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Counter-IP Conspiracies: Patent Alienability and the Sherman Antitrust Act

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Counter-IP Conspiracies: Patent Alienability and the Sherman Antitrust Act

HANNIBAL TRAVIS*

Anticompetitive collusion by intellectual property owners frequently triggered antitrust enforcement during the twentieth century. An emerging area of litigation and scholarship, however, involves conspiracies by potential licensees of intellectual property to reduce or eliminate opportunities by a property's holders to profit from it, or even to recoup their investments in creating and protecting it. The danger is that potential licensees will collude with one another to suppress royalties or sale prices. This Article traces the history of such litigation, provides an overview of the scholarly and theoretical arguments against monopsonistic or oligopsonistic collusion against licensors of intellectual property, and summarizes empirical evidence that the prime economic and business-related justification for such collusion, namely the need to reduce patent holdup, is relatively weak. It argues that some decisions not to license intellectual-property rights, or to license them at suppressed rates, may be anticompetitive, particularly if they are the result of a collusive process or serve to maintain or expand market power. Finally, it urges greater attention from a macroeconomic perspective to the plight of inventors and workers in

* Professor of Law, Florida International University College of Law. I would like to thank Florida International University for summer research grants during which this work was prepared, Jessica Ciminero and Christian Sanchelima for research assistance, and the participants in the Florida International University-University of Miami faculty exchange program, including Sergio Campos, Andres Sawicki, and Stephen Schnably, for their helpful comments and suggestions.

the high-technology and patent-intensive industries. As a preliminary attempt to heighten awareness of the issue, it describes recent allegations that market power on the part of consumers of high-technology patent licenses, and reduced bargaining clout on the part of individual employees and inventors, may be contributing to unemployment and inequality.

INTRODUCTION	760
I. ANTITRUST DOCTRINES FOR INTELLECTUAL PROPERTY	
CONSPIRACIES.....	769
A. <i>Denial of Access to Essential Inputs or Facilities</i>	770
B. <i>Degrading the Efficiency or Reach of Competitors’ Distribution and Marketing</i>	774
C. <i>Disparaging Competitors or Competitive Offerings</i>	779
D. <i>Controlling and Shaping Competitive Opportunities to Competitors’ Detriment</i>	780
II. CASE STUDIES OF CONSPIRACIES AGAINST INTELLECTUAL-	
PROPERTY LICENSORS.....	784
A. <i>Microsoft</i>	785
B. <i>Sony</i>	786
C. <i>IBM and Red Hat</i>	789
D. <i>Nokia</i>	795
E. <i>Rockstar Consortium/Corp.</i>	806
F. <i>RPX</i>	811
G. <i>LimeWire</i>	816
H. <i>The NCAA, the NFL, and the UFC</i>	818
III. EMPIRICAL AND THEORETICAL ECONOMIC APPROACHES TO	
CONSPIRACIES AGAINST IP OWNERS	820
A. <i>The Patent Crisis on the Sell Side</i>	820
B. <i>The Holdup Justification Reconsidered</i>	828
C. <i>Antitrust Macroeconomics and Intellectual Property</i>	846
CONCLUSION.....	857

INTRODUCTION

Some patent owners and their attorneys believe that collusive arrangements among potential infringers may result in suppressed prices for patent licenses. An analogous problem exists for aspiring professional athletes, who are the cream of the athletic crop in a way that patent owners may be in the technological arts. Some athletes have claimed that teams collude not to offer competitive remuneration for superlative performance, starting with high school prospects, most clearly at the university and college level, and during the professional leagues' drafts and free-agency rulemakings.¹ Recently, courts have ruled that some collusive arrangements in athletics, amounting to conspiracies not to bid up the value of athletes' intellectual property rights including their rights of publicity, are subject to antitrust challenge under section 1 of the Sherman Act.² May the same be said for arrangements in the technology arts, when alleged conspiracies depress bids on patent licenses and assignments?

This Article develops a framework for analyzing antitrust disputes concerning agreements, combinations, and/or conspiracies to undermine the enjoyment and licensing of intellectual property rights. Traditionally, conspiring to depress as well as to raise prices was a per se antitrust violation.³ Raising rivals' costs of revenue and

¹ See, e.g., *Brown v. Pro Football, Inc.*, 518 U.S. 231, 256 (1996) (Stevens, J., dissenting); *Wood v. NBA*, 809 F.2d 954, 958 (2d Cir. 1987); *Smith v. Pro Football, Inc.*, 593 F.2d 1173, 1174, 1189 (D.C. Cir. 1978); *O'Bannon v. NCAA*, 7 F. Supp. 3d 955, 962–63 (N.D. Cal. 2014), *aff'd in part, vacated in part*, 802 F.3d 1049 (9th Cir. 2015); *Brady v. NFL*, 779 F. Supp. 2d 992, 1004 (D. Minn. 2011), *vacated*, 644 F.3d 661 (8th Cir. 2011); *White v. NFL*, 766 F. Supp. 2d 941, 944 (D. Minn. 2011); *In re NCAA I-A Walk-On Football Players Litig.*, 398 F. Supp. 2d 1144, 1146–47 (W.D. Wash. 2005); *Clarett v. NFL*, 306 F. Supp. 2d 379, 382, 390 (S.D.N.Y. 2004), *rev'd in part, vacated in part*, 369 F.3d 124 (2d Cir. 2004).

² See 15 U.S.C. § 1 (1982); see also *Smith*, 593 F.2d at 1189; *Clarett*, 306 F. Supp. 2d at 408; *Walk-On Football Players*, 398 F. Supp. 2d at 1151–52.

³ See *Mandeville Island Farms, Inc. v. Am. Crystal Sugar Co.*, 334 U.S. 219, 235–36 (1948) (“It is clear that the agreement is the sort of combination condemned by the Act, even though the price-fixing was by *purchasers*, and the persons specially injured under the treble damage claim are sellers, not customers or consumers.”) (emphasis added) (footnotes omitted); *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 223 (1940) (“[A] combination formed for the purpose and with the effect of raising, *depressing*, fixing, pegging, or stabilizing

reducing opportunities for the distribution, legal protection, and sale or licensing of rivals' inventions are anticompetitive tactics. Antitrust law and economic research have regarded such strategies as exclusionary conduct when engaged in by a monopolist, as cartelization or conspiracy when adopted jointly by competitors desiring to regulate their industries,⁴ and as presenting a danger of distorting the market when resulting from mergers or asset purchases.⁵

Disputes have been slow to emerge regarding the denial of opportunities for intellectual property holders to license their innovations to large manufacturing or telecommunications companies. Antitrust law contains several gaps that may deter the pursuit of such claims, including a trend to deny liability in cases between competitors, deference to manufacturers who reach exclusive requirements or distribution agreements, doctrines of implied immunity, and heightened pleading standards.⁶

In most judicial opinions, government investigations, and academic work to date, the focus has been the possibility that patent

the price of a commodity in interstate or foreign commerce is illegal *per se*.”) (emphasis added). *Per se* treatment obviates the need to establish relevant markets and market power, as is often necessary in cases alleging, for example, vertical territorial restraints after *Cont'l T. V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 57–58 (1977), vertical maximum price fixing after *State Oil Co. v. Khan*, 522 U.S. 3, 22 (1997), and vertical price restraints after *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 899 (2007). “When a *per se* violation such as horizontal price fixing has occurred, there is no need to define a relevant market or to show that the defendants had power within the market.” *Solyndra Residual Tr. ex rel. Neilson v. Suntech Power Holdings Co.*, 62 F. Supp. 3d 1027, 1044 (N.D. Cal. 2014). *See, e.g.*, *FTC v. Superior Court Trial Lawyers Ass'n*, 493 U.S. 411, 435–36, 436 n.19 (1990); *GTE Sylvania*, 433 U.S. at 50; *Solyndra Residual Tr.*, 62 F. Supp. 3d at 1044 (N.D. Cal. 2014) (collecting cases).

⁴ *See* BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER, COUNCIL ECON. ADVISERS 10 (2016), http://web.archive.org/web/20170120121504/https://www.whitehouse.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf.

⁵ *See infra* notes 204–206 and accompanying text.

⁶ *See, e.g.*, *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 556–57 (2007); *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 406 (2004); *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 212, 243 (1993); *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488–89 (1977); *United States v. Nat'l Ass'n of Secs. Dealers, Inc.*, 422 U.S. 694, 694 (1975); *Gordon v. NYSE*, 422 U.S. 659, 691 (1975); *Silver v. NYSE*, 373 U.S. 341, 343, 364–65 (1963).

owners would commit antitrust violations by enjoining or seeking unfair royalties from their competitors, or by imposing large litigation costs and settlements that would chill innovation.⁷ During the 2003–2013 period, there seemed to be mounting evidence that overpatenting, royalty stacking,⁸ indefinite patent scope, capacious patent eligibility doctrines, and the cost of patent suits might inhibit competition and qualify as a “tax on innovation.”⁹ Mark Lemley and Carl Shapiro argued that patents that are potentially invalid (but only provably so at high cost or after many months) may result in royalty overcharges to potential infringers.¹⁰ Moreover, valid patents that read on products having multiple noninfringing features could present a “hold up” problem where the royalty charge reflects features and innovations outside of the patent claims.¹¹ Lemley and Dan Burk maintained in an influential book that overpatenting, ambiguous claim drafting, software patents, and the cost of examining and litigating patents had brought about a crisis that was overtaxing technology firms and their investors.¹²

This focus may have been misplaced, however, because there are both theoretical and empirical reasons to discount this threat in the contemporary environment. Since 2013 in particular, scholars and practitioners have rebalanced the scales in the “patent crisis” debate. They have argued that overreactions to trolling and the patent system’s costs actually increased administrative costs in many ways while harming small patent owners and research spending.¹³ Several studies have attempted to debunk estimates of the cost

⁷ See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2008–09 (2007) [hereinafter Lemley & Shapiro, *Patent Holdup*].

⁸ See *id.* at 2010–17.

⁹ See *id.* at 2010.

¹⁰ See *id.* at 2037–38.

¹¹ See *id.* at 2008, 2038–39.

¹² See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* 3–4 (2009).

