en banc) (per curiam) (condemning various exclusionary contracts imposed by Microsoft on software, hardware, and internet developers).

¹³ Joseph F. Brodley, *Antitrust Standing in Private Merger Cases: Reconciling Private Incentives and Public Enforcement Goals*, 94 MICH. L. REV. 1, 3 (1995).

¹⁴ *See N. Pac. Ry. v. United States*, 356 U.S. 1, 6 (1958) (tying arrangement is per se unreasonable and unlawful under the Sherman Act when the seller has sufficient economic power with respect to the tying product to restrain appreciably free competition in the market for the tied product); *Times-Picayune Publ’g Co. v. United States*, 345 U.S. 594, 608-09 (1953) (tying arrangement violates Section 1 of the Sherman Act when a seller enjoys a monopolistic position in the market for the tying product and a substantial volume of commerce in the tied product is restrained); *Int’l Salt Co. v. United States*, 332 U.S. 392, 395-96 (1947) (condemning tying in the absence of any showing of market power, when tying product was patented).

¹⁵ *See Standard Oil Co. of Cal. v. United States*, 337 U.S. 293, 314 (1949).

¹⁶ *See United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 606-08 (1957) (condemning a vertical merger on the theory that by acquiring a major purchaser of its fabrics and automobile finishes, an acquiring firm would obtain unfair advantage over

conglomerate¹⁸ mergers; vertical nonprice restraints;¹⁹ the Robinson-Patman Act;²⁰ and numerous other practices. Private plaintiffs promptly followed, creating an explosion of 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.²¹

Of course, the government is not responsible for the subsequent actions of private parties. Section 4 of the Clayton Act expressly authorizes such lawsuits,²² and Section 5 makes government-obtained final judgments prima facie evidence of guilt in a subsequent private proceeding.²³ 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

competing suppliers); *see also* *Ford Motor Co. v. United States*, 405 U.S. 562, 573-75 (1972) (condemning Ford's acquisition of Autolite spark plug on similar reasoning).

¹⁷ *E.g.*, *United States v. Von's Grocery Co.*, 384 U.S. 270, 274-79 (1966) (finding that a merger of two of the largest grocery chains in Los Angeles was an illegal restraint on trade); *Brown Shoe Co. v. United States*, 370 U.S. 294, 343-46 (1962) (invalidating horizontal merger of shoe retailers).

¹⁸ *E.g.*, *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 578-81 (1967) (invalidating the acquisition of Clorox by Procter & Gamble because it would dissuade competitors from entering the market). For a critique of entry theory, see Joseph F. Brodley, *Potential Competition Mergers: A Structural Synthesis*, 87 *YALE L.J.* 1, 25-41 (1977).

¹⁹ *United States v. Arnold, Schwinn & Co.*, 388 U.S. 365, 381-82 (1967) (holding vertical nonprice restraints per se unlawful), *overruled by* *Continental T.V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36 (1977) (replacing *Schwinn's* per se rule for vertical nonprice restraints by applying a "rule of reason"); *see also* 8 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 1642 (3d ed. forthcoming 2010).

²⁰ *E.g.*, *FTC v. Borden Co.*, 383 U.S. 637, 640 (1966) (labels do not differentiate products for the purpose of determining grade or quality under § 2(a) of the Robinson-Patman Act); *United States v. Borden Co.*, 370 U.S. 460, 467-72 (1962) (sellers cannot create arbitrary classes of purchasers to satisfy the Clayton Act's cost justification proviso as amended by the Robinson-Patman Act); *FTC v. Henry Broch & Co.*, 363 U.S. 166, 174-77 (1960) (reduction in a broker's commission to provide a large purchaser a price advantage is a violation of the Robinson-Patman Act); *FTC v. Morton Salt Co.*, 334 U.S. 37 (1948) (determining that after the FTC proves that the supplier charged customers different prices for like goods, the supplier then bears the burden of proving the cost differential was justified).

²¹ *E.g.*, *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 487-89 (1977) (denying a private antitrust enforcement action because the injury was "not the type the antitrust laws were intended to prevent"). On the range of privately brought cases, see Christina Bohannon & Herbert Hovenkamp, *IP and Antitrust: Reformation and Harm*, 51 *B.C. L. REV.* 905 (2010).

²² 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).

²³ *Id.* § 16.

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 Act²⁴ once performed such a function, because private parties could not enforce it.²⁵ Further, the Supreme Court concluded in the 1960s that Section 5 reached further than the Sherman Act did, enabling the FTC to pursue conduct that might not be reachable under the Sherman Act.²⁶ But today, that distinction retains little vitality. When the FTC challenges an exclusionary practice, courts generally interpret Section 5 according to Sherman Section 2 principles.²⁷

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 judicially-created standards 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 Co. v. U.S. Tobacco Co.*, in which the defendant certainly committed tortious acts that almost equally certainly did not amount to an antitrust violation.²⁸ The government's prospective injunction against a business tort that is incorrectly interpreted as an antitrust violation is likely to do little social harm. In *Conwood*, however, private plaintiffs were able to obtain more than a billion

²⁴ *Id.* § 45.

²⁵ *Amalgamated Util. Workers 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, 1187 (8th Cir. 1996); *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.”).

²⁶ *FTC v. Brown Shoe Co.*, 384 U.S. 316, 321-22 (1966) (condemning exclusive dealing under Federal Trade Commission Act § 5 in an unconcentrated market with low entry barriers, under an “incipiency” standard that feared greater harm in the future).

²⁷ *E.g.*, *Rambus Inc. v. FTC*, 522 F.3d 456, 462-69 (D.C. Cir. 2008) (applying Sherman Act § 2 standards in an exclusionary practice proceeding brought under Federal Trade Commission Act § 5), *cert. denied*, 129 S. Ct. 1318 (2009).

²⁸ *Conwood Co. v. U.S. Tobacco Co.*, 290 F.3d 768, 778-80 (6th Cir. 2002).

dollars in damages²⁹ on the basis of a faulty expert report that violated elementary rules of statistics.³⁰

There is a related issue involving private actions. 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 involves restraints on innovation, which are discussed briefly below.³¹ 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”³² 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 for which difficulties in showing private-plaintiff causation and damages make private action unpromising.

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

Private Plaintiffs Sue for Private Gain – Government enforcers should be sensitive to the fact that private plaintiffs will take advantage of whatever doctrine the courts develop in government-brought cases, but typically show little concern about the public effects of their litigation.

In Some Cases, Private Litigation Can Be an Effective Form of Antitrust Enforcement – Government enforcers should be somewhat less attentive in areas where private plaintiffs are fully able to both detect and to litigate abuses. In the general run of Section 2 cases, “detection” of the conduct is not an issue, as it often is in cartel cases, because the conduct is publicly known. Nonetheless, the significant costs associated with litigation could deter private enforcement.

Government Enforcement Is Most Appropriate Where Private Enforcement May Be Ineffective – Government enforcers should be particularly attentive 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.

²⁹ *Id.* at 773.

³⁰ See 2 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 309 (3d ed. 2007); 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP, ROGER D. BLAIR & CHRISTINE PIETTE DURRANCE, ANTITRUST LAW ¶ 340a2 (3d ed. 2007); *id.* ¶ 399c2.

³¹ See discussion *infra* Part IV.B.

³² 15 U.S.C. §25 (2006).

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.

II. 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.³³

United States antitrust policy concerning vertical integration has been inconsistent. During some portions of our history we have regarded vertical integration as inherently suspicious and dealt with it under harsh, nearly per se rules.³⁴ By contrast, the orthodox Chicago School view was that virtually all vertical integration is benign and procompetitive and should be condemned only when it facilitates collusion.³⁵

³³ On the law and economics of vertical integration by contract and otherwise, see 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶¶ 756-757 (3d ed. 2008); OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* 82-131 (1975); and, more generally, Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978).

³⁴ See, e.g., *Eastman Kodak Co. of N.Y. v. S. Photo Materials Co.*, 273 U.S. 359, 368-69 (1927) (condemning Kodak’s switch to self-distribution and termination of independent dealer); ARTHUR ROBERT BURNS, *THE DECLINE OF COMPETITION* 421-45 (1936) (arguing that vertical integration is usually anticompetitive); HENRY C. SIMONS, *A POSITIVE PROGRAM FOR LAISSEZ-FAIRE* 20-21 (1934) (“[V]ertical combinations . . . should be permitted only as far as clearly compatible with the maintenance of real competition.”). For a discussion of other sources, see 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 generally Herbert J. Hovenkamp, *The Law of Vertical Integration and the Business Firm: 1880-1960*, 95 IOWA L. REV. 863 (2010).

³⁵ E.g., Robert Bork, *Vertical Integration and the Sherman Act: The Legal History of an Economic Misconception*, 22 U. CHI. L. REV. 157, 200 (1954); Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 936-38 (1979); see also 3B AREEDA & HOVENKAMP, *supra* note 33, ¶¶ 756-762 (3d ed. 2008). For an intermediate perspective seeing substantial risks from vertical integration in the presence of monopoly power, see generally Joseph F. Brodley, *Post-Chicago Economics and Workable Legal Policy*, 63 ANTITRUST L.J. 683 (1995).

Most tying and exclusive-dealing arrangements arise in the context of contractual vertical integration.³⁶ 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, while 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.³⁷

A. *Anticompetitive Contracts; Nonforeclosing Ties*

The government's use of Section 2 to pursue tying, exclusive dealing, and related practices, as in *Dentsply*³⁸ and *Microsoft*,³⁹ is justified for two reasons. First, the structural requirements for Section 2 are more severe than for Section 1, and purely vertical practices are unlikely to be significantly anticompetitive unless the firm imposing them is dominant in its market.⁴⁰ 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.