¹³ See Adam Mossoff, *Patented Innovation and Patent Wars: Some Historical Perspective*, A SMARTER PLANET (Jan. 11, 2013), <https://cpip.gmu.edu/2013/02/23/patented-innovation-and-patent-wars-some-historical-perspective/> [hereinafter Mossoff, *Patented*] (“The patent litigation rate today is around 1.5%. As reported by award-winning economist, Zorina Khan, the average patent litigation rate between 1790 and 1860 was 1.65%.”); Adam Mossoff, *The Myth of the “Patent Troll” Litigation Explosion*, TRUTH ON THE MARKET (Aug. 12, 2013),

of patent assertion and patenting generally.¹⁴ Some of them have pointed out that several key metrics are normal by historical standards, as a percentage of the technical economy: the cost of the patent system, the number of patents, and the number of patent lawsuits filed annually.¹⁵ Practitioners and some scholars have gone further, and have argued that reforms are devastating patent owners.¹⁶ There may be reasons to refocus scholarly attention on threats from the licensee side to competition in IP markets, or at least to balance scholars' attention across the licensor and licensee sides of the equation.

In accordance with the law-and-economics understanding of the threat to competition posed by the patent system, antitrust scholars have focused on patent assertion entities (PAEs).¹⁷ Most work in the patent-antitrust interface has emphasized the antitrust liability of patent owners, not of licensees or assignees.¹⁸ However, newer work

<https://truthonthemarket.com/2013/08/12/the-myth-of-the-patent-troll-litigation-explosion/> [hereinafter Mossoff, *Patent Troll*] (“[T]here is actually less litigation today than during some decades in the early nineteenth century. Between 1840 and 1849, for instance, patent litigation rates were 3.6% — *more than twice* the patent litigation rate today.”).

¹⁴ See Mossoff, *Patented*, *supra* note 13; Mossoff, *Patent Troll*, *supra* note 13.

¹⁵ See Mossoff, *Patented*, *supra* note 13; Mossoff, *Patent Troll*, *supra* note 13.

¹⁶ See *infra* nn.376-393, 463 and accompanying text.

¹⁷ See FED. TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 50 n.2 (2011), <http://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf> [hereinafter EVOLVING IP MARKETPLACE] (“This report uses the term ‘patent assertion entity’ [PAE] . . . to refer to firms whose business model focuses on purchasing and asserting patents . . .”). PAEs and a related term, nonpracticing entities or NPEs, may include individual entrepreneurs, or formerly patent-practicing small firms. See Colleen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 326, 328–31 (2010); James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 390 (2014) [hereinafter Bessen & Meurer, *The Direct Costs from NPE Disputes*] (NPEs include “individuals and firms who own patents but do not directly use their patented technology to produce goods or services”).

¹⁸ Many articles and government reports have highlighted the antitrust liability of PAEs. See, e.g., Bruce D. Abramson, *Trolling Around the Patent-Antitrust Interface: The Roots of the NPE Challenge and the Role of Antitrust in Patent*

Reform, 59 ANTITRUST BULL. 221, 232–33 (2014) (collecting warnings issued prior to 2014 that PAEs would harm competition by increasing licensee costs); Michael A. Carrier, *Why Antitrust Should Defer to the Intellectual Property Rules of Standard-Setting Organizations: A Commentary on Teece and Sherry*, 87 MINN. L. REV. 2019, 2030 (2003) (arguing that joint efforts to reduce patent licensing rates should not trigger aggressive antitrust enforcement because patentees might hold up competition and raise producer costs); Press Release, Office of the Press Sec’y, FACT SHEET: White House Task Force on High-Tech Patent Issues, White House (June 4, 2013), <https://obamawhitehouse.archives.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues> [hereinafter White House Fact Sheet] (arguing that PAEs could harm competition and that the America Invents Act of 2011 needed to be followed up with PAE-centric reforms to stop this trend); EVOLVING IP MARKETPLACE, *supra* note 17, at 3 (exploring potentially anticompetitive uses of patents and patent aggregation practices to hold up competition and raise prices by imposing high costs); Ilene Knable Gotts & Scott Sher, *The Particular Antitrust Concerns with Patent Acquisitions*, 8 COMPETITION L. INT’L 19, 25 (2012) (arguing that NPEs can raise patent litigation costs above the value of a patent); Richard A. Posner, *Why There Are Too Many Patents in America*, ATLANTIC (July 12, 2012), <http://www.theatlantic.com/business/archive/2012/07/why-there-are-too-many-patents-in-america/259725> (too many patents may be asserted at too high a cost); ARTI RAJ ET AL., U.S. DEP’T OF COMMERCE, WHITE PAPER, PATENT REFORM: UNLEASHING INNOVATION, PROMOTING ECONOMIC GROWTH & PRODUCING HIGH-PAYING JOBS 4–6 (2010), <http://2010-2014.commerce.gov/news/fact-sheets/2010/04/20/white-paper-patent-reform-unleashing-innovation-promoting-economic-growt.html> (suggesting that patent system was posing undue costs and that reform might promote competition without reducing innovation); U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 33–36 (2007), <https://www.ftc.gov/sites/default/files/documents/reports/antitrust-enforcement-and-intellectual-property-rights-promoting-innovation-and-competition-report.s.department-justice-and-federal-trade-commission/p040101promotinginnovationandcompetitionrpt0704.pdf> [hereinafter ANTITRUST ENFORCEMENT] (concluding that when a communications or high-technology standard refers to or uses a patented method or device, antitrust concerns could arise because the patent owners(s) may win market power over the technology); *Oversight of the Impact on Competition of Exclusion Orders to Enforce Standards-Essential Patents: Hearing Before S. Comm. on the Judiciary*, 112th Cong. 7–8 (2012) (statement of Joseph F. Wayland, Acting Assistant Att’y Gen., Antitrust Div.), <https://www.justice.gov/sites/default/files/testimonies/witnesses/attachments/07/11/12//07-11-12-atr-wayland.pdf> [hereinafter Statement of Joseph F. Wayland] (discussing investigations of the acquisition of patent portfolios “focused on whether the acquiring firms would have the incentive and ability to exploit ambiguities in the commitments the sellers made to license their patents on F/RAND terms to hold up implementers of the standard in a manner that would raise rivals’ costs or foreclose competition, to the detriment of consumers.”).

by J. Gregory Sidak and other scholars has emphasized buyer rather than seller power in the patent acquisition and licensing context, with Sidak arguing that associations of potential licensors may depress and fix the price at which they may acquire or license patents, as anticompetitive “oligopsonists.”¹⁹ This may foreclose to patentees an efficient distribution system for their only or most valuable economic assets, after years of investments in improved business methods, devices, or systems. Once a patent holder has a very low chance of securing an injunction due to courts’ reading of *eBay v. MercExchange*, a buy-side oligopoly may fix licensing fees without the justification of preventing holdup.²⁰ This power to control prices

¹⁹ J. Gregory Sidak, *Patent Holdup and Oligopsonistic Collusion in Standard-Setting Organizations*, 5 J. COMPETITION L. & ECON. 123, 149–50 (2009) [hereinafter Sidak, *Patent Holdup and Oligopsonistic Collusion*]. An “oligopoly” is briefly defined as a market “where a handful of relatively large sellers control the bulk of a product’s output,” and there is “‘recognized interdependence among the leading firms: the profit-maximizing choice of price and output for one depends on the choices made by others.’” *Bailey v. Allgas, Inc.*, 284 F.3d 1237, 1245–46, 1251 (11th Cir. 2002) (quoting PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 404a (2d ed. 2002)). This dependence tends to lead to overt or tacit collusion. *See Bailey*, 284 F.3d at 1251. An “oligopsony,” similarly, is a market where a handful of relatively large buyers control competition for the pricing and terms governing the output of a product or service. *Cf.* Richard T. Rogers & Richard J. Sexton, *Assessing the Importance of Oligopsony Power in Agricultural Markets*, 76 AM. J. AGRIC. ECON. 1143, 1143 (1994) (in oligopsony, small number of buyers control competition); *see also* V. Bhaskar, Alan Manning & Ted To, *Oligopsony and Monopsonistic Competition in Labor Markets*, 16 J. ECON. PERSP. 155, 156 (2002); ULRICH SCHWALBE & DANIEL ZIMMER, *LAW AND ECONOMICS IN EUROPEAN MERGER CONTROL* 36–37 (2009) (in oligopsony, a “small group of buyers” dictates the level of demand for a good, and thereby controls or at least influences its price and terms).

²⁰ *See eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–94 (2006) (holding that patent owners may need to establish irreparable injury, that monetary relief is inadequate, and hardship, in addition to infringement, in order to obtain injunctive relief); Kirti Gupta & Jay P. Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases* 1-2, 10 fig. 4 (Univ. of Ill. Coll. of Law, Working Paper No. 17-03, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2629399 (injunctions are very rare post-*Mercexchange*, after a “dramatic” reduction in the rate at which motions for them succeed); Ryan T. Holte, *The Misinterpretation of eBay v. MercExchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677, 719, 731 (2015) (*eBay* shifted infringers’ incentives towards continuing to infringe, and provided many paths to denial of an injunction, quadrupling the rate of such denials), Sidak,

and exclude competition threatens to reduce welfare by restricting output, and transferring wealth to persons who value it less.²¹ Prior studies have also cast a critical eye on the impact that oligopsony power may have on patent owners, competition, and research and development (R&D) markets, but have not attempted to link their findings to broader economic trends.²²

Patent Holdup and Oligopsonistic Collusion, *supra* note 19, at 141 n.49 and accompanying text. In antitrust law, the buy side is the input side in which bids are placed to buy rights or things, while the sell side is the output side in which offers are made or bids are accepted to sell rights or things. *See* *Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.*, 549 U.S. 312, 320 (2007).

²¹ *See* SCHWALBE & ZIMMER, *supra* note 19, at 36–37 (oligopsony and monopsony reduce output by manipulating demand and market price, reducing welfare, and transferring rents from sellers to buyers). Although Schwalbe and Zimmer do not make the point, if the oligopsonists or monopsonists are from higher-income households, they will value each additional marginal dollar of income less than will lower-income households, and they may be more likely to hoard income and less likely to spend it than sellers from lower-income households. *See* PAUL SULTAN, *LABOR ECONOMICS* 528 (1957) (noting that in Keynesian economics, wealthy households are less likely to consume and more likely to save and invest, which reduces aggregate income by suppressing aggregate demand for goods and services); Andrew Zimbalist, *Economic Perspectives on Market Power in the Telecasting of US Team Sports*, in *THE ECONOMICS OF SPORT AND THE MEDIA* 160, 167 (Claude Jeanrenaud & Stefan Késenne eds., 2006) (wealth transfer to higher-income households may diminish overall utility); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 475 (4th ed. 1992) (explaining theory of diminishing marginal utility of income to households). This concern is part of the original understanding of antitrust law, which aims to keep income in the hands of those at the lower end of the income pyramid who are more likely to value it (and arguably to spend it). *Cf.* John B. Kirkwood & Robert H. Lande, *The Chicago School's Foundation Is Flawed: Antitrust Protects Consumers, Not Efficiency*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 89, 91–92 (Robert Pitofsky ed., 2008) (antitrust sought to distribute wealth broadly and prevent “impoverish[ment]”); Robert H. Lande, *Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged*, 34 *HASTINGS L.J.* 65, 93–96 (1982).

²² *See, e.g.*, Damien Geradin, *Reverse Hold-ups: The (Often Ignored) Risks Faced by Innovators in Standardized Areas* 2–3 (Nov. 20, 2010) (unpublished manuscript), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1711744; Richard J. Gilbert, *Deal or No Deal? Licensing Negotiations in Standard-Setting Organizations*, 77 *ANTITRUST L.J.* 855, 856 (2011); Neal E. Solomon, *The Problem of Oligopsonistic Collusion in a Weak Patent Regime* 54–56 (June 11, 2010) (unpublished manuscript), <http://ssrn.com/abstract+id=1623981>. Notably, Gilbert observed that “joint negotiation may create opportunities for potential licensees

Part I of this paper provides a brief introduction to antitrust doctrines governing restraints on distribution, essential inputs and facilities, and supplier pricing, all of which are relevant to counter-IP conspiracies. The law of exclusion from efficient distribution methods, essential facilities, or inputs could serve as the foundation of responses to conspiracies against a patent holder's sales methods. Moreover, information sharing among the potential buyers of patents or licenses threatens to destroy the only viable distribution method for some patent rights, and the most valuable distribution method for others.²³ Federal law excludes information sharing about distribution channels from the statutory mandate to treat the activities of high-technology standard-setting organizations according to the rule of reason.²⁴

Part II analyzes several litigated cases in which restraints, conspiracies, or even cartels have confronted small IP owners attempting to compete with or license larger corporations or alliances of corporations. The resulting framework provides a basis to challenge unnecessary exclusion of intellectual property owners from the most efficient channels for licensing or distributing their assets, as well as concerted activity to depress and fix licensing rates or to combine firms or assets in such a way as to create or maintain a tendency towards undue concentration in the market for licensing IP rights.

to exercise buyer market power, and suppress royalty terms ex ante, but after rights holders have made irreversible research and development investments necessary to create and patent technologies" Gilbert, *supra* note 22, at 856 (footnote omitted). Previously, Robert Skitol endorsed the possibility that concerted licensee action could reduce the holdup power of patent licensors. See Robert A. Skitol, *Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting*, 72 ANTITRUST L.J. 727, 734–35, 742 (2005).

²³ Cf. M. Howard Morse, *Standard Setting and Antitrust: The Intersection Between IP Rights and the Antitrust Laws*, IP LITIGATOR 17, 22 (May/June 2003) (noting that scholars have suggested that "firms should only negotiate individually with competing IP holders as to the terms on which they will commit to license . . . and only jointly discuss the technical issues" which require cooperation among multiple firms in setting a standard for a product or service).

²⁴ *Competition and Intellectual Property Law and Policy in the Knowledge Based Economy; Standard Setting: Hearing Before the Dep't of Justice Antitrust Div. & Fed. Trade Comm'n* 287 (2002) (statement of Daniel Swanson), https://www.ftc.gov/sites/default/files/documents/public_events/competition-ip-law-policy-knowledge-based-economy-hearings/020418trans.pdf.

As it emerges from the caselaw, the framework emphasizes the anticompetitive effects of artificially stabilizing prices, even at low price levels, and the need for sound technological or holdup-related justifications for rejecting IP licenses, tampering with the distribution of them, or raising the cost of offering/marketing them.

Part III surveys economic evidence and theoretical observations that provide ample reason for government agencies and courts to be just as concerned, if not more so, about efforts to inhibit patent alienability and licensing as about efforts to assert too many patents, or to assert them in too costly a manner. It begins with empirical trends indicating a severe decline in the value of patent licenses, except when asserted by participants in patent aggregation efforts and standard-setting organizations, such as Microsoft.²⁵ The number of entrepreneurs and counts of public companies reflect a concentration of economic power in incumbents at the expense of start-ups.²⁶ This Part turns to arguments that overt cooperation by patent licensees is necessary to reduce or eliminate holdup power on the part of patentees, and surveys evidence that this power is overstated. It concludes with an analysis of the theoretical macroeconomic case against buy-side cartels, conspiracies, and information sharing. As in traditional bid-rigging, oligopsony, and monopsony cases, there is a risk of losing many opportunities to monetize—at competitive rates—inventive labor and the fruits of large investments in equipment and know-how.²⁷

²⁵ Microsoft, along with other companies including Intel, Nokia, Sony, and Google, reportedly invested about \$5.5 billion in Intellectual Ventures, an aggregator of 30,000 patents by 2012 founded by two former Microsoft executives. *See* CAPERS JONES, *THE TECHNICAL AND SOCIAL HISTORY OF SOFTWARE ENGINEERING* 268 (2014). Microsoft's royalties on the Android operating system rose from a reported \$500 million per year in 2012 to a reported \$2 billion per year in 2014. *See* TRICHY VENKATARAMAN KRISHNAMURTHY & RAJANEESH SHETTY, 4G: DEPLOYMENT STRATEGIES AND OPERATIONAL IMPLICATIONS 70 (2014); MIKE W. PENG, *GLOBAL BUSINESS* 440 (3d ed. 2013).

²⁶ *Too Much of a Good Thing*, *ECONOMIST* (Mar. 26, 2016), <http://www.economist.com/news/briefing/21695385-profits-are-too-high-america-needs-giant-do-se-competition-too-much-good-thing>.

²⁷ Bid-rigging, collusion, market allocation, and price-fixing establish cartels, which are the prime targets of antitrust enforcement because they distort the price mechanism and amount to unfair competition. *See* BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER, *COUNCIL ECON. ADVISERS* 10 (2016),

I. ANTITRUST DOCTRINES FOR INTELLECTUAL PROPERTY CONSPIRACIES

Section 1 of the Sherman Act bars contracts, combinations, and conspiracies in restraint of trade, but not all such restraints, only ones that have more anticompetitive than procompetitive effects.²⁸ Section 2 prohibits monopolization and conspiracies and attempts to monopolize, but once again, courts allow entities manipulating prices or winning a high market share to show justifications for doing so.²⁹ Section 3 of the Clayton Act appears to restrict exclusive deals in the distribution of goods, but it has been construed to have similar exclusions or safe harbors as section 1 of the Sherman Act.³⁰ Section 7 prohibits mergers or asset purchases that create a dangerous tendency towards concentration in the relevant market, and particularly those that eliminate or cripple vigorous competitors in already concentrated markets.³¹

The notion of a “trust” for purposes of antitrust law had an original meaning that covered a combination or conspiracy to suppress the amounts paid to small producers for the inputs or supplies needed by large manufacturing concerns or service-sector firms. One of the trusts against which the law was aimed was the Sugar Trust, of which it was said: “Being practically the only buyer it is able to crowd down the price of raw sugar.”³² The first decision of the Supreme Court interpreting the Act involved a key participant in the Sugar Trust, the American Sugar Refining Company.³³ Another early decision condemned, along with a variety of other conduct, the

http://web.archive.org/web/20170120121504/https://www.whitehouse.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf.

²⁸ See 15 U.S.C. § 1 (2012); *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500–01 (1988); *Bd. of Trade of Chi. v. United States*, 246 U.S. 231, 238 (1918).

²⁹ See 15 U.S.C. § 2 (2012); *United States v. Microsoft Corp.*, 253 F.3d 34, 66–67 (D.C. Cir. 2001) (en banc) (per curiam).

³⁰ See 15 U.S.C. § 14 (2012).

³¹ See 15 U.S.C. § 18 (2012); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 713 (D.C. Cir. 2001); *FTC v. Tenet Health Care Corp.*, 186 F.3d 1045, 1053 (8th Cir. 1999); *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 65–66 (D.D.C. 2015); *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1082–83 (D.D.C. 1997).

³² *Boston Journal (Rep.)*, April 8, in 13 PUBLIC OPINION 29 (1893).

³³ See *United States v. E.C. Knight Co.*, 156 U.S. 1, 16–18 (1895) (applying narrow construction of the Sherman Act to cover only commerce and not manufacturing).

strategy of the American Tobacco Trust to seize control over the “elements essential to the successful manufacture of tobacco.”³⁴

A. Denial of Access to Essential Inputs or Facilities

Among the first targets of antitrust law in the United States was the tactic of excluding competitors from essential infrastructure or sources of raw materials.³⁵ The infamous Standard Oil Trust perpetuated its dominance by obtaining favorable terms from the railroads, which made independent oil production and distribution by smaller producers unprofitable.³⁶ Joint efforts to win control of raw tobacco for the cigarette and cigar trade violated the Sherman Act for similar reasons.³⁷ Similarly, refusing to deal with competitors on the same terms as other customers in order to preserve monopoly power violated the Sherman Act according to *Otter Tail Power Co. v. United States*.³⁸ Joint action to exclude competitors from essential infrastructure became a prime target of antitrust doctrine with the *Terminal Railroad Association of St. Louis* case, involving railroad bridges across the Mississippi River.³⁹ The Supreme Court condemned a strategy of exclusion from communications media by a firm attempting to monopolize a local market in *Lorain Journal Co. v. United States*.⁴⁰ Such cases are often cited for a more refined rule of this sort: “a monopolist who controls an essential facility—meaning one that cannot reasonably be duplicated and to which competitors require access if they are to be able to compete—[is obliged] to make the facility available to competitors on non-discriminatory terms.”⁴¹

More recently, the rule against monopoly leveraging has joined the one against exclusion from essential facilities. Monopoly leveraging is a doctrine that U.S. courts have repeatedly endorsed, either

³⁴ *United States v. Am. Tobacco Co.*, 221 U.S. 106, 183 (1911).