³⁶ See, e.g., *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 30-32 (1984) (analyzing a hospital's long-term contract with an anesthesiology firm); *Image Technical Servs. Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1212 (9th Cir. 1997) (condemning Kodak's practice of providing aftermarket parts only to its own authorized service technicians as part of vertical integration into servicing); *United States v. Dentsply Int'l, Inc.*, 277 F. Supp. 2d 387, 454 (D. Del. 2003) (analyzing a manufacturer's long term relationship with dealers), *rev'd*, 399 F.3d 181 (3d Cir. 2005); *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 49 (D.D.C. 1999) (describing how Microsoft's contracts with computer manufacturers required the manufacturers to bundle Internet Explorer with Microsoft's Windows operating system), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001) (en banc) (per curiam).

³⁷ See, e.g., *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 402-05 (2004) (identifying defendant as a vertically integrated telephone company that allegedly refused to provide interconnection services to a less integrated firm); *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 587-95 (1985) (describing defendant as engaged in both provision and sales distribution of skiing services and indicating that defendant refused to share distribution with rival); *cf.* Case T-201/04, *Microsoft Corp. v. Comm'n*, 2007 E.C.R. II-3601, ¶¶ 1-28, available at <http://curia.europa.eu/juris/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARR ET> (identifying Microsoft, the defendant, as having controlled both primary operating system and software for its own servers and requiring Microsoft to share protocols with rivals who provided competing server software).

³⁸ *Dentsply*, 399 F.3d at 184.

³⁹ *Microsoft*, 253 F.3d at 45-46.

⁴⁰ 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 restrictions on their dealers to prevent the dealers from playing the manufacturers off against one another.

Nevertheless, because exclusive dealing and most tying are created by contract, challengers can invoke the more aggressive “restraint of trade” standard imposed by Section 1 of the Sherman Act,⁴¹ or the “may . . . substantially lessen competition” standard of Section 3 of the Clayton Act.⁴² 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 Section 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.⁴³ In sum, the twin requirements of (1) a dominant firm and (2) anticompetitive exclusion justify the use of Section 2 as the principle vehicle for addressing exclusive dealing and tying.

The second justification for increased use of Section 2 to pursue unreasonably exclusionary vertical contract practices is that Section 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, that have served to limit the reach of overly aggressive substantive rules.⁴⁴ 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 (“IE”) browser.⁴⁵ 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 1995.⁴⁶ 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.⁴⁷ Commingling the code produces largely the same result, but looks more like a matter of product design and a unilateral refusal to sell an alternate product. That is, the tying claim becomes one of unilateral refusal to deal.⁴⁸

⁴¹ 15 U.S.C. § 1 (2006).

⁴² *Id.* § 14.

⁴³ See *infra* text accompanying notes 59-61, 68.

⁴⁴ See 10 PHILLIP E. AREEDA, EINER ELHAUGE & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 1741-1751 (2d ed. 2004).

⁴⁵ *United States v. Microsoft Corp.*, 253 F.3d 34, 45 (D.C. Cir. 2001) (en banc) (per curiam).

⁴⁶ *Id.* at 66.

⁴⁷ *Id.* at 88-89.

⁴⁸ On the significance of this in network industries, see *infra* Part II.B.

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,⁴⁹ and also about whether the operating system (“OS”) and the browser were separate products, which is a requirement of tying law under both Section 1 of the Sherman Act and Section 3 of the Clayton Act.⁵⁰ It fashioned an idiosyncratic single-shot rule of reason for ties of operating system software to application software, and remanded the tying claim.⁵¹ The D.C. Circuit also condemned the “commingling” of OS and browser code under Section 2 because it excluded rival browsers unreasonably.⁵²

Consider also the *Kodak* case, which involved Kodak’s decision to supply repair parts for photocopiers only when its own technicians conducted the service.⁵³ 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.⁵⁴ The Supreme Court found the claim plausible and even suggested that the practice might be unlawful per se.⁵⁵ The case was remanded for trial.⁵⁶ While the facts did not change on remand, the claim eventually morphed into one of refusal to deal; namely, that Kodak refused to sell parts to independent service providers.⁵⁷ In practice, the distinction between tying and refusal to deal is 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?⁵⁸

⁴⁹ See *Microsoft*, 253 F.3d at 89-95.

⁵⁰ *Id.* at 85-89 (discussing history and analysis of separate products test, and finding “separate-products element of the per se rule may not give newly integrated products a fair shake”). On the separate products requirement in tying law, see 10 AREEDA, ELHAUGE & HOVENKAMP, *supra* note 44, ¶¶ 1741-1751.

⁵¹ *Microsoft*, 253 F.3d at 94. The Government ultimately abandoned the tying claim.

⁵² *Id.* at 66 (upholding district court’s finding that Microsoft “commingled” browser and platform code and stating that such “commingling has an anticompetitive effect”).

⁵³ *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 455-56 (1992).

⁵⁴ *Id.* at 459.

⁵⁵ *Id.* at 485-86 (declining to craft a per se rule “on a record this sparse”); see also *id.* at 486-87 (Scalia, J., dissenting) (contending that tying arrangements are subject to a rule of per se illegality).

⁵⁶ *Id.* at 486 (majority opinion).

⁵⁷ *Image Technical Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1209-11 (9th Cir. 1997).

⁵⁸ Cf. Case T-201/04, *Microsoft Corp. v. Comm’n*, 2007 E.C.R. II-3601, ¶¶ 1088-1090, 1144-1167, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET> (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 are tying arrangements that do not cause harm by excluding rivals. They may extract higher prices from some customers, but the case for condemning them on this ground is very weak.⁵⁹ The means of extraction is usually a form of price discrimination, and the typical result is that, while some consumers are harmed, others benefit. 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 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.⁶⁰

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.⁶¹ 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.⁶² 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 the firm's own consumable ink cartridges, transferring all or part of the monopoly overcharge from the printer

⁵⁹ 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).

⁶⁰ 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), and F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 489-516 (3d ed. 1990).

⁶¹ See, e.g., *Queen City Pizza, Inc. v. Domino's Pizza, Inc.*, 124 F.3d 430, 436 (3d Cir. 1997) (pizza franchisees allege tying of pizza ingredients and supplies with fresh pizza dough); *Kypta v. McDonald's Corp.*, 671 F.2d 1282, 1285 (11th Cir. 1982) (fast food hamburger franchisee alleges tying of trademark licenses and real estate leases); *Siegel v. Chicken Delight, Inc.*, 448 F.2d 43, 46-47 (9th Cir. 1971) (fast food fried chicken franchisees allege tying of spices and supplies); *Little Caesar Enters. v. Smith*, 34 F. Supp. 2d 459, 466 (E.D. Mich. 1998) (pizza franchisees allege tying of paper plates and other products bearing franchisor's logo).

⁶² Ward S. Bowman, Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 23-24 (1957).

to the ink and using the ink as a “counting device.”⁶³ As a 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.”⁶⁴ 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 makes a price schedule 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,⁶⁵ 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.⁶⁶

Under well established economic doctrine, third-degree price discrimination that reduces output also reduces welfare.⁶⁷ 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.

⁶³ *Id.*

⁶⁴ See ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 393-403 (7th ed. 2009). Arthur C. Pigou developed the classification in the early twentieth century. See A.C. PIGOU, THE ECONOMICS OF WELFARE, 278-81 (4th ed. 1932).

⁶⁵ See *Wis. Music Network, Inc. v. Muzak Ltd. P’ship*, 5 F.3d 218, 222 (7th Cir. 1993).

⁶⁶ *E.g.*, *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996) (describing the licensing of a database to commercial and residential users at different rates); see also Christina Bohannon, *Copyright Preemption of Contracts*, 67 MD. L. REV. 616, 657 (2008) (discussing judicial approaches to price discrimination).

⁶⁷ See Richard Schmalensee, *Output and Welfare Implications of Monopolistic Third-Degree Price Discrimination*, 71 AM. ECON. REV. 242, 243 (1981); Marius Schwartz, *Third-Degree Price Discrimination and Output: Generalizing a Welfare Result*, 80 AM. ECON. REV. 1259, 1259 (1990); Hal R. Varian, *Price Discrimination and Social Welfare*, 75 AM. ECON. REV. 870, 870 (1985). This result has been known at least since the time of Arthur C. Pigou, who wrote during the first three decades of the twentieth century. See *infra* notes 73-76 and accompanying text.

One unfortunate result of the historical per se rule against ties⁶⁸ 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. 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. Variable proportion ties that involve reduced tying product prices generally serve to accomplish two things. First, they change the *purchaser's* cost structure by giving it lower fixed costs but higher variable costs. For example, the printer is a fixed cost to the purchaser, 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 "reallocat[e] output from high-value buyers to low-value buyers" and suggests that they are a form of third-degree price discrimination or that the difference between second- and third-degree price discrimination is merely "semantics."⁶⁹ The position that variable proportion ties resemble third-degree price discrimination is contrary to the prevailing economic literature on the subject,⁷⁰ but it is essential to Elhauge's argument that variable proportion ties reduce welfare.⁷¹

Further, the distinction between second- and third-degree price discrimination is hardly semantic, although some complex schemes may contain attributes of both.⁷² Understanding the differences between the two types of practices is crucial to appreciating their welfare effects. 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.⁷³ For

⁶⁸ See 9 PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 1720 (2d ed. 2004).

⁶⁹ Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 431 & n.89 (2009).

⁷⁰ See *infra* notes 81-86 and accompanying text.

⁷¹ The argument developed here very briefly is from Erik N. Hovenkamp & Herbert Hovenkamp, *Tying Arrangements and Antitrust Harm*, 52 ARIZ. L. REV. (forthcoming Dec. 2010), available at <http://ssrn.com/abstract=1443284>.

⁷² See Allan C. DeSerpa, *A Note on Second Degree Price Discrimination and Its Implications*, 2 REV. INDUS. ORG. 368, 371 (1985).

⁷³ In the words of Arthur C. 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

example, the owner of an intellectual property right might license it to commercial users at one rate and home users at a different rate.⁷⁴ 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, \$7.90, even though they wish to. Further, the \$7.90 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 \$7.90, and shifts it to a low-valuation customer.⁷⁵ 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 a single-price monopoly.⁷⁶ 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, the seller offers everyone the same price schedule, with different prices for differing quantities or product varieties.⁷⁷ A quantity discount scheme is one example. Another is division of transportation tickets by classes. For instance, 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. Customers may even switch among price classifications in repeated purchases. The supplier's profitability may be higher for some classifications than for others.

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 coach. Pigou and others have noted that, as the number of

market, demands represented by demand prices in excess of some of those which, in another market, are satisfied." PIGOU, *supra* note 64, at 279.

⁷⁴ See *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447, 1449 (7th Cir. 1996).

⁷⁵ PIGOU, *supra* note 64, at 279.

⁷⁶ See *id.*; JOAN ROBINSON, *THE ECONOMICS OF IMPERFECT COMPETITION* 205-06 (1933).

⁷⁷ The difference between second- and third-degree price discrimination is that in second-degree discrimination, the seller cannot distinguish customers into diverse groups, but rather the customers self-select according to a pricing schedule that is the same for all. GORDON MILLS, *RETAIL PRICING STRATEGIES AND MARKET POWER* 26 tbl.3.2 (2002).

classifications in a second-degree price discrimination scheme is increased, the scheme comes closer to approximating first-degree, or “perfect,” price discrimination,⁷⁸ under which each individual customer pays his or her reservation price and output increases toward the competitive level.⁷⁹ 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 one thousand 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.⁸⁰

The economic literature generally deals with variable proportion ties as second-degree price discrimination.⁸¹ First, as noted above, third-degree price discrimination involves a seller’s prior segregation of groups of customers based on willingness to pay.⁸² Tying does not; rather, the tying firm selects the

⁷⁸ 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. *Id.* at 24.

⁷⁹ PIGOU, *supra* note 64, at 284 (“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 SCHERER & ROSS, *supra* note 60, at 495; DeSerpa, *supra* note 72, at 370-71.

⁸⁰ 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. Hovenkamp & Hovenkamp, *supra* note 71 (manuscript at 9-10). For example, the presence of the fixed cost printer, the costs of which 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 id.*

⁸¹ *See, e.g.*, JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 147 (1988) (“[A] manufacturer can use tie-in sales to practice second-degree price discrimination.”); *see also* Richard A. Posner, *Vertical Restraints and Antitrust Policy*, 72 UNIV. CHI. L. REV. 229, 236 (2005).

⁸² *See supra* notes 72-76 and accompanying text.

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.⁸³ 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.⁸⁴ 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 \$7.90 remains unmade, even as sales are being made to the lower price group at a price of \$5. Thus, 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.⁸⁵

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 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¢

⁸³ See Hovenkamp & Hovenkamp, *supra* note 71 (manuscript at 8).

⁸⁴ See Elhauge, *supra* note 69, at 405 (“[T]ying . . . reduces both consumer and ex post total welfare, absent some output-increasing efficiency, because it reallocates some output to buyers who put less value on it.”); *id.* at 431.

⁸⁵ For example, if one hundred units are lost to buyers in the high priced group who were willing to pay \$7.90, but no more, and these same hundred units were picked up in the lower price group at a price of \$5, by someone who valued them at \$5.10, then output would be the same but welfare would be reduced. Richard Schmalensee explained the inefficiencies in third-degree price discriminations in the following way:

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.”

Schmalensee, note 67, at 242-43 (quoting ROBINSON, *supra* note 76, at 206).

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.⁸⁶ 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. Thus, 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,⁸⁷ or sometimes even at a price

⁸⁶ As a result of these lowered fixed costs, some purchasers who bought prior to the tie are benefitted from the arrangement and all new purchasers brought in by the tie are benefitted. See Hovenkamp & Hovenkamp, *supra* note 71 (manuscript at 10-11).

⁸⁷ For example, in one of the earliest variable proportion tying cases, *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912), *superseded by statute*, Clayton Act, ch. 323, § 3, 38 Stat. 730, 731 (1914), 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. *A.B. Dick Co. v. Henry*, 149 F. 424, 425 (C.C.S.D.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, 836 (E.D. Ky. 2007) (determining that a printer manufacturer received a lower price for cartridges subject to a restriction requiring a single use and replacement with another Lexmark cartridge than if sold without the restriction), *rev’d on reconsideration*, 615 F. Supp. 2d 575 (E.D. Ky. 2009); Tony Smith, *Xbox 360 Costs Third More to Make Than It Sells For*, REGISTER, Nov. 24, 2005, http://www.theregister.co.uk/2005/11/24/xbox360_component_breakdown (reporting 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-and-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 Graduate Sch. of Bus. Working Paper, Dec. 4, 2007) (unpublished), available at <http://ssrn.com/abstract=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 Graduate Sch. of Bus. Research Paper Series, Research Paper No. 1983, 2008), available at <http://ssrn.com/abstract=1088451>

of zero.⁸⁸ 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, enticing small local entrepreneurs to enter franchise agreements, but the franchisor then sells the tied products (very common staple products or services) to the franchisee at an overcharge.⁸⁹ The result of such arrangements is that many more potential franchisees can afford a franchise, thus increasing output. This changes a franchisor's profits 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.⁹⁰

(finding that movie theaters tie concession food products by prohibiting attendees from bringing in their own; high food prices are offset by lowered admission prices). See generally F.M. SCHERER, *INDUSTRY STRUCTURE, STRATEGY AND PUBLIC POLICY* 308-11 (1996) (completing a study of the automobile industry and technologically tied aftermarket parts, 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) (finding 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).

⁸⁸ See, e.g., *Kentmaster Mfg. Co. v. Jarvis Prods. Corp.*, 146 F.3d 691, 693-95 (9th Cir. 1998), *opinion amended*, 164 F.3d 1243 (9th Cir. 1999) (finding defendant provided durable meat cutting equipment at no charge to meat cutters but charged high prices for aftermarket parts). 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 the durable good and aftermarket parts is above cost. Soft drink vending machines provide another example. Soft drink distributors provide the machines for free to owners of locations where vending occurs, but the machine may stock only that supplier's brand of soft drinks. See VENDING SOLUTIONS, <http://www.vendingsolutions.com/coke-vending-machines> (last visited July 21, 2010) (advertising free dispensing machines to plant locations containing forty employees or more, but only Coca-Cola products can be dispensed in the machines).

⁸⁹ E.g., *Siegel v. Chicken Delight, Inc.*, 448 F.2d 43, 46-47 (9th Cir. 1971) (finding franchisor charged no franchising fee or royalty, but required franchisees to purchase tied products at higher-than-market prices), *abrogated by* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006), and *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2 (1984).

⁹⁰ See ROGER D. BLAIR & FRANCINE LAFONTAINE, *THE ECONOMICS OF FRANCHISING* 59 (2005) (finding 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 & DECISION ECON. 191, 195-98 (2000) (arguing that tying in restaurant franchises is less a function of market power than of nature of equipment employed); see also Roger D. Blair & David L. Kaserman, *Vertical Integration, Tying, and Antitrust Policy*, 68 AM. ECON. REV. 397, 397-400 (1978) (showing that on equivalence of variable proportions, tying and vertical integration result in a more optimal use of downstream inputs and probable output increases); Benjamin Klein & Lester F. Saft, *The Law and Economics*

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 can only be shown to reduce welfare in the unusual case where no customer benefits from the tie.⁹¹

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.⁹² As a result, the core concern of exclusive dealing and tying-arrangement analysis is not leverage, but rather the unreasonable exclusion of rivals, which is also the core concern of Section 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 the firm meets the market-share standards ordinarily required for unlawful monopolization.

B. *Networks and Refusals to Deal*

In the 2004 *Trinko* decision, the Supreme Court made it very difficult for an antitrust plaintiff to prove that a defendant violates Section 2 when it unilaterally refuses to deal with a rival.⁹³ The *Linkline* price squeeze decision five years later reiterated this view.⁹⁴ European competition law is more aggressive.⁹⁵ However, even the European *Microsoft* decision, which required

of Franchise Tying Contracts, 28 J.L. & ECON. 345, 349-54 (1985); Frederick R. Warren-Boulton, *Vertical Control with Variable Proportions*, 82 J. POL. ECON. 783, 784 (1974).

⁹¹ See Hovenkamp & Hovenkamp, *supra* note 71 (manuscript at 16-17).

⁹² On the manifold sources of cost savings and product improvement that results from ties, see 9 AREEDA & HOVENKAMP, *supra* note 68, ¶¶ 1712-1718.

⁹³ *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 408-09 (2004).

⁹⁴ *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 also Erik N. Hovenkamp & Herbert Hovenkamp, *The Viability of Antitrust Price Squeeze Claims*, 51 ARIZ. L. REV. 273, 277-78 (2009) (discussing *Trinko*, *Linkline*, and possible exceptions to those decisions).