³⁵ *Standard Oil Co. of N.J. v. United States*, 221 U.S. 1, 30–32 (1911).

³⁶ *See id.*

³⁷ *See Am. Tobacco Co. v. United States*, 328 U.S. 781, 798, 800–01 (1946).

³⁸ 410 U.S. 366, 377 (1973).

³⁹ *See United States v. Terminal R.R. Ass’n of St. Louis*, 224 U.S. 383, 397–98, 409 (1912).

⁴⁰ 342 U.S. 143, 149–51 (1951).

⁴¹ *Illinois ex rel. Hartigan v. Panhandle E. Pipe Line Co.*, 730 F. Supp. 826, 926 (C.D. Ill. 1990), *aff’d sub nom. Illinois ex rel. Burriss v. Panhandle E. Pipe Line Co.*, 935 F.2d 1469 (7th Cir. 1991).

in dicta or in one of a series of holdings.⁴² The Supreme Court has suggested that it may have merit under the relatively rare circumstances in which (1) a firm acts in an anticompetitive way to a degree that reflects “malice,” and (2) these acts create a dangerous probability of expanding monopoly power in one market into a second one.⁴³ Either normal competitive or non-malicious anticompetitive conduct, or conduct that is both abnormal and malicious but that does not come close to creating a second monopoly position, may not be unlawful.⁴⁴ Market or monopoly power is a concept that does not require that all competitors withdraw or be relegated to an ineffective fringe, because it may be inferred from evidence concerning the actual power to raise prices or crush rivals, even without clear proof of a dominant market share.⁴⁵ Monopoly power for purposes of section 2 of the Sherman Act is a higher bar than market power

⁴² See, e.g., *United States v. Griffith*, 334 U.S. 100, 107 (1948) (“The anti-trust laws are as much violated by the prevention of competition as by its destruction. It follows *a fortiori* that the use of monopoly power, however lawfully acquired, to foreclose competition, to gain a competitive advantage, or to destroy a competitor, is unlawful.”) (citing *United States v. Aluminum Co. of America*, 148 F.2d 416, 429 (2d Cir. 1945)); *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 298–99 (2d Cir. 1979) (holding that Kodak might be liable at trial for leveraging monopoly power obtained pre-1969 in order to increase color photo paper prices thereafter); *id.* at 275 (“It is clear that a firm may not employ its market position as a lever to create—or attempt to create—a monopoly in another market.”) (citing *Griffith*, 334 U.S. at 107); *Kerasotes Mich. Theaters, Inc. v. Nat’l Amusements, Inc.*, 854 F.2d 135, 137 (6th Cir. 1988) (holding that leveraging is actionable: “The sole purpose for such an agreement is to extend a business’ dominance from one market into a second market, without having to achieve that dominance in the second market by developing a superior product or as the result of other legitimate competitive advantages.”).

⁴³ See *Verizon Commc’ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409, 415 n.4 (2004) (citing *Spectrum Sports, Inc. v. McQuillan*, 506 U.S. 447, 459 (1993)).

⁴⁴ See *Trinko*, 540 U.S. at 409.

⁴⁵ See *Geneva Pharm. Tech. Corp. v. Barr Labs. Inc.*, 386 F.3d 485, 500 (2d Cir. 2004) (market power may be shown with “evidence of control over prices or the exclusion of competition”) (citing *Tops Mkts., Inc. v. Quality Mkts., Inc.*, 142 F.3d 90, 98 (2d Cir. 1998)); *United States v. Microsoft Corp.*, 253 F.3d 34, 51 (D.C. Cir. 2001) (en banc) (per curiam) (market power shown where defendant “in fact profitably” hiked prices over competitive level); *Re/Max Int’l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1018 (6th Cir. 1999) (market power finding may be based on “direct evidence that the defendant has actually set prices or excluded competition”).

for tying or other claims under section 1 but it is not clear how much higher.⁴⁶

In the European Union, practices that deny competitors “access to the market” are also suspect, and unlawful when implemented by a firm that dominates its market.⁴⁷ Like section 2 of the Sherman Anti-trust Act of 1890, Article 102 of the Treaty on the Functioning of the European Union (TFEU) renders unlawful “[a]ny abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it,” if it distorts trade in Europe or “may affect trade between [E.U.] Member States.”⁴⁸ A consumer’s dependence on a single producer, to the exclusion of other comparable producers, is contrary to the proper functioning of the European market, and the freedom of European trade.⁴⁹ An E.U. case that arguably illustrates this principle is the *Microsoft Commission Decision*, in which the exclusion of competitors from media player and server markets related to the dominant Microsoft Windows operating system warranted condemnation as being incompatible with the TFEU.⁵⁰ In part, it is the power to operate independently of the market and of consumer demand that is the problem.⁵¹

⁴⁶ See, e.g., *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 481 (1992); cf. *New York ex rel. Schneiderman v. Actavis PLC*, 787 F.3d 638, 656 (2d Cir. 2015) (“For there to be an antitrust violation, [competitors] need not be barred ‘from all means of distribution’ if they are ‘bar[red] . . . from the cost-efficient ones.’”) (quoting *Microsoft*, 253 F.3d at 64); see also *United States v. Dentsply Int’l, Inc.*, 399 F.3d 181, 191 (3d Cir. 2005) (“The test is not total foreclosure, but whether the challenged practices bar a substantial number of rivals or severely restrict the market’s ambit.”) (citing *LePage’s Inc. v. 3M*, 324 F.3d 141, 159–60 (3d Cir. 2003) (en banc); see also *Microsoft*, 253 F.3d at 69.

⁴⁷ Case 85/76, *Hoffmann-La Roche & Co. AG v. Comm’n*, 1979 E.C.R. 461, para. 91.

⁴⁸ Consolidated Version of the Treaty on the Functioning of the European Union art. 102, Oct. 26, 2012, 2012 O.J. (C 326) 47, 89.

⁴⁹ Cf. Case T-83/91, *Tetra Pak Int’l SA v. Comm’n*, 1994 E.C.R. II-755, para. 135.

⁵⁰ 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, 887–88 (2009).

⁵¹ See James Calder et al., *Supplement to the 2003 Milton Handler Annual Antitrust Review Proceedings*, 2004 COLUM. BUS. L. REV. 379, 382–83, 383 n.9 (2004) (quoting Case 322/81, *Nederlandsche Banden Industrie Michelin NV v. Comm’n*, 1983 E.C.R. 3461, 3503).

Monopoly leveraging and abuse of dominance are concepts with potential application to conspiracies against intellectual-property owners. Consider the plight of websites and mobile web applications in a world in which one dominant corporation—say, AT&T WorldNet—had a monopoly on broadband Internet access.⁵² Attempts to license the patents and copyrights on new business methods, communications technologies, and content services would be deterred or deflected by AT&T's attempts to leverage its access monopoly into numerous content and application monopolies. It might, in the words of one court, “employ its market position as a lever to create—or attempt to create—a monopoly in another market.”⁵³ In European terms, this would be an abuse of a dominant position, or an attempt at making access to one market or resource—Internet access—conditional on a supplementary obligation to obtain or utilize another product or resource—AT&T's applications and content.⁵⁴ The strengthening of AT&T's position and the weakening of upstart content or applications providers would harm consumers by reducing choice and threatening the chances for long-term price declines in Internet services as a result of robust competition with AT&T.⁵⁵ It would be analogous to Microsoft having the dominant computer operating system and denying consumers the option of using non-Microsoft media players, which is unlawful according to the European courts.⁵⁶ In the words of the European Commission, AT&T or Microsoft would “artificially reduce[] the incentives of . . . other

⁵² Cf. Matt Hamblen, *Hundt: Local Telcos Are Holding Up Internet Growth*, COMPUTERWORLD, Sept. 1, 1997, at 12 (describing how Federal Communications Commission was “blasting local telephone and data service monopolies” at a time when “AT&T runs the largest Internet service provider, WorldNet, and has joined other long-distance carriers” in wanting to expand into more local data markets); Denise Pappalardo, *AT&T Gets Bigger, Better Internet Services with TCG*, NETWORK WORLD, Jan. 26, 1998, at 29 (describing how AT&T WorldNet was securing control of Internet “from its Internet backbone all the way to the customer premises,” by buying 57 local telecommunications networks).

⁵³ *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263, 275 (1979).

⁵⁴ See Case T-203/01, *Manufacture Française des Pneumatiques Michelin v. Comm'n*, 2003 O.J. (C 304) 24; Case 85/76, *Hoffmann-La Roche & Co. AG v. Comm'n*, 1979 E.C.R. 461, 467–68.

⁵⁵ See Case C-280/08, *Deutsche Telekom AG v. Comm'n*, 2010 E.C.R. I-9555, para. 182.

⁵⁶ See Case T-201/04, *Microsoft Corp. v. Comm'n*, 2007 E.C.R. II-3601, 3636, 3817 (Ct. First Instance).

media companies, as well software developers and content providers to develop their offerings⁵⁷ To paraphrase the way that the Federal Trade Commission has expressed its concern about the role of patent owners in standard-setting, potential licensees may perpetrate monopolization, attempted monopolization, and an unfair method of competition when they impact the terms and conditions on which patent owners are able to license their rights.⁵⁸

B. Degrading the Efficiency or Reach of Competitors' Distribution and Marketing

The Clayton Act's section 3 introduced a strict prohibition on exclusive dealing, deals which lock competitors out of a valuable portion of the market and preclude them from fulfilling consumer demand.⁵⁹ In 1949, the Supreme Court held that Congress had intended the Clayton Act as a clear rule against exclusive dealing that limited competition "in a substantial share of the line of commerce affected."⁶⁰ A fact-specific inquiry into the impact of the exclusivity on the marketplace was not necessary, even though it is familiar from Sherman Act section 1 jurisprudence, and to a lesser extent from section 2 case law.⁶¹

Over the past four decades or so, courts have taken the law on exclusion from beneficial distribution or marketing opportunities in a different direction. The trend in some respects goes back to 1961, when the Supreme Court stepped away from the strict rule of the Clayton Act's section 3 ban on exclusive dealing in a substantial share of the market, but picked up steam after 1975.⁶² In 1961, the

⁵⁷ European Commission Press Release IP/04/382, *Commission Concludes on Microsoft Investigation, Imposes Conduct Remedies and a Fine* (Mar. 24, 2004), http://europa.eu/rapid/press-release_IP-04-382_en.htm.