⁹⁵ See DIRECTORATE GEN. FOR COMPETITION, EUROPEAN COMM'N, DISCUSSION PAPER ON THE APPLICATION OF ARTICLE 82 OF THE TREATY TO EXCLUSIONARY ABUSES § 9 (2005), available at <http://ec.europa.eu/comm/competition/antitrust/art82/discpaper2005.pdf> (describing situations in which refusals to supply and vertical foreclosures constitute anticompetitive abuses). 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, 899 (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

Microsoft to share server software protocols with rival server producers, addressed a network industry in which Microsoft had a well-established course of dealing with its rivals.⁹⁶ The EU tribunal ordered Microsoft to share protocols that would enable rival manufacturers of networking software to run their systems transparently on a system dominated by Windows computers.⁹⁷

A “server” is a network computer whose principal job is the storage and organization of files such as email communications, web pages, and other information that individual members of a network might share.⁹⁸ Some of these servers operate on Microsoft operating systems, while others operate on alternative, mainly Unix-based or other open source systems.⁹⁹ 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.¹⁰⁰ Microsoft’s rivals had in fact developed the server system market before Microsoft entered that market, and Microsoft initially provided them with interoperability protocols.¹⁰¹ Only after it entered the market itself did Microsoft begin withholding essential data.¹⁰²

In most cases, courts of general jurisdiction are not effective institutions for determining when a firm acting unilaterally has a duty to deal with rivals or what the scope and terms of any dealing obligation should be. These are regulatory concerns, and are typically highly technical. Further, this problem is not one that can be solved by ex post application of treble-damages rules. This circumstance makes the problem worse by forcing firms to act at their

upon a firm for refusing to deal if the refusal would prohibit the introduction of a new product. *Id.*

⁹⁶ Case T-201/04, *Microsoft Corp. v. Comm’n*, 2007 E.C.R. II-3601, ¶ 4, 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. *Id.* ¶ 620. 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. *Id.* ¶ 665.

⁹⁷ *Id.* ¶¶ 181, 186 (assessing the Commission’s claim of need for “transparent” interconnection so that the identity of the server software is invisible to the operator and concluding that Windows networks provide such transparency).

⁹⁸ *See id.* ¶ 26.

⁹⁹ *See id.* ¶ 33.

¹⁰⁰ *See id.* ¶ 565.

¹⁰¹ *See id.*; *Comm’n of the Eur. Cmtys.*, *Comm’n Decision of 24 Mar. 2004, Relating to a Proceeding Under Article 82 of the EC Treaty (Case COMP/C-3/37.92 Microsoft)* ¶¶ 587-636.

¹⁰² *See, e.g.*, *Comm’n of the Eur. Cmtys.*, *supra* note 101, ¶ 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.”).

peril in uncertain territory. The scope and terms of any duty to deal can be highly controversial, even in the regulatory context, and the possibility of treble damages after the fact will force firms to behave inefficiently in order to avoid antitrust liability. For these reasons, antitrust liability for unilateral duties to deal should be extremely narrow.

That is not to say, however, 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 preexisting practice rather than to 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.¹⁰³ In that case, the previous sharing regime itself created the baseline duty, and market participants, including consumers, had adjusted their commitments based on it. U.S. 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.¹⁰⁴ The EU also recognizes liability for the unreasonable termination of existing relationships.¹⁰⁵ 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."¹⁰⁶ 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. The social gains from collaborative networks will evaporate quickly if we

¹⁰³ *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 603 (1985) (claiming that the 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").

¹⁰⁴ See *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004) (emphasizing that the defendant had never engaged in voluntary dealing with AT&T, but did so only under compulsion of federal interconnection requirements); 3B AREEDA & HOVENKAMP, *supra* note 33, ¶ 772e.

¹⁰⁵ DIRECTORATE GEN. FOR COMPETITION, *supra* note 95, § 9.2.1 (recognizing special classification for "termination of an existing supply relationship").

¹⁰⁶ Alan Devlin, Michael Jacobs & Bruno Peixoto, *Success, Dominance, and Interoperability*, 84 IND. L.J. 1157, 1162 (2009).

permit one dominant firm to run away with all of the private gains once it is in a position to do so.¹⁰⁷

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," meaning 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 is true today of computers, which are hardly freestanding boxes. They communicate with the world via the internet and depend on compatibility among both users and many types of suppliers. To the extent that the installed base of a particular type of computer becomes larger, software becomes more profitable to write and cheaper to purchase. This effect makes the software market today a far cry from the market in the 1950s, where software was often developed to run on a single mainframe computer and often cost hundreds of thousands of dollars per copy.¹⁰⁸

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 acts 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 the 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, the roles may be reversed.

Many of our larger networks involve numerous sellers. For example, today the telecommunications network contains thousands of firms of which AT&T

¹⁰⁷ On the strongly collaborative nature of some networks, see generally YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006).

¹⁰⁸ See generally 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).

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 electric 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 describe a firm that dominates its network; second, it can refer to a network that dominates at least one of the markets in which the network operates. Under the first meaning, a network does not need to have a dominant firm in order to function well. Rather, there must be 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, Florists’ Transworld Delivery (“FTD”) is a network of florists that permits customers to order in one place and a recipient to receive flowers in a distant place. FTD was organized in 1910, when fifteen florists agreed to serve each other’s customers in distant cities by managing orders over the telegraph.¹⁰⁹ Today the network contains approximately 45,000 florists around the world. In order to do their business, FTD members may have to coordinate aspects such 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 are 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 National Collegiate Athletic Association (“NCAA”) has more than one thousand member schools,¹¹⁰ but only a small portion of these actually face each other in any athletic event. Rather, within each major sport the NCAA is

¹⁰⁹ *About Us*, FTD.COM, <http://www.ftd.com/custserv/aboutftd.epl> (last visited Mar. 20, 2010).

¹¹⁰ In the 2009-2010 school year, there were 1055 active member schools and 20 provisional member schools in the NCAA. Composition & Sports Sponsorship of the NCAA, http://ncaa.org/wps/ncaa?key=/ncaa/NCAA/About%20The%20NCAA/Membership/membership_breakdown.html (last visited July 20, 2010).

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 for government regulation is natural monopoly. If a firm's costs decline as output increases, a natural monopoly will occur when service by one firm becomes cheaper than service by any combination of two or more.¹¹¹ For example, it is much cheaper for a single electric utility to run lines to houses than to have multiple firms running lines and offering competitive service because the cost of only one set of lines will be divided among all consumers. 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 encourages 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, from which two important principles have evolved. 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 regulators should permit the latter only in those niches, and should encourage competition to emerge elsewhere.¹¹²

¹¹¹ If economies of scale require more than fifty percent 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.

¹¹² See generally 1A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 241-242 (3d ed. 2006) (discussing history and rationale of deregulation and the relationship between federal regulation and antitrust).

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.¹¹³ In these instances, the government imposes the interconnection rules. Other networks, such as FTD or sports leagues, also have interconnection rules, but the firms that operate the network together create and enforce these rules. 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 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 an example of an unregulated firm that 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 1982.¹¹⁴ But during the period of AT&T's dominance, it was also a price-regulated firm governed by a federal agency as well as by numerous state agencies that controlled local service. By contrast, Congress has never seriously considered imposing either comprehensive regulation or interconnection rules on the Windows system. The Government's principal regulation of Microsoft thus falls to 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 be compatible or else they will not be able to interconnect. The crux of the European dispute with Microsoft over

¹¹³ 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 refrain from installing 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. *Id.* § 251(b)(4).

¹¹⁴ *United States v. AT&T Co.*, 552 F. Supp. 131, 226-32 (D.D.C. 1982) (Modification of Final Judgment), *aff'd mem. sub nom. Maryland v. United States*, 460 U.S. 1001 (1983).

reasonable access for rivals' server software was that Microsoft was renegeing on previously made interconnection practices.¹¹⁵

One problem that faces competition policy in network industries is increased path dependence, which means that the optimal choice a firm makes today is heavily driven by a series of choices made by itself and others in the past.¹¹⁶ 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 need for coordination explains the heightened concern for backward compatibility in computer networks. Often, highly creative innovations will not find a market, because there is no easy way to make them compatible with the rest of the network. The resulting entrenchment tends to favor dominant firms that heavily invest in the specific technology that dominates the network.

One obvious objection to regulations restricting network dominance is that the market-dominating position of any firm in a network, including Microsoft Windows, is not a law of nature. Over time, viable alternatives to Windows might develop that could co-exist with Windows. Or else 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.¹¹⁷

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* litigation¹¹⁸ and its aftermath provide some evidence of this transience. After a lengthy period of market dominance by Microsoft, the market for internet access programs (“browsers”) has become increasingly competitive. Indeed, it was the threat of increased competition from internet-based software that motivated many of Microsoft's anticompetitive actions in the first place.¹¹⁹ At the time of the antitrust decree condemning Microsoft for

¹¹⁵ See Case T-201/04, *Microsoft Corp. v. Comm'n*, 2007 E.C.R. II-3601, ¶ 565, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET>.

¹¹⁶ See HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* 277-304 (2005).

¹¹⁷ For example, Google has announced that it will make available a rival operating system, at least for smaller Windows-compatible computers. Miguel Helft & Ashlee Vance, *Taking Aim at Windows, Google Unveils a PC Operating System*, N.Y. TIMES, July 8, 2009, at B1. For updates, see GOOGLE OPERATING SYSTEM, <http://googlesystem.blogspot.com> (last visited July 21, 2010) (documenting, albeit unofficially, Google's progress in creating an online operating system).

¹¹⁸ 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. 2001) (en banc) (per curiam).

¹¹⁹ *Id.* at 28-34.

anticompetitive activities in the browser market,¹²⁰ 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%, and rival Mozilla Firefox became the dominant browser.¹²¹

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 89%, still leaving it with a very dominant position. The market share of the various versions of Linux has edged up slightly over the last five years, to roughly 4.5%. The Apple OS share has also taken a small amount of usage share from Microsoft, approaching 7%.¹²²

Whether the decline in Microsoft’s browser share or the lack of decline in its 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 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 that 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 Window’s customers download and substitute a different browser. The consent decree also entitles computer manufacturers to ship machines without Windows installed, but in fact, very few customers opt for substitute operating systems. For the most part, the Apple OS is used only on Apple machines.¹²³

¹²⁰ *Id.* at 111.

¹²¹ See *Browser Statistics*, W3SCHOOLS.COM, http://www.w3schools.com/browsers/browsers_stats.asp (last visited July 14, 2010) (indicating that in 2002 Internet Explorer’s market share was over 80%, whereas in December of 2009, Internet Explorer’s market share had fallen to 37.2% while Mozilla Firefox had risen to 46.4%).

¹²² See *OS Platform Statistics*, W3SCHOOLS.COM, http://www.w3schools.com/browsers/browsers_os.asp (last visited July 14, 2010). One likely explanation for even the small decline in Microsoft OS share between 2007 and 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 late 2009, approximately three years after Microsoft released Vista, its usage share was under 20% while the previous version, Windows XP, continued to claim approximately 60% of the market. *Id.* Vista seems to have been a very costly blunder, and it is amazing that Microsoft has been able to retain almost 90% OS share in the face of such an unpopular product.

¹²³ See *Apple Inc. v. Psystar Corp.*, No. C 08-03251 WHA, 2009 WL 303046, at *1-*5 (N.D. Cal. Feb. 6, 2009) (discussing 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 generally Christina Bohannon, *IP Misuse as Foreclosure* (Univ. of Iowa Legal Studies Research Paper No. 09-

Microsoft is a very innovative firm. But like most network leaders, it has channeled innovation along a particular path and has seriously restrained the innovations of others.¹²⁴ One problem with dominated networks is that the interests of the dominant firm are not necessarily optimal, 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.¹²⁵ Indeed, in a competitive equilibrium even the firms in a network earn no more than the competitive rate of return.¹²⁶ To be sure, if customers are able to organize effectively they might be able to resist and force broadening of the network.¹²⁷ 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 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, interest group pressures are less likely to affect these rules. Second, they are much more modest, generally imposing interconnection only in the presence of a history

41, 2009), available at <http://ssrn.com/abstract=1474407> (discussing the similarities between the IP misuse doctrine and antitrust law, and arguing that the misuse doctrine should be limited to cases where the “IP holder engages in a practice that forecloses competition, future innovation or access to the public domain”).

¹²⁴ See discussion *supra* text accompanying notes 96-102.

¹²⁵ Case T-201/04, Microsoft Corp. v. Comm’n, 2007 E.C.R. II-3601, ¶ 565, available at <http://curia.europa.eu/jurisp/cgi-bin/gettext.pl?lang=en&num=79929082T19040201&doc=T&ouvert=T&seance=ARRET>.

¹²⁶ See Katz & Shapiro, *supra* note 108, at 429 (contending that network interconnection with a large number of firms moves toward a competitive equilibrium).

¹²⁷ See 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, 207 (2007); Daniel F. Spulber, *Unlocking Technology: Antitrust and Innovation*, 4 J. COMPETITION L. & ECON. 915, 915 (2008).

that justifies it, clear dominance, and relatively clear necessity for competition 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.¹²⁸

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 not uncommon in markets subject to more explicit regulation. While hardly perfect, these resolutions are almost certainly better in many situations than not requiring adequate interconnection at all.

There are also historical reasons for using antitrust to compel dealing in network markets. In the case of Microsoft, the network is what it is because of Microsoft's own anticompetitive choices. Simply condemning those choices is unlikely to 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.¹²⁹

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.¹³⁰ Many of the practices challenged in the *Microsoft* case

¹²⁸ See Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.).

¹²⁹ See *United States v. Microsoft Corp.*, 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.

¹³⁰ See, e.g., HARRY FIRST & ANDREW I. GAVIL, *MICROSOFT AND THE GLOBALIZATION OF COMPETITION POLICY: A STUDY IN ANTITRUST INSTITUTIONS* (forthcoming); 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 (2007); 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.*

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 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.¹³¹

Microsoft employed each of these practices to enable it 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 based on 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 Corp., 20 BERKELEY TECH. L.J. 1185 (2005); 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 & 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); Renata B. Hesse, *Counseling Clients on Refusal to Supply Issues in the Wake of the EC Microsoft Case*, ANTITRUST, Spring 2008, at 32; Renato Nazzini, *The Microsoft Case and the Future of Article 82*, ANTITRUST, Spring 2008, at 59.

¹³¹ See *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (en banc) (per curiam). The litigation is summarized in 3 AREEDA & HOVENKAMP, *supra* note 33, ¶ 617, and *id.* at add. (Supp. 2009).

Microsoft-dominated system and operate seamlessly, just as if a single firm ran the entire collection of networks. 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 of "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.¹³² 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 industry.¹³³ Although it did not find that unilateral refusals to connect are lawful per se, the Court left very little room for compulsory dealing under the antitrust laws.¹³⁴

But *Trinko* is idiosyncratic in one highly relevant sense. The Court decided *Trinko* against the backdrop of a regulatory provision contained in the Telecommunications Act that compelled nearly global interconnection.¹³⁵ That Act required the very connection to independent local telephone service providers that was at issue in *Trinko*. Indeed, federal and state regulatory agencies had already identified and condemned Verizon's lack of cooperation.¹³⁶ *Trinko* declined 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 "effective steward[s] of the antitrust function."¹³⁷

Refusals to deal in dominated, path-dependent networks can have a much different look than refusals to deal generally. Refusals to deal in dominated networks can resemble tying arrangements, in the sense that market dominance plus path dependence often "ties" the disputed product to existing technologies.¹³⁸ For example, consider Europe's aforementioned condemnation of Microsoft's refusal to provide effective server technology to

¹³² See Ahlborn & Evans, *supra* note 95, at 901.

¹³³ Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 415 (2004).

¹³⁴ *Id.*

¹³⁵ See *supra* note 128 and accompanying text.

¹³⁶ *Trinko*, 540 U.S. at 412-13.

¹³⁷ *Id.* at 413.

¹³⁸ See Joseph Farrell & Garth Saloner, *Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation*, 76 AM. ECON. REV. 940, 941-43 (1986); S.J. Liebowitz & Stephen E. Margolis, *Path Dependence, Lock-in, and History*, 11 J.L. ECON. & ORG. 205, 206 (1995).

rivals.¹³⁹ From an American perspective, this appears at first to be a simple refusal to deal. Why should Microsoft be required to provide rivals with the protocols it has developed? But in a path-dependent world, even a rival's clearly superior or more cost-effective server cannot claim a market unless it achieves compatibility with the rest of the network. Microsoft effectively conditions access to its operating system network upon use of its server software on local networks. 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 which two products or services are tied together not by a contract, but rather by technological constraints that effectively require that the products or services be used together.¹⁴⁰

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 per se unlawful, while refusals to deal are virtually per se lawful. As a matter of policy, both of these legal rules are incorrect. Tying is anticompetitive only part of the time, and refusals to deal in network industries in which cooperation among rivals is required can be anticompetitive some of the time. This makes both tying and refusals to deal grist for rule-of-reason treatment under Section 2 of the Sherman Act. As noted previously,¹⁴¹ one important and welcome development in tying law has been the use of Section 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 of such technical requirements.

The fact is that in today's world almost nobody likes regulation. Although the use of antitrust to impose sharing obligations in dominated networks might strike some as excessively "regulatory," 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 that are capable of competition be given a level playing field that is unrestrained by Microsoft's self dealing. And this is not to cast aspersions on Microsoft, which 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, and a durable monopoly that constantly spills into adjacent markets on the other.

¹³⁹ See *supra* notes 96-102 and accompanying text.

¹⁴⁰ See 10 AREEDA, ELHAUGE & HOVENKAMP, *supra* note 44, ¶ 1757.

¹⁴¹ See *supra* notes 38-44 and accompanying text (explaining the justifications for increased use of § 2).

III. EXCLUSIONARY PRICING

The antitrust law of predatory and other forms of exclusionary pricing is both multifaceted and technical.¹⁴² In general, the law is in a fairly good place, although somewhat under-deterrent. 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 pricing claims in particular, the cost of false positives is very high in comparison to the cost of false negatives.¹⁴³

Consequently, two areas of predatory pricing law are problematic. The first is the “recoupment” requirement that the Supreme Court adopted in its *Brooke Group* decision.¹⁴⁴ The second is the one set of practices about which 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.

A. *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.¹⁴⁵ 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.¹⁴⁶ 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.¹⁴⁷

The European Union rejects the recoupment requirement when the defendant’s prices are clearly below the relevant cost measure,¹⁴⁸ 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*

¹⁴² Pricing practices compose the entirety of Volume 3A of the ANTITRUST LAW treatise, third edition, occupying some 350 pages. See 3A AREEDA & HOVENKAMP, *supra* note 33.

¹⁴³ On this point, see *id.* ¶ 723b.

¹⁴⁴ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 219 (1993).

¹⁴⁵ *Id.* at 222 (finding that a rival’s price must undercut its cost by a significant measure); 3A AREEDA & HOVENKAMP, *supra* note 33, ¶ 740a.

¹⁴⁶ *Brooke Group*, 509 U.S. at 223.

¹⁴⁷ *Id.*

¹⁴⁸ See Case C-202/07, *France Telecom, S.A. v. Comm’n*, 2009 ECJ EUR-Lex LEXIS 272 ¶¶ 37, 113 (Apr. 2, 2009); Case C-333/94P, *Tetra Pak Int’l SA v. Comm’n (Tetra Pak II)*, 1996 E.C.R. I-5951, ¶¶ 39-45; DIRECTORATE GEN. FOR COMPETITION, *supra* note 95, at 35, ¶ 121; Cyril Ritter, *Does the Law of Predatory Pricing and Cross-Subsidisation Need a Radical Rethink?*, 27 WORLD COMPETITION 613, 620 (2004).

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 often impossible for a plaintiff to meet them. The one exception is where recoupment is obvious and can be accomplished quickly.¹⁴⁹ This recommendation is roughly consistent with one made by Bolton, Brodley, and Riordan in 2001 that proof of recoupment should be relaxed if the evidence of predatory pricing is relatively strong.¹⁵⁰

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,¹⁵¹ and no firm engages in costly, high-risk behavior except at the prospect of a payoff large enough to make the cost and risk worthwhile.¹⁵² 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* reiterated these requirements and applied them to claims of predatory purchasing.¹⁵³ 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 adjusting 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.¹⁵⁴ 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,¹⁵⁵ disposition of

¹⁴⁹ See, e.g., *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917, 948 (6th Cir. 2005).