⁵⁸ See Press Release, Fed. Trade Comm'n, *FTC Charges Qualcomm with Monopolizing Key Semiconductor Device Used in Cell Phones* (Jan. 17, 2017), <https://www.ftc.gov/news-events/press-releases/2017/01/ftc-charges-qualcomm-monopolizing-key-semiconductor-device-used>.

⁵⁹ See 15 U.S.C. § 14 (2012); see also A. Douglas Melamed, *Exclusive Dealing Arrangements and Other Exclusionary Conduct—Are There Unifying Principles?*, 73 ANTITRUST L.J. 375, 375 (2006) ("Exclusive dealing agreements are agreements in which one party promises to deal exclusively with another and, thus, not to deal with competitors of the other.").

⁶⁰ *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293, 313–14 (1949).

⁶¹ See *id.* at 311–13.

⁶² *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 325–27 (1961).

Court returned the law of contracts restrictive of “effective competition” to the familiar section 1 analysis that would weigh the probable negative impact on competition against other factors such as the size and weakness of the parties to the contract, the extent of commerce affected, and the benefits to competition.⁶³ It thereby became the law that whether a claim is brought under section 3 of the Clayton Act or section 1 of the Sherman Act, the same “rule of reason” analysis is applicable.⁶⁴ Many exclusive dealing complaints have suffered dismissal since 1984 on the basis that the deals’ effects were insignificant.⁶⁵

⁶³ See *id.* at 329.

⁶⁴ See *Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 44–46 (1984) (O’Connor, J., concurring), *abrogated by* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006); *United States v. Dairymen, Inc.*, No. C 7634 A, 1983 WL 1880, at *7–8 (W.D. Ky. June 9, 1983), *aff’d per curiam*, 758 F.2d 654 (6th Cir. 1985) (unpublished table decision).

⁶⁵ See, e.g., *United States v. Microsoft Corp.*, 253 F.3d 34, 69–70 (D.C. Cir. 2001) (en banc) (per curiam) (collecting cases dismissing section 1 claims because extent of degradation of competition was insufficient, and noting that “exclusive contracts . . . may give rise to a [section] 2 violation even though the contracts foreclose less than roughly 40% or 50% share usually required in order to establish a [section] 1 violation”); *Minn. Ass’n of Nurse Anesthetists v. Unity Hosp.*, 208 F.3d 655, 660, 662 (8th Cir. 2000) (hospital’s exclusive dealing was lawful where it facilitated better care); *Concord Boat Corp. v. Brunswick Corp.*, 207 F.3d 1039, 1059–60 (8th Cir. 2000) (volume rebates that operated as quasi-exclusive deals were lawful where they did not prevent new entry by competitors into market); *Balaklaw v. Lovell*, 14 F.3d 793, 799 (2d Cir. 1994) (hospital’s exclusive deal was not unlawful where it promoted efficient delivery of care, and duration was limited); *U.S. Healthcare, Inc. v. Healthsource, Inc.*, 986 F.2d 589, 596 (1st Cir. 1993) (exclusive dealing for one year or less tends to be lawful because terms may be renegotiated in relatively short period of time, leaving no significantly negative impact on competitive process); *Ryko Mfg. Co. v. Eden Servs.*, 823 F.2d 1215, 1234–35 (8th Cir. 1987) (exclusive dealing not actionable because restraining parties’ sales were not “substantial”); *R. J. Reynolds Tobacco Co. v. Philip Morris Inc.*, 199 F. Supp. 2d 362, 389–90, 397 (M.D.N.C. 2002) (granting summary judgment against section 1 claim where plaintiff enjoyed success and obtained alternative distribution opportunities after defendant allegedly excluded it from 34% of retail shelf space), *aff’d*, 67 F. App’x. 810 (4th Cir. 2003); *Louisa Coca-Cola Bottling Co. v. Pepsi-Cola Metro. Bottling Co., Inc.*, 94 F. Supp. 2d 804, 814, 817 (E.D. Ky. 1999) (granting summary judgment and stating: “There is probably no question that Pepsi’s promotions influence retailers to give more space to Pepsi products. When Pepsi gets more space, others will obviously get less. There is no evidence, however, that Pepsi can control the retailers’ decisions or has the power to exclude its rivals’ products outright.”).

In 1977, the Court endorsed an economic analysis of exclusive distributorships and other moves by a manufacturer with market power to extend that power into the distribution or retail level.⁶⁶ Its theory was that of some scholars of law and economics, i.e. that a manufacturer protection against from market power enjoyed by its customers, which may reduce *their* sales in order to increase prices and maximize revenue at the distribution level while harming revenue and profits at the manufacturing level.⁶⁷ Following that decision, the courts have increasingly dismissed cases brought by terminated distributors and also by retailers even prior to discovery, calling them “run-of-the-mill” disputes where the former distributor manufacturer is “protecting” itself.⁶⁸ Thus, it is said that exclusive distribution restraints are “presumptively legal,”⁶⁹ because “any commercial agreement[] restrains trade.”⁷⁰ A window for such claims to be brought exists, for example, when the presumption is rebutted by showing that a producer with monopoly power in one market—say, a drug—attempts to “deter entry” in the market for one of the raw materials that make up its product, and to shrink the market share of competitive materials firms.⁷¹ Competitors collusively starved of access to a market can therefore bring suit under

⁶⁶ See *Cont'l T. V., Inc. v. GTE Sylvania Inc.*, 433 U.S. 36, 54–58 (1977).

⁶⁷ See *id.* at 56 n.24.

⁶⁸ *E & L Consulting, Ltd. v. Doman Indus. Ltd.*, 472 F.3d 23, 31 (2d Cir. 2006) (quoting *Elecs. Commc'ns Corp. v. Toshiba Am. Consumer Prods., Inc.*, 129 F.3d 240, 245 (2d Cir. 1997)).

⁶⁹ *E & L*, 472 F.3d at 30 (quoting *Elecs. Commc'ns Corp.*, 129 F.3d at 245).

⁷⁰ *Id.* at 29 (citing *Chic. Bd. of Trade v. United States*, 246 U.S. 231, 238 (1918)).

⁷¹ *Id.* at 30–31 (citing *Geneva Pharms. Tech. Corp. v. Barr Labs. Inc.*, 386 F.3d 485, 492–93, 508 n.4 (2d Cir. 2004)); see also *United States v. Dentsply Int'l, Inc.*, 399 F.3d 181, 194, 196–97 (3d Cir. 2005) (exclusive dealing in dental supply market amounted to monopolization where justification for excluding competitors was pretextual and exclusion “limits the choices of products”). The collusion here would be vertical, between the entity possessing market power and its distributor or retailer customers.

the Sherman Act.⁷² Another window may exist when entities conspire to create joint distribution ventures that inhibit competition.⁷³ However, there is an argument that collusive licensing arrangements and concerted refusals to buy or license patents are reasonable by analogy to exclusive distributorships, as vertical arrangements rather than horizontal cartels.⁷⁴

Restraints on competitors' distribution and marketing have attracted more condemnation when imposed by a monopolist on retailers or competitors that find it difficult to do without a dominant firm's product.⁷⁵ Evidence of alternative distribution or marketing opportunities and even that the "victims" of quasi-exclusive contracts thrived despite them, failed to spare monopolists from judgments characterizing their contracts as exclusionary conduct under section 2 of the Sherman Act.⁷⁶ Moreover, the dominant firm can serve as the center of a hub-and-spoke conspiracy to fix prices under

⁷² See *Golden Bridge Tech., Inc. v. Nokia, Inc.*, 416 F. Supp. 2d 525, 530 (E.D. Tex. 2006); *Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 185, 190 (D. Conn. 2001); cf. *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492, 500–01 (1988) (it is not a per se antitrust violation to adopt an industry standard that excludes plaintiff's product if the standard-setting process is not "biased by members with economic interests in stifling product competition").

⁷³ See *Starr v. Sony BMG Music Entm't*, 592 F.3d 314, 318–19 (2d Cir. 2010) (joint ventures that restricted price- and usage-related terms of digital music downloads market versus other options on market); *Laumann v. NHL*, 56 F. Supp. 3d 280, 288, 297–99 (S.D.N.Y. 2014) (joint venture that restricted broadcasting of in-market home-territory hockey games, as well as Internet streaming of such games).

⁷⁴ See Justin R. Orr, *Patent Aggregation: Models, Harms, and the Limited Role of Antitrust*, 28 BERKELEY TECH. L.J. 525, 560–61 (2013).

⁷⁵ See, e.g., *LePage's Inc. v. 3M*, 324 F.3d 141, 158 (3d Cir. 2003) (en banc).

⁷⁶ See *id.* at 159–62, 169 (bundled rebates offered by transparent tape manufacturer to important retailers were exclusionary and violated section 2 even though they did not violate section 1, and even if plaintiff thrived in some ways); *Conwood Co., L.P., v. U.S. Tobacco Co.*, 290 F.3d 768, 781–82, 787 n.4 (6th Cir. 2002) (exclusive and quasi-exclusive distribution and promotion agreements between moist snuff tobacco manufacturer and important retailers were exclusionary conduct even if their "victim" thrived during the relevant period); *Chiropractic Coop. Ass'n of Mich. v. AMA*, 867 F.2d 270, 273, 275–76 (6th Cir. 1989) (bylaws of medical provider associations discouraging referral of or cooperation with chiropractors could violate rule of reason as conspiracy even if plaintiffs' "incomes increased over the course of time" since they "may have earned much more" if AMA had not conspired against them).

section 1, as alleged in the case of Apple and e-book publishers using the iBookstore platform, and the case of Uber and the drivers using its mobile app to set the prices charged to Uber passengers.⁷⁷ Courts have suggested that where the victims of quasi-exclusive deals or arrangements reject a solution that would permit them to continue to take advantage of a competitor's facilities or advantages, their choice to do so may vitiate their claim.⁷⁸

⁷⁷ See *United States v. Apple, Inc.*, 791 F.3d 290, 313–14, 322, 331 (2d Cir. 2015); *Meyer v. Kalanick*, 174 F. Supp. 3d 817, 820, 824 (S.D.N.Y. 2016); *United States v. Am. Express Co.*, 21 F. Supp. 3d 187, 190, 197 (E.D.N.Y. 2014) (conspiracy between American Express and retailers to effect that retailers would not suggest Discover Card, MasterCard, or Visa to consumers was actionable because plaintiff provided evidence of actual suppression of credit card brand competition). *But see* *Bookhouse of Stuyvesant Plaza, Inc. v. Amazon.com, Inc.*, 985 F. Supp. 2d 612, 616–18, 622–23 (S.D.N.Y. 2013) (conspiracy between e-book publishers and Amazon.com not to make Kindle-compatible e-books available to independent bookstores not actionable under section 1); *In re Apple iPod iTunes Antitrust Litig.*, 796 F. Supp. 2d 1137, 1140, 1145 (N.D. Cal. 2011) (*Trinko* undermined claim based on collusion between Apple and sellers of digital music on iTunes, where files were allegedly incompatible by design with non-Apple music players) (citing *Verizon Commc'ns Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 411 (2004)).

⁷⁸ See *Union Cosmetic Castle, Inc. v. Amorepacific Cosmetics USA, Inc.*, 454 F. Supp. 2d 62, 71 (E.D.N.Y. 2006) (no antitrust injury where “choice to reject” opportunity to deal with defendant on some terms was “intervening cause”); *R. J. Reynolds Tobacco Co. v. Philip Morris Inc.*, 199 F. Supp. 2d 362, 386 (M.D.N.C. 2002) (cigarette company did not have antitrust claim where it could have sought promotional arrangements of its own with retailers just as dominant company did), *aff'd per curiam*, 67 F. App'x 810 (4th Cir. 2003); *In re Beer Antitrust Litig.*, No. C-97-20644-JF, 2002 WL 1285320, *5, *7 (N.D. Cal. Apr. 3, 2002) (no attempted monopolization where barriers to entry were low and numerous competitors in fact entered market, and court dismissed claim for per se illegal boycott where plaintiff did not lose access to essential facility, market, or source of supply); *Frito-Lay, Inc. v. Bachman Co.*, 659 F. Supp. 1129, 1134–35 (S.D.N.Y. 1986) (salty snack company did not have antitrust claim where it could have sought promotional arrangements with retailers just as dominant snack company did); *Beverage Mgmt., Inc. v. Coca-Cola Bottling Corp.*, 653 F. Supp. 1144, 1146–47, 1153 (S.D. Ohio 1986) (soda pop company did not have antitrust claim where it could have sought promotional arrangements with Kroger as Coca-Cola did). *But see* *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 599, 607–08 (1985) (ski resort formerly enjoying multi-resort ticketing arrangement with dominant firm did not have to accept adverse terms and conditions offered by dominant firm or risk losing its antitrust claim for refusing to deal on previously profitable terms).

C. *Disparaging Competitors or Competitive Offerings*

A number of cases have looked to evidence that a monopolist deceived consumers common to both it and a competitor, in order to deny the competitor fair or normal access to the marketplace.⁷⁹ For example, in *Microsoft*, the deception involved whether using development tools designed for a monopoly computer operating system would produce cross-platform software; this was exclusionary conduct because the other platforms would suffer from a dearth of applications brought about by the deception.⁸⁰ In another case, the deception involved sales figures that persuaded retailers to stock store shelves with excessive supplies of a monopolist's product, leading to out-of-stocks or unavailability of a competitor's product.⁸¹

In response to this line of cases, it is often pointed out that “[e]ven an act of pure malice by one business competitor against another does not, without more, state a claim under the federal antitrust laws.”⁸² In *Microsoft* and *Conwood*, the “more” was the combination of monopoly power and other exclusionary conduct that impaired the distribution of competitive products, resulting in harm to the competitive process and not simply to one or more competitors.⁸³ In cases not involving monopoly power, the “more” has been joint activity to disparage a competitive product or service, such as calling it “dangerous.”⁸⁴ Thus, “the Sherman Act does not convert all harsh commercial actions into antitrust violations,” but it does convert some deceptive or unfair commercial actions into antitrust claims.⁸⁵

Many recent cases have accepted an analogy between *Microsoft* and instances where a patent holder deceives a standard setting organization (SSO) into incorporating a patented technology into a technical standard, locking in competitors who need compatibility

⁷⁹ See *United States v. Microsoft Corp.*, 253 F.3d 34, 76–77 (D.C. Cir. 2001) (en banc) (per curiam).

⁸⁰ See *id.*

⁸¹ See *Conwood*, 290 F.3d at 776–77, 779.

⁸² *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 225 (1993).

⁸³ See *Microsoft*, 253 F.3d at 56–58, 76–77; *Conwood*, 290 F.3d at 784–85.

⁸⁴ *Chiropractic Coop. Ass’n of Mich. v. AMA*, 867 F.2d 270, 274, 276 (6th Cir. 1989).

⁸⁵ *Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1354 (Fed. Cir. 1999). See *supra* notes 73, 75–76, 78–79 and accompanying text.

with the standard into a “holdup” situation.⁸⁶ However, one notable case rejected the analogy, distinguishing between the deceptive evasion of limits on the lawful patent monopoly that competitors desire to use the SSO to impose, and deception that does not rely upon a lawful statutory monopoly in order for its implementation (i.e. the Microsoft-developer scenario).⁸⁷

D. *Controlling and Shaping Competitive Opportunities to Competitors’ Detriment*

The “monopsony theory” is that a buyer has successfully schemed to control the price that it will pay for its inputs or supplies by deterring supplier entry or refusing to buy from or sell to some suppliers.⁸⁸ “In a monopsony, the buyers have market power to decrease market demand for a product and thereby lower prices.”⁸⁹ In other words, “colluding purchasers can depress the price below the optimal price that would obtain if usual market forces of supply and demand were at work.”⁹⁰ The monopsony theory is that a healthcare antitrust defendant, for example, “engaged in a conspiracy to drive down the cost of healthcare for the purpose of driving plaintiff out of the market.”⁹¹ Thus, traditional antitrust doctrine posits that con-

⁸⁶ See *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297, 310–12 (3d Cir. 2007); *Apple Inc. v. Samsung Elecs. Co., Ltd.*, No. 11-CV-01846, 2012 WL 1672493, at *6 (N.D. Cal. May 14, 2012); *Apple Inc. v. Samsung Elecs. Co., Ltd.*, No. 11-CV-01846-LHK, 2011 WL 4948567, at *2–4 (N.D. Cal. Oct. 18, 2011); *Apple, Inc. v. Motorola Mobility, Inc.*, No. 11-cv-178-bbc, 2011 WL 7324582, at *12–13 (W.D. Wis. June 7, 2011); *Research in Motion Ltd. v. Motorola, Inc.*, 644 F. Supp. 2d 788, 794–96 (N.D. Tex. 2008); *Hynix Semiconductor Inc. v. Rambus Inc.*, 527 F. Supp. 2d 1084, 1098 (N.D. Cal. 2007).

⁸⁷ *Rambus Inc. v. FTC*, 522 F.3d 456, 466 (D.C. Cir. 2008) (noting that “an otherwise lawful monopolist’s end-run around price constraints, even when deceptive or fraudulent, does not alone present a harm to competition in the monopolized market.”) (discussing *NYNEX Corp. v. Discon, Inc.*, 525 U.S. 128 (1998), and rejecting *Broadcom* as inconsistent with it).

⁸⁸ See e.g., *Kamine/Besicorp Allegany L.P. v. Rochester Gas & Elec. Corp.*, 908 F. Supp. 1180, 1193 (W.D.N.Y. 1995).

⁸⁹ *Campfield v. State Farm Mut. Auto. Ins. Co.*, 532 F.3d 1111, 1118 (10th Cir. 2008) (citing HERBERT HOVENKAMP, ANTITRUST 3 (3d ed. 1999)).

⁹⁰ *Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 185 (D. Conn. 2001).

⁹¹ *Bristow Endeavor Healthcare, LLC v. Blue Cross & Blue Shield Ass’n*, No. 16-CV-0057-CVE-PJC, 2016 WL 3199520, at *8 (N.D. Okla. June 8, 2016),

spiracies to buy something for less money—or not at all—are actionable, just as conspiracies to sell something for more—or to sell smaller quantities.⁹² The Supreme Court seemed to reiterate this doctrine when it stated that the “close theoretical connection between monopoly and monopsony” meant that “similar legal standards should apply” across the two theories.⁹³

appeal docketed, No. 16-5149 (10th Cir. Sept. 22, 2016); *see e.g.*, *United States v. Aetna Inc.*, No. 3-99 CV 1398-H, 1999 WL 1419046, at *11 (N.D. Tex. Dec. 7, 1999) (United States alleged that health insurance merger could harm physicians by increasing market share of health maintenance organizations); *see also*, Competitive Impact Statement at 8, *United States v. UnitedHealth Grp. Inc.*, No. 1:05CV02436, 2006 WL 2304463 (D.D.C. Mar. 3, 2006) (detailing allegations that health insurance companies’ merger could result in depressed reimbursement rates for medical services).

⁹² *See Mandeville Island Farms, Inc. v. Am. Crystal Sugar Co.*, 334 U.S. 219, 235–36 (1948) (agreement by producers group to pay less to suppliers of raw material violated Sherman Act, even though the sellers rather than the buyers were injured as a result); *Am. Tobacco Co. v. United States*, 328 U.S. 781, 801–02 (1946) (agreement among tobacco product manufacturers to manipulate price paid for raw tobacco was part of conspiracy to monopolize); *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 223–24 (1940) (conspiracy to keep oil prices from going either too high or too low was unlawful, because all schemes to fix prices are unlawful and any interference with price mechanism is suspect); *Confederated Tribes of Siletz Indians of Or. v. Weyerhaeuser Co.*, 411 F.3d 1030, 1036 (9th Cir. 2005) (“Both sides of the market affect allocative efficiency, and hence consumer welfare. Antitrust laws are thus concerned with competition on the buy-side of the market as much as on the sell-side of the market.”) (citations omitted), *vacated sub nom. Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., Inc.*, 549 U.S. 312, 317–18 (2007); *Reid Bros. Logging Co. v. Ketchikan Pulp Co.*, 699 F.2d 1292, 1295, 1298 (9th Cir. 1983) (buyers’ agreement not to pay market price for input needed to make pulp from logs found unlawful); *Nat’l Macaroni Mfrs. Ass’n v. FTC*, 345 F.2d 421, 427 (7th Cir. 1965) (buyers’ agreement to reduce consumption of an input in order to suppress its price could violate Sherman Act); *Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 187 (D. Conn. 2001) (“[c]oncerted refusals to buy are no less a violation of the antitrust law than concerted refusals to sell”) (quoting *Jones Knitting Corp. v. Morgan*, 244 F. Supp. 235, 238 (E.D. Pa. 1965), *aff’d in relevant part*, 361 F.2d 451 (3d Cir. 1966)); *Gould v. Control Laser Corp.*, 462 F. Supp. 685, 691–92 (M.D. Fla. 1978) (holding that agreement among potential patent infringers not to license plaintiff’s patent “unquestionably restrained the freedom of each group member to act as an individual producer in the laser market, free to contract or not contract with whom it chooses” and could have unjustifiably negative “competitive consequences”), *aff’d*, 650 F.2d 617 (5th Cir. Unit B July 1981).