¹⁵⁰ Bolton, Brodley & Riordan, *supra* note 88, at 2513-14 (“[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.”).

¹⁵¹ See 3A AREEDA & HOVENKAMP, *supra* note 33, ¶ 725a.

¹⁵² *Id.* ¶¶ 725-726.

¹⁵³ *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 549 U.S. 312, 325 (2007).

¹⁵⁴ On Robinson-Patman claims, see 3A AREEDA & HOVENKAMP, *supra* note 33, ¶ 745.

¹⁵⁵ *Id.* ¶¶ 727c-727d.

rivals' productive assets,¹⁵⁶ and barriers to entry or to expansion by surviving rivals.¹⁵⁷

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 Section 2 analyses. 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 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 are. 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.¹⁵⁸ 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.¹⁵⁹

But in the middle range, "dollars and cents" proof of recoupment 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, one need not interpret *Brooke Group* 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

¹⁵⁶ *Id.* ¶ 729f.

¹⁵⁷ *Id.* ¶ 729.

¹⁵⁸ *Id.* ¶ 727e.

¹⁵⁹ *E.g.*, *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917, 950 (6th Cir. 2005) ("Spirit's expert proof shows that Northwest recovered its losses within months of Spirit's exit from the market.").

expended on the predation, including the time value of the money invested in it.”¹⁶⁰ The operative word here is “likelihood,” which in the context means “a reasonable chance,” or perhaps “dangerous probability.”¹⁶¹ 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.”¹⁶²

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 do.¹⁶³

¹⁶⁰ *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 225 (1993) (emphasis added).

¹⁶¹ *Id.* at 222, 241. The Court also recognized that “[e]vidence of below-cost pricing is not alone sufficient to permit an inference of probable recoupment.” *Id.* at 226.

¹⁶² *Id.* at 226 (emphasis added).

¹⁶³ Donald J. Boudreaux, Kenneth G. Elzinga, and David E. Mills cite the following 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.

Donald J. Boudreaux, Kenneth G. Elzinga & David E. Mills, *The Supreme Court’s Predation Odyssey: From Fruit Pies to Cigarettes*, 4 SUP. CT. ECON. REV. 57, 73 (1995) (footnotes omitted). Elzinga and Mills were the two authors that the Supreme Court relied on for the recoupment requirement in *Brooke Group*. *Brooke Group*, 509 U.S. at 226; see also Ritter, *supra* note 148, at 632-46 (discussing the current focus on recoupment in United States law).

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.¹⁶⁴ 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* showed that B&W’s entry into the generic market resembled Liggett’s so closely that customers were indifferent between them.¹⁶⁵ 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.¹⁶⁶

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.¹⁶⁷ 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. The “enforcer” firm is most likely to be the one whose product best 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.¹⁶⁸ Even the cigarette oligopoly, the Court saw, functioned imperfectly: there was notable nonprice competition and some discounts and promotions.¹⁶⁹

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

¹⁶⁴ The theories are summarized in Thomas J. Campbell, *Predation and Competition in Antitrust: The Case of Nonfungible Goods*, 87 COLUM. L. REV. 1625, 1636-55 (1987) (drawing “upon oligopoly theory to present a spatial model of differentiated goods within a single market”).

¹⁶⁵ See *Brooke Group*, 509 U.S. at 215.

¹⁶⁶ *Id.*

¹⁶⁷ See 3A AREEDA & HOVENKAMP, *supra* note 33, ¶ 727g.

¹⁶⁸ *Brooke Group*, 509 U.S. at 227-28.

¹⁶⁹ *Id.* at 235-36.

as “imperfect” oligopoly.¹⁷⁰ Nevertheless, no one has ever accused the cigarette industry of being highly competitive. In fact, its history was one of “textbook” oligopolistic price coordination,¹⁷¹ as the majority itself acknowledged.¹⁷² 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’ 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 hard to justify prevailing merger doctrine in the United States and most other countries.¹⁷³

B. *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

¹⁷⁰ *Id.*

¹⁷¹ *Id.* at 245 (Stevens, J., dissenting).

¹⁷² *Id.* at 213 (majority opinion) (“List 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.”).

¹⁷³ See generally 4 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 900-901 (3d ed. 2009).

“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 one thousand 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.¹⁷⁴ In short, discounting practices defy any simple classification scheme.

Section 3 of the Clayton Act prohibits discounts with express tying or exclusive dealing conditions when the requisite anticompetitive effects are proven.¹⁷⁵ For example, an offer of a ten percent 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.

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 increase sales, 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 six o’clock 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.¹⁷⁶ These strategies exist in both highly competitive markets and concentrated markets, and even absolute monopolists can profit from discounts that clear excess capacity or to price discriminate in favor of customers who would not purchase the product at the monopoly price.¹⁷⁷

¹⁷⁴ See *infra* notes 190-95 and accompanying text (discussing bundled discounts and related forms of discount leveraging).

¹⁷⁵ 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)).

¹⁷⁶ 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, 1051 (1988).

¹⁷⁷ See Daniel A. Crane, *Mixed Bundling, Profit Sacrifice, and Consumer Welfare*, 55 EMORY L.J. 423, 450-55 (2006); David S. Evans & Michael Salinger, *Why Do Firms Bundle*

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.¹⁷⁸ But persistently selling to 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,¹⁷⁹ although there are some exceptions, as well as differences about how cost should be measured.¹⁸⁰

and Tie? Evidence from Competitive Markets and Implications for Tying Law, 22 YALE J. ON REG. 37, 48 n.8 (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, 714-33 (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, 21-40 (2009).

¹⁷⁸ I use Intel Corp. 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 NEWSLETTER (Korea Fair Trade Comm’n, Seoul, S. Korea), 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. Federal Trade Commission (June 6, 2008), available at <http://www.intc.com/releasedetail.cfm?ReleaseID=314656>; 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, Intel consulted me in contemplation of the Korean proceedings. For a historical perspective of the many legal battles Intel has fought with its main rival, Advanced Micro Devices (“AMD”), see *AMD – Intel Litigation History*, AMD.COM, http://www.amd.com/us-en/assets/content_type/DownloadableAssets/AMD_-_Intel_Litigation_History.pdf (last visited Jan. 15, 2010).

¹⁷⁹ See, e.g., *Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883, 900-10 (9th Cir. 2008) (bundled discount); *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1061 (8th Cir. 2000) (single product market share discount); *Invacare Corp. v. Respironics, Inc.*, No. 1:04 CV 1580, 2006 WL 3022968, at *8 (N.D. Ohio Oct. 23, 2006) (predatory pricing and bundled discounts); *Masimo Corp. v. Tyco Health Care Group, L.P.*, No. CV 0204770

1. 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 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.¹⁸¹

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.¹⁸²

MRP, 2006 WL 1236666, at *9 (C.D. Cal. Mar. 22, 2006) (loyalty discounts and bundled discounts); *Virgin Atl. Airways Ltd. v. British Airways PLC*, 69 F. Supp. 2d 571, 577-82 (S.D.N.Y. 1999) (incentive agreements), *aff'd on other grounds*, 257 F.3d 256 (2d Cir. 2001). For a critique of traditional cost-based tests requiring prices below average variable costs or average avoidable costs, see generally Bolton, Brodley & Riordan, *supra* note 88. Professor Brodley and his co-authors argued that average avoidable cost rather than average variable cost should be the correct cost standard, a view that has acquired considerable traction since their article was published. *See id.* at 2271-74. They also argued, however, that prices above average avoidable cost should occasionally be condemned if they are below long-run average incremental cost. *See id.* at 2273. To an extent, this means 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 & David E. Mills, *Predatory Pricing and Strategic Theory*, 89 GEO. L.J. 2475, 2484 (2001) (arguing that Bolton, Brodley, and Riordan’s standard could discourage price-cutting that would benefit consumers).

¹⁸⁰ *See, e.g.,* *LePage’s Inc. v. 3M*, 324 F.3d 141, 152 (3d Cir. 2003) (en banc) (refusing to adopt the “proposition that a monopolist does not violate § 2 [of the Sherman Act] unless it sells below cost”); *Xerox Corp. v. Media Scis. Int’l, Inc.*, 511 F. Supp. 2d 372, 378-79 (S.D.N.Y. 2007) (denying dismissal motion over a claim that loyalty discounts on aftermarket ink fillers for printers was unlawful but providing no reference to allegations that price was below cost). In *Meijer, Inc. v. Abbott Laboratories*, the district court rejected the exclusive use of cost-based tests. 544 F. Supp. 2d 995, 1002-05 (N.D. Cal. 2008). The Ninth Circuit ultimately rejected the district court’s reasoning in a related decision involving the same defendant and facts. *Doe v. Abbott Labs.*, 571 F.3d 930, 931 (9th Cir. 2009).

¹⁸¹ For a view more sympathetic to condemnation of above cost discounts, see Joseph F. Brodley & Ching-to Albert Ma, *Contract Penalties, Monopolizing Strategies, and Antitrust Policy*, 45 STAN. L. REV. 1161, 1167-72 (1993) [hereinafter Brodley & Ma, *Contract Penalties*], and Joseph F. Brodley & Ching-to Albert Ma, *Using Insights from Game Theory: Penalty Contracts and Monopolizing Strategies*, ANTITRUST, Fall 1994, at 6, 6-7, both of which explore how long-term contracts providing significant discounts coupled with substantial penalties for breach can entrench market dominance and discourage competitor entry.

¹⁸² *See* discussion *infra* notes 190-95 and accompanying text (discussing bundled discounts and related forms of discount leveraging).

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.¹⁸³ 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.¹⁸⁴ 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.