⁹³ *Weyerhaeuser Co.*, 549 U.S. at 321–22.

In 2007, the Supreme Court complicated the analysis of monopsony by equating predatory bidding—submitting high bids to input suppliers in order to depress rivals’ revenue or to raise rivals’ costs of raw materials—and predatory pricing—setting the prices of one’s products for consumers so low as to drive rivals out of business and raise prices later.⁹⁴ This raises the possibility that depressing the prices of an input supplier, like overbidding to raise input prices or depressing one’s own prices as a producer, would be lawful unless there is a likelihood that the entity depressing prices would (1) lose money on the deal, and (2) recoup the resulting losses by driving competitors out of business and hiking prices to the detriment of consumers.⁹⁵ However, this does not appear to be the law post-2007, with courts instead applying a conventional test asking whether the defendant (1) has monopsony power in the relevant market and (2) willfully acquired or maintained that power as opposed to achieving it due to a better product, commercial skills, or random chance.⁹⁶ Alternatively, if collusive or joint action is alleged by defendants who may not dominate the market, the elements of a section 1 monopsony violation are: “(1) a contract, combination or conspiracy among two or more persons or distinct business entities; (2) by which the persons or entities intended to harm or restrain trade or commerce among the several States, or with foreign nations; (3) which actually injures competition.”⁹⁷ In other words, the elements are: (1) a restraint of trade that is (2) unreasonable.⁹⁸

⁹⁴ See *id.*; Br. of the United States as Amicus Curiae, *Weyerhaeuser Co.*, 549 U.S. 312 (2007), 2006 WL 2452373 (U.S. brief filed May 26, 2006) (No. 05-381).

⁹⁵ See *Weyerhaeuser Co.*, 549 U.S. at 325–26 (discussing same two-pronged test applied in *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 225 (1993)).

⁹⁶ See, e.g., *Allen v. Dairy Farmers of Am., Inc.*, No. 5:09-cv-230, 2014 WL 2610613, at *8 (D. Vt. June 11, 2014) (quoting *PepsiCo, Inc. v. Coca-Cola Co.*, 315 F.3d 101, 105 (2d Cir. 2002)); *Cascades Comput. Innovation LLC v. RPX Corp.*, No. 12-CV-1143 YGR, 2013 WL 6247594, at *16 (N.D. Cal. Dec. 3, 2013) (citing *Am. Prof'l Testing Serv., Inc. v. Harcourt Brace Jovanovich Legal & Prof'l Publ'ns, Inc.*, 108 F.3d 1147, 1151 (9th Cir. 1997)).

⁹⁷ *Cascades*, 2013 WL 6247594, at *6 (quoting *Kendall v. Visa U.S.A., Inc.*, 518 F.3d 1042, 1047 (9th Cir. 2008)).

⁹⁸ *Cascades*, 2013 WL 6247594, at *6 (citing *Brantley v. NBC Universal, Inc.*, 675 F.3d 1192, 1197 (9th Cir. 2012)). The Supreme Court has stated that restraints with “anticompetitive consequences” but “legitimate justifications”

Coordination by firms that may require access to patented technology for purposes of setting a technical standard on the amount that they will pay as royalties raises a risk of monopsony power.⁹⁹ An abuse of monopsony in this vein may constitute a combination or conspiracy in restraint of trade, such as price-fixing or a group boycott.¹⁰⁰ It may also amount to a conspiracy to monopolize or exclusionary conduct on a monopolization count, under the *American Tobacco* line of cases.¹⁰¹ These sorts of tactics “regulate[] prices,

may be legal under the rule of reason. *FTC v. Actavis*, 133 S. Ct. 2223, 2236 (2013).

⁹⁹ See *Morse*, *supra* note 23, at 22 (citing *Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 184–185 (D. Conn. 2001)).

¹⁰⁰ See *Morse*, *supra* note 23, at 22; see also *FTC v. Ind. Fed’n of Dentists*, 476 U.S. 447, 458, 461 (1986) (association controlling access to inputs needed by downstream firms should not have boycotted it with detrimental effects on competition); *Fashion Originators’ Guild of Am., Inc. v. FTC*, 312 U.S. 457, 467–68 (1941) (fashion distributors could not lawfully boycott price-cutting fashion “pirate” retailers); *United States v. Terminal R.R. Ass’n of St. Louis*, 224 U.S. 383, 411 (1912) (firms exercising joint control over essential facility should not have boycotted competitors, but were obligated to share access to it on equal terms); *MCI Commc’ns Corp. v. AT&T Co.*, 708 F.2d 1081, 1132–33 (7th Cir. 1983) (noting that “group of businesses” may be liable for concerted denial of access to essential facility where they control it, competitor cannot reasonably duplicate it, competitor was denied access, and it would have been feasible to grant access); *In re Beer Antitrust Litig.*, No. C-97-20644-JF, 2002 WL 1285320, *4 (N.D. Cal. Apr. 3, 2002) (“The characteristics of a per se illegal boycott are: (1) the boycott cuts off access to a supply, facility or market necessary to enable the victim firm to compete; (2) the boycotting firm possesses a dominant market position; and (3) the practices are not justified by plausible arguments that they enhance overall efficiency or competition. Moreover, in the boycott context, the per se rule may be applied only when there is a horizontal agreement among direct competitors.”) (citations omitted); *United States v. Visa U.S.A. Inc.*, 163 F. Supp. 2d 322, 329, 340 (S.D.N.Y. 2001), *modified*, 183 F. Supp. 2d 613 (S.D.N.Y. 2001), *aff’d*, 344 F.3d 229 (2d Cir. 2003) (bank issuers of Visa and MasterCard charge cards could be liable for boycotting issuers of American Express and Discover cards). *But cf. PepsiCo*, 315 F.3d at 109–11 (Coca-Cola distributors could lawfully boycott distributors who did business with PepsiCo as part of presumptively lawful exclusive distributorship, a vertical agreement); *Dickson v. Microsoft Corp.*, 309 F.3d 193, 200, 212–13 (4th Cir. 2002) (Microsoft and its licensees could agree to prohibit removal of Internet Explorer from computers manufactured and distributed by licensees, where consumers could install competitive browsers and licensees had small market shares).

¹⁰¹ See *Re/Max Int’l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1009–10, 1018 (6th Cir. 1999) (realtors with market power colluded to depress commissions

parcel[] out or limit[] production,” and “cripple the freedom of traders and thereby restrain their ability to sell in accordance with their own judgment.”¹⁰²

II. CASE STUDIES OF CONSPIRACIES AGAINST INTELLECTUAL-PROPERTY LICENSORS

Courts and government agencies have insisted upon a balance between promoting innovation and creation on the one hand, and defending the freedom of competition and of trade on the other.¹⁰³ Copyrights and patents encourage individuals and companies to invest in new products, and in new uses and markets for existing products, the theory goes.¹⁰⁴

Jurists and scholars have devoted less attention to the risks posed to intellectual-property holders by antitrust violations. One threat is that potential consumers of intellectual property in the form of licenses, asset sales, mergers, acquisitions, joint ventures, and other investments will organize to stave off costly competition among themselves by tacitly or expressly agreeing not to tender offers. Another risk is that associations or partnerships will fix maximum prices for intellectual property transactions. A third danger is that

paid to other realtors affiliated with relatively new entrant in the market, by imposing adverse commission splits).

¹⁰² *Klor's, Inc. v. Broadway-Hale Stores, Inc.*, 359 U.S. 207, 212 (1959) (quoting, respectively, *Fashion Originators' Guild*, 312 U.S. at 466, and *Kiefer-Stewart Co. v. Joseph E. Seagram & Sons, Inc.*, 340 U.S. 211, 213 (1951)).

¹⁰³ *See, e.g., Bilski v. Kappos*, 561 U.S. 593, 648 (2010) (Stevens, J., concurring) (intellectual property clause “reflects a balance between the need to encourage innovation and the avoidance of monopolies which stifle competition”).

¹⁰⁴ *See* Statement of Joseph F. Wayland, *supra* note 18 (“In our system, antitrust and intellectual property policy function together to provide consumers with high-quality products and services at competitive prices, while at the same time preserving strong incentives for the innovation that creates and improves those products.”) (“Patents have long played a central role in promoting innovation and economic growth by encouraging individuals and companies to apply their knowledge, take risks, and make investments in research and development. These efforts, in turn, have benefitted society as a whole by providing new and valuable technologies, lower prices, improved quality, and increased consumer choice.”) (citing ARTI RAI ET AL., *supra* note 18, at 2; EXEC. OFFICE OF THE U.S. PRESIDENT, 2010 JOINT STRATEGIC PLAN ON INTELLECTUAL PROPERTY ENFORCEMENT 3 (June 2010), https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/intellectualproperty/intellectualproperty_strategic_plan.pdf).

potential licensees or their associations will merge or acquire related assets to such an extent as to create excessive concentration in IP licensing markets.

This Part explores the treatment by the case law of these three possibly related dangers. After an initial wave of cases declining to recognize these concerns as worthy of extended antitrust scrutiny, a number of recent cases have demonstrated more willingness to entertain claims against IP conspiracies.¹⁰⁵ These cases often involve software or business methods, but also entertainment-industry practices.