Advocates for 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¢ per ear, or \$1 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 corn, which has the same production costs as Farmer Brown's. The customer could purchase ten ears of Farmer Brown's corn for \$1 and two ears of Green's at 10¢ each, for a total price of \$1.20. Or the customer could purchase the dozen from Farmer Brown for \$1. Thus, when the customer wants only one dozen ears, the quantity discount on a dozen ears of corn has the effect of increasing the cost of mixing corn from the two farmers.¹⁸⁵

¹⁸³ See Einer Elhauge, *How Loyalty Discounts Can Perversely Discourage Discounting*, 5 J. COMPETITION L. & ECON. 189, 190-94 (2009) (limiting his analysis, however, to those loyalty discounts that "lack any efficiency justification").

¹⁸⁴ See, e.g., Bolton, Brodley & Riordan, *supra* note 88, at 2285-320 (describing above cost anticompetitive pricing strategies); Aaron S. Edlin, *Stopping Above Cost Predatory Pricing*, 111 YALE L.J. 941, 950-60 (2002); Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 286-315 (1977). For illustrations of traditional "limit" pricing strategies, see TIROLE, *supra* note 81, at 367-74, and W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, *ECONOMICS OF REGULATION AND ANTITRUST* 177-90 (4th ed. 2005).

¹⁸⁵ Robert Lande uses a similar illustration to argue against discounting practices:

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].

But basing liability on this type of “exclusion” goes too far. It is possible that Farmer Green could offer a 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* the customer 10¢ to match the price that Farmer Brown was offering.¹⁸⁶ 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 Section 2 properly applies only to monopolists, and Farmer Brown is not a monopolist.¹⁸⁷ But monopolists also profit when they sell more. Further, and critically, society is more interested in larger output by monopolists, than by 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 someone will make them if a particular seller does not make them.

The story changes dramatically in favor of discounting if we assume the existence of fixed costs, especially those brought about by upfront innovation and development. In general, fixed costs can lead to excess capacity.

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>. 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> (describing fine resulting from Intel offering rebates on the condition that producers would not buy from AMD); Joe Nocera, *A.M.D. and Its War with Intel*, N.Y. TIMES, June 21, 2008, at C1 (elaborating on Intel’s behavior, and the policy choices in deciding on enforcement actions).

¹⁸⁶ The customer could purchase eleven ears from Farmer Brown, foregoing the discount, for \$1.10, or the full dozen for \$1. So in order to purchase eleven ears from Brown and one ear from Green at a price of \$1, Green would have to compensate the customer 10¢.

¹⁸⁷ Cf. Elhauge, *supra* note 183 (finding significant anticompetitive effects in loyalty discounts by monopolists); John Temple Lang & Robert O’Donoghue, *Defining Legitimate Competition: How to Clarify Pricing Abuses Under Article 82 EC*, 26 FORDHAM INT’L L.J. 83, 85 (2002) (“There is no general principle that a dominant company must not charge different prices for the same product or service. We argue that discriminatory pricing should only be prohibited . . . in a small number of situations.”); Denis Waelbroeck, *Michelin II: A Per Se Rule Against Rebates by Dominant Companies?*, 1 J. COMPETITION L. & ECON. 149, 160-71 (2005) (arguing that rebates by dominant companies should only be prohibited if they have a foreclosure effect).

Incremental sales out of excess capacity are both profitable and cost reducing as long as the unit price is higher than the incremental cost that the seller incurs. Additionally, two characteristics of innovation costs make them particularly conducive to discounting: first, innovation costs are fixed costs, and second, these costs can be attributed across an entire finite production run of the resulting product. That is, innovation costs do not have a U-shaped marginal cost curve, as some fixed costs do.

For example, suppose that development of a microprocessor chip costs \$1,000,000 but production costs are \$100 per chip. In order to produce and sell this chip profitably the producer must recover both the \$1,000,000, 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 selling 10,000 chips, then the breakeven price drops to \$200 per chip (\$100 to amortize fixed costs, plus \$100 in variable costs). And if the producer anticipates selling 100,000 chips, it can profitably sell them at any price above \$110. If the commercial life expectancy of this chip is relatively short, 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 the seller has only one customer, the seller might say that the price of chips will be \$1100 each 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.

Typically, however, a seller will have more than one customer, and the pricing decision can become increasingly complex if a seller has many potential customers. Two characteristics that complicate pricing in the microprocessor industry are high development costs and rapid innovation, which entails relatively quick obsolescence of the 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 the firm must amortize their fixed costs over the number of chips sold during this production cycle. These facts make it essential for the manufacturer to forecast accurately the quantity of chips it will sell, and the firm must make this determination before it can set a price. Further, the more that will be sold, the lower that price will be, thus benefitting customers.

A firm could simply set the low price, \$110, and hope to sell at least 100,000 of its chips. If the market is large enough and the firm obtains a large enough market share, perhaps that will happen. But if a rival produces a comparable chip and offers the same price, there might not be enough room for both of them to make 100,000 sales.

The firm could also use quantity discounts. For example, if there were ten computer manufacturers that purchased chips, the firm 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 the firm 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, however, is that they can concentrate the downstream market if some large computer manufacturers qualify for the full discount, but their smaller competitors do not. 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. This pricing schedule will give these three firms lower costs than their rivals. This could enable them to fix prices,¹⁸⁸ 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. These results injure the microprocessor firm because it will sell fewer chips. But they will also injure customers, who suffer 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. These discounts, however, may harm both the discounter and consumers if only a few firms in the downstream market are large enough to claim the biggest discount.

A percentage-share discount, in contrast, spreads the discount evenly across all buyers, large and small. For example, suppose a microprocessor firm estimates that its historical buyers sell approximately 125,000 units altogether. It can offer its chip at a price of \$110 if it can be assured of 100,000 sales. The firm might then tell each customer that it will sell chips at the \$110 price, as long as the customer agrees to use those chips in at least eighty percent of its computers. The firm must still assume market risks, as well as the risks that a significant innovation by a rival will shift computer demand away from computers containing 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.

The above, simplified, example is essentially the situation that Intel found itself in.¹⁸⁹ This is not to say that everything Intel did 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 that keep the output of a particular microprocessor chip high, and in the process keep its price down. A

¹⁸⁸ Most likely by agreeing with each other to sell the number of units that qualifies them for the maximum discount.

¹⁸⁹ See *supra* note 185 and accompanying text.

categorical rule condemning such practices will almost certainly result 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.

2. 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 ten percent discount to anyone who agrees to purchase all of its needs for the year from *D*. The discount will apply retroactively to all goods purchased over the entire year. At the time of the announcement, Buyer, who uses one hundred units of *D*'s good per year, has already purchased sixty 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 sixty percent of Buyer's output be of *D*'s product; or (2) Buyer has preexisting contracts covering sixty percent of its output that specify the *D* input. *D* announced a ten 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. 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 areas where the Milwaukee dairy does no business.¹⁹⁰

¹⁹⁰ 3A AREEDA & HOVENKAMP, *supra* note 33, ¶ 749e (footnote omitted).

What all of these situations have in common is that the discount serves to link two different sets of purchases.¹⁹¹ For one set, the dominant firm has a monopoly, but for the other set, competition exists. However, by distributing the discount over the full range of monopoly and competitive choices, the monopolist places the rival into a position such that the rival not only must match the discount on the competitive product, but must also compensate the customer for the foregone discount on the monopoly product.

The Antitrust Modernization Commission has propounded 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.¹⁹² 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.¹⁹³ 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 preceding illustrations.¹⁹⁴ For example, suppose that customers in

¹⁹¹ Joseph F. Brodley and Ching-to Albert Ma observed the relevance of such linkages already in Brodley & Ma, *Contract Penalties*, *supra* note 181, at 1186 (discussing tying), at 1185-86 (discussing packages of patents), and at 1192-93 (discussing locked-in customers).

¹⁹² According to the Antitrust Modernization Commission:

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.

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

¹⁹³ See Erik Hovenkamp & Herbert Hovenkamp, *Exclusionary Bundled Discounts and the Antitrust Modernization Commission*, 53 ANTITRUST BULL. 517, 525-28 (2008) (arguing that the 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*, 57 BUFF. L. REV. 1227, 1239, 1247 (2009) (arguing that the 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).

¹⁹⁴ See *supra* text accompanying note 190.

a particular market must purchase 60% of their needs from the dominant supplier because of customer pre-commitments. The dominant firm offers a market share discount of 10% to those who take at least 90% of their needs from that firm. This fully discounted price is above the suppliers cost. If a 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, rather than the 60% that is out of play anyway because of customer pre-commitments.¹⁹⁵

The attribution test makes good sense when products are distinctive and not good substitutes for each other because a customer presumably needs both independently and can determine which producer has manufactured each particular type. Even that point can be exaggerated. For example, in *PeaceHealth* the defendant was bundling primary, secondary, and tertiary health care.¹⁹⁶ While these three terms have distinctive meanings, the three products involved employ a great many overlapping inputs, including much administration and costly durable equipment.

¹⁹⁵ An example of this can be seen in *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. *Id.* at *5. 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. *Id.* 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.

....

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 defacto [sic] exclusive.

Id. at *5-6. In a later decision, however, the Ninth Circuit distinguished Masimo after concluding that the patent that caused the lock-in had expired. *Allied Orthopedic Appliances, Inc. v. Tyco Health Care Grp., LP*, 592 F.3d 991, 997 n.2 (9th Cir. Jan. 6, 2010). Einer Elhauge discusses the economic effect of market share discounts on "free" buyers and "loyal" buyers in Elhauge, *supra* note 183, at 193.

¹⁹⁶ *Cascade Health Solutions v. PeaceHealth*, 515 F.3d 883, 892 (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. Therefore, such claims should require evidence of clear lock-in that results in a significant and durable advantage to the dominant firm.

IV. EXCLUSIONARY PRACTICES INVOLVING INTELLECTUAL PROPERTY RIGHTS

A. Introduction

Maintaining the optimal rate of innovation requires two things: an effective IP policy and an effective competition policy. Within our current system, these policies have distinctive but sometimes overlapping and even potentially inconsistent roles.¹⁹⁷ The patent approval process in the United States is heavily regulated by the Patent Act,¹⁹⁸ which assesses basic requirements; the Patent and Trademark Office (“PTO”), a regulatory agency whose scrutiny of patent applications is strict; a specialized Board of Patent Appeals and Interferences (“BPAI”);¹⁹⁹ 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 (a) the agency has jurisdiction over the activity;²⁰⁰ (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. 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

¹⁹⁷ See generally Bohannon & Hovenkamp, *supra* note 21 (comparing the history of reform in antitrust policy to IP law, and urging courts to adopt similar concepts).

¹⁹⁸ 35 U.S.C. §§ 1-306 (2006).

¹⁹⁹ *Id.* § 6 (establishing BPAI and outlining its structure and jurisdiction).

²⁰⁰ See generally *Credit Suisse Sec. (USA) LLC v. Billing*, 551 U.S. 264 (2007) (finding that securities laws and antitrust laws are clearly incompatible with one another and that securities laws precluded the antitrust claims); 1A AREEDA & HOVENKAMP, *supra* note 112, ¶¶ 240-243 (examining federal regulation and deregulation of antitrust policy).

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 than antitrust law does, largely because IP law can focus on conduct without becoming overly involved with structure. The *Rambus*²⁰¹ and *Qualcomm*²⁰² 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.²⁰³ 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.²⁰⁴

The law of patent continuations cries out for a legislative or administrative fix from within patent law.²⁰⁵ Whether the conduct should count as an antitrust violation is another matter. A Section 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, which can raise both the IP issues and antitrust issues. While *Rambus*’s 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

²⁰¹ *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008), *cert. denied*, 129 S. Ct. 1318 (2009).

²⁰² *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008), *cert. dismissed*, 129 S. Ct. 2182 (2009).

²⁰³ *Rambus*, 522 F.3d at 459. For other decisions, see 3 AREEDA & HOVENKAMP, *supra* note 33, ¶ 712.

²⁰⁴ See Bohannan & Hovenkamp, *supra* note 21, at 26-30.

²⁰⁵ See *Tafas v. Doll*, 559 F.3d 1345, 1359-61 (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*, 328 F. App’x 658 (Fed. Cir. 2009); Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. REV. 63, 83-93, 106-18 (2004) (examining past attempts at solving problems related to patent continuations and proposing new alternatives).

made promises about licensing of its IP rights and later reneged on them.²⁰⁶ In that case, an estoppel doctrine from within patent law seems more appropriate than an antitrust action and can lead to fairly aggressive remedies, including reduced royalties or even royalty-free licensing.²⁰⁷ 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 situations similar to *Walker Process*.²⁰⁸ In *Walker Process*, the Supreme Court held that one who filed an infringement lawsuit on a patent obtained through false statements on the patent application could be guilty of an antitrust violation.²⁰⁹ 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 additional, independent evidence of fraudulent conduct existed as well.²¹⁰ The patent applicant had, in fact, made numerous sales of the patented product more than one year prior to filing of its application.²¹¹ Under the Patent Act’s “on sale” bar,²¹² these sales prevented issuance of the patent. However, the PTO did not know about the sales and issued the patent.²¹³ Many years later the patentee filed infringement suits against infringers.²¹⁴

One problem with the on-sale bar is that prior sales are often not a part of public record. As a result, the PTO critically depends 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.²¹⁵ To the Federal Circuit, this meant some kind of evidence of fraudulent conduct other than the untruthful affidavit denying prior sales alone.²¹⁶ But this finding seems to ignore two

²⁰⁶ *Qualcomm*, 548 F.3d at 1013-19.

²⁰⁷ *See id.* at 1022-24 (applying equitable estoppel).

²⁰⁸ *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172 (1965).

²⁰⁹ *Id.* at 174; *see also* 3 AREEDA & HOVENKAMP, *supra* note 33, ¶ 706.

²¹⁰ *Dippin’ Dots, Inc. v. Mosey*, 476 F.3d 1337, 1346 (Fed. Cir. 2007) (“[A] claimant must make higher threshold showings of both materiality and intent than are required to show inequitable conduct.”).

²¹¹ *Id.* at 1340.

²¹² 35 U.S.C. §102(b) (2006). This provision allows the loss of a right to a patent if “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country more than one year prior to the date of the application for patent in the United States.” *Id.*

²¹³ *Dippin’ Dots*, 476 F.3d at 1340-41.

²¹⁴ *Id.* at 1341.

²¹⁵ *Id.* at 1346.

²¹⁶ *Id.* at 1347-48.

things. First, the post-issuance patent infringement suit was itself clear evidence of “something more.” 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 a patent is relatively narrow or if market entry is easy then the patentee’s conduct will not be an antitrust violation because the antitrust plaintiff will be unable to establish durable monopoly power.²¹⁷

B. *Restraints on Innovation*

Public antitrust enforcers can make a significant contribution to monopolization law in innovation-intensive markets by removing anticompetitive restraints on innovation. The welfare gains from innovation almost certainly exceed the available gains from squeezing price monopoly out of the economy.²¹⁸ An important corollary of this proposition, however, 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.²¹⁹

The *Microsoft* litigation provides a good example of the difficulty of measuring these kinds of harms. Netscape’s internet browser incorporated Sun Microsystems’s Java computer language. Java possessed broad cross-platform translation capabilities that threatened to increase the compatibility of non-Microsoft operating systems with Microsoft’s Windows OS. Software developers could write their applications software with Java protocols, and then Java could translate instructions, allowing the application to run smoothly on a variety of different operating systems.²²⁰ Sun’s slogan for Java was “write once, run anywhere.”²²¹ Indeed, Microsoft Chairman Bill Gates feared

²¹⁷ On these requirements, see 3 AREEDA & HOVENKAMP, *supra* note 33, ¶ 706a3.

²¹⁸ See Robert M. Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J. ECON. 65, 85-86 (1956) (discussing the welfare gains from innovation); Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. ECON. STAT. 312, 316-17 (1957) (concluding that technical advances were responsible for 87.5% of the doubling in gross output per man-hour from 1909 to 1949). For a summary of Solow’s contribution and work since the 1950s, see SCHERER & ROSS, *supra* note 60, at 613-17. The idea that innovation contributes more than competitive pricing to economic growth comes from JOSEPH A. SCHUMPTER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 81-86 (4th ed. 1942).

²¹⁹ Herbert Hovenkamp, *Restraints on Innovation*, 29 CARDOZO L. REV. 247, 253 (2007) (while innovation restraints incur enormous social costs, suitable remedies are difficult to calculate).

²²⁰ JAMES GOSLING ET AL., *THE JAVA LANGUAGE SPECIFICATION*, at xxiii (3d ed. 2005).

²²¹ See *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 29 (D.D.C. 1999).

the “commoditization” of the operating system market that might result.²²² The fear was that Windows would become one of many offerings in a product-differentiated market for operating systems, in which people could choose to purchase based on price and features.

In order to deploy Java across multiple platforms effectively, however, Sun needed a microprocessor chip specifically designed to run Java’s instructional sets. Intel launched a program to develop such a chip. Intel later 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 systems. The government challenged Microsoft’s actions and the D.C. Circuit eventually condemned them.²²³

Subsequently, private plaintiffs challenged the Intel microprocessor exclusion as well.²²⁴ The plaintiffs were seeking damages based on the consumer losses that occurred because Microsoft’s interference discouraged Intel from developing the Java-enabled cross-platform chip.²²⁵ The plaintiffs believed that both the price and quality of Intel-based computing would have been significantly better under multi-platform competition.²²⁶ Of course, this required considerable speculation about whether Intel would ever have completed its Java chip program, whether the chip would have been a market success, and, most of all, what the chip’s 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.²²⁷

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

²²² *Id.* (finding that Gates warned Microsoft employees that Netscape’s multiplatform Java strategy threatened to create an “Internet Tidal Wave” that might “commoditize the underlying operating system”).

²²³ *United States v. Microsoft Corp.*, 253 F.3d 34, 112 (D.C. Cir. 2001) (en banc) (per curiam) (“Through its conduct toward Netscape IBM, Compaq, Intel, and others, Microsoft has demonstrated that it will use its prodigious market power and immense profits to harm any firm that insists on pursuing initiatives that could intensify competition against one of Microsoft’s core products.”).

²²⁴ *Kloth v. Microsoft Corp.*, 444 F.3d 312, 316 (4th Cir. 2006).

²²⁵ *Id.* at 323.

²²⁶ *Id.* at 317-18.

²²⁷ *Id.* at 324 (quoting *In re Microsoft Corp. Antitrust Litig.*, 127 F. Supp. 2d 702, 711 (D. Md. 2001)).

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.”²²⁸

These conclusions capture the truly formidable task that private plaintiffs face in pursuing antitrust claims for innovation restraints. Particularly when the restraints occur at an early stage, predicting the results can be an exercise in pure speculation.²²⁹ Because private plaintiffs must show both causation and the amount of recoverable damages, claims based on innovation restraints are often impossible to maintain. When the government acts as the 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 more expansive role than they have in the past.

CONCLUSION

The Obama Administration was elected with a mandate for political and legal change, which clearly extends to U.S. competition policy and antitrust laws. With regard to Section 2 enforcement, which is traditionally very costly in relation to payoffs, the new administration should choose wisely. On the one hand, expansion for its own sake almost certainly would do more harm than good. On the other hand, certain markets, particularly those that are innovation-intensive, seem to call for such expansions of enforcement.

²²⁸ *Id.* Because the harm of which the plaintiffs claimed was too speculative and not individualized, the court found that they lacked standing. *Id.* at 325.

²²⁹ If the innovation is far along, then the harm becomes much less speculative. *See, e.g., Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 498 (1988) (holding steel conduit manufacturers liable for manipulating the standard-setting association that influenced municipal building codes because the manufacturers intentionally prevented a fully completed and innovative electrical conduit made from plastic from entering the market).