A. Microsoft

Although the most often-cited Microsoft case involved quasi-exclusive dealing with computer manufacturers, software and Internet services vendors, the tying and commingling of Internet browser code with operating system code, and the like, another important case against Microsoft dealt with the technological tying of Microsoft Word to Microsoft Windows.¹⁰⁶ In that case, Caldera alleged that Microsoft tied a disk-operating system, MS-DOS 7.0, to Microsoft Windows 95.¹⁰⁷ This conduct is analogous to instances in which a monopolist leverages its dominant product into related markets, in order to avoid having to license or deal with a patented or other IP-protected product.¹⁰⁸ The court found Microsoft's course of conduct to be actionable as monopolization, stating that Caldera "was foreclosed from a market in which it *would otherwise have competed*. It is hard to imagine that Caldera does not have standing

¹⁰⁵ See, e.g., *Caldera, Inc. v. Microsoft Corp.*, 72 F. Supp. 2d 1295 (D. Utah 1999).

¹⁰⁶ See *id.* at 1328 (finding that tying may be an offense under section 1 or 2 of the Sherman Act, as well as under section 3 of the Clayton Act).

¹⁰⁷ See *id.* at 1319–21; see generally, Orr, *supra* note 74, at 556–57, 559; DONALD DEWEY, *MONOPOLY IN ECONOMICS AND LAW* 202–05 (1959) (discussing early cases under section 3 and section 5); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837, 839–40 (1990) (examining economic analysis under section 1, *inter alia*).

¹⁰⁸ Cf. Orr, *supra* note 74, at 557 n.179 (analogizing anticompetitive foreclosure in a market for patents to tying together of software components, because courts may require market power in rule of reason analysis of such nontraditional forcing of an unwanted purchase, even though traditional tying in familiar contexts is a per se section 1 offense).

to sue under these alleged facts.”¹⁰⁹ Turning to the substance of Caldera’s claim, the court concluded that even if the MS-DOS/Windows bundle offered improved functionality, that was not a complete defense to Caldera’s tying theory, because innovation can “be stifled if companies are allowed to dampen competition by unlawfully tying products together”¹¹⁰ A mere upgrade and combined distribution of two products would be tying, while a genuinely new and integrated product would not be.¹¹¹ “In other words . . . this analysis requires the integration to be driven by technology rather than by marketing.”¹¹² A marketing decision could reflect anticompetitive bias and a strategy of distorting competition, while a technological one would be a valid business reason.¹¹³ One lesson for counter-IP conspiracies may be that anticompetitive bias may be deemed adequate to rebut the argument that a potential infringer has made a good-faith business or technical decision not to license certain rights.

B. *Sony*

Another case more squarely presented the issue of conspiracies against IP owners. In contrast to the *Microsoft* case, the problem of fixing patent royalties arose in an opinion resolving a motion to dismiss antitrust counterclaims against Sony Electronics in 2001.¹¹⁴ The patent owner who pressed those counterclaims alleged that

¹⁰⁹ *Caldera*, 72 F. Supp. 2d at 1322 (emphasis added).

¹¹⁰ *Id.* at 1322–23.

¹¹¹ *Id.* at 1325.

¹¹² *Id.* at 1326 (citing *Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 21 (1984)).

¹¹³ *See id.*; *see also* *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 597 (1985) (practices harmful to competitors may not constitute exclusionary conduct under Section 2 of Sherman Act if “valid business reasons exist for” them); *Broad. Music, Inc. v. Columbia Broad. Sys.*, 441 U.S. 1, 20, 24–25 (1979) (technical difficulties in licensing copyrights from composers and singer-songwriters on an individual basis provided procompetitive rationale for not treating blanket copyright license fixing royalty rates on musical compositions as *per se* price fixing); *Novell, Inc. v. Microsoft Corp.*, 731 F.3d 1064, 1080 n. 5 (10th Cir. 2013) (“[W]e held that ‘the key fact’ permitting liability in *Aspen Skiing* ‘was that the defendant terminated a profitable relationship without any economic justification.’”) (citation omitted).

¹¹⁴ *See Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 182 (D. Conn. 2001).

Sony informed it on behalf of the television industry that its patent would only be licensed at a “reasonable” rate of five cents per television set.¹¹⁵ The court rejected Sony’s contentions that as a matter of law, (1) there was no formal agreement within the industry on a uniform royalty for this patent; (2) a low royalty would benefit television buyers especially if, as Sony suspected, the patent was invalid; and (3) jointly seeking to invalidate a patent or to offer a lowball settlement is privileged under the First Amendment and the *Noerr-Pennington* doctrine.¹¹⁶ Among other things, the court reasoned:

[T]he Court does not accept . . . that the scheme alleged . . . could have no anticompetitive effects [M]onopsonistic pricing conspiracies can have distributional injuries, such as where a group of buyers gets together and agrees on an all-or-nothing pricing scheme The all-or-nothing price set by these colluding purchasers can depress the price below the optimal price that would obtain if usual market forces of supply and demand were at work. The price to consumers does not decrease, but there may be social welfare consequences in the long run, because suppliers will leave the industry (or, as Soundview has it, will cease to innovate and invent).

While this may seem counterintuitive because . . . the monopsonist purchaser’s interests are not served by reducing the numbers of suppliers, business conduct is not always rational, and economic actors do not always have access to perfect information, the utopian ideal of economics. Further, in the context of licenses for technology required by the government, different interests may be at work¹¹⁷

Some elements of this opinion may have been undermined by more recent case law. First, the *Twombly* case and its progeny may

¹¹⁵ See *id.* at 183.

¹¹⁶ See *id.* at 182, 188–89.

¹¹⁷ *Id.* at 185–86 (citing Roger D. Blair & Jeffrey L. Harrison, *Antitrust Policy and Monopsony*, 76 CORNELL L. REV. 297, 316 (1991)).

arguably countenance a more searching challenge to antitrust pleadings than the *Sony* court was willing to contemplate.¹¹⁸ Second, the *Weyerhaeuser* decision has prompted some courts to dismiss monopsony theory-based complaints on the grounds that a plaintiff challenging lowball offers must show below-cost pricing and a dangerous probability of recoupment of any sacrificed profits.¹¹⁹ Third,

¹¹⁸ See *Midwest Auto Auction, Inc. v. McNeal*, No. 11-14562, 2012 WL 3478647, at *10 (E.D. Mich. Aug. 14, 2012) (dismissing claim based upon lowball bid below average variable cost of performance because plaintiff alleged mere opportunities for conspiracy rather than time and date thereof); Jeffrey Harrison, *Weyerhaeuser: An Epilogue*, 61 ANTITRUST BULL. 411, 411, 414–16 (2016) (noting that in cases like *Midwest Auto Auction* alleged monopsonists and oligopsonists are seeking dismissal of antitrust cases, and that impact of *Weyerhaeuser* “has been to discourage use of the predatory buying theory and, perhaps, of monopsony theories generally”); see generally *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 554–56 (2007) (antitrust plaintiff must persuade federal courts that theory of liability is not simply consistent with pleaded facts, but “plausible,” which also implies not contrary to what defendant would do as rational economic actor); *Starr v. Sony BMG Music Entm’t*, 592 F.3d 314, 323 (2d Cir. 2010) (antitrust claim must be plausible under *Twombly*). But see *Cascades Comput. Innovation LLC v. RPX Corp.*, No. 12–CV–1143 YGR, 2013 WL 6247594, at *8–10 (N.D. Cal. Dec. 3, 2013) (declining to dismiss analogous claims despite *Twombly*); but cf. *Starr*, 592 F.3d at 323–24 (relying on express most-favored-nation clauses and joint pricing to refuse to dismiss price-fixing theory of plaintiffs, and finding it plausible in light of industry conditions under *Twombly*).

¹¹⁹ See *Rheumatology Diagnostics Lab., Inc. v. Aetna, Inc.*, No. 12–cv–05847–WHO, 2013 WL 5694452, at *6, *15 (N.D. Cal. Oct. 18, 2013) (dismissing claim by independent medical testing laboratory against health insurer for rejecting offer of a 90% discount on laboratory’s services, engaging in group boycott, and paying physicians not to order too many out-of-network medical tests because plaintiffs could not show below-cost pricing of medical tests by in-network providers or a dangerous probability of loss recoupment) (citing *Weyerhaeuser Co. v. Ross–Simmons Hardwood Lumber Co.*, 549 U.S. 312, 318 (2007)); *Big River Indus., Inc. v. Headwaters Res., Inc.*, 971 F. Supp. 2d 609, 619 (M.D. La. Sept. 11, 2013) (rejecting theory that plaintiff “was eliminated from the relevant fly ash market as a result of Defendant’s lowball price bidding and that Headwaters is certain to recoup associated losses because there are no relevant substitutes” because plaintiff did not allege plausible facts regarding the relevant market or “allege that Headwaters’ pricing, before or after winning the solicitation, was below cost”); *Midwest Auto Auction, Inc.*, 2012 WL 3478647, at *12 (dismissing claim based upon lowball bid below average variable cost due to, among other things, failure to allege likelihood that result will be prices above the competitive level in long term). However, alleging a dangerous probability of recoupment should not be made more difficult than alleging other attempts. One court found it sufficient to allege that firms went out of business and the predatory-pricing

another court has granted summary judgment against a monopsony theory where the defendant's resulting prices were not anti-competitive,¹²⁰ a requirement that was not imposed in *Sony*.¹²¹

C. IBM and Red Hat

It is possible to view counter-IP conspiracies as predatory pricing schemes, which are presumed to fail, or as distribution contracts in a competitive market, which are presumed to be lawful. This type of complaint hits a sweet spot of Chicago School antitrust orthodoxy, which sees predatory pricing and vertical restraints as virtually never resulting in actionable harms to competition.¹²² In one case, a computer programmer alleged that an agreement between International Business Machines ("IBM"), Inc., Red Hat, Inc., and other entities suppressed competition in operating systems and derivative software programs by forcing any programmer who wrote such systems or software using (infringing) elements of the Linux operating system to release his or her software and its source code free of charge.¹²³ The context was that IBM invested \$1 billion to support Linux distribution and services, Red Hat raised nearly \$1 billion in capital on a promise of distributing Linux improvements and support services, and IBM and Red Hat established a patent pool and nonaggression pact of sorts to promote patent peace in the Linux space.¹²⁴ Software developers such as Microsoft and the programmer in the IBM case alleged that the mandate to distribute Linux

conspirators increased their sales dramatically. *See Solyndra Residual Tr. ex rel. Neilson v. Suntech Power Holdings Co.*, 62 F. Supp. 3d 1027, 1042–43 (N.D. Cal. 2014).

¹²⁰ *See, e.g., In re Southeastern Milk Antitrust Litig.*, 801 F. Supp. 2d 705, 728 (E.D. Tenn. 2011) (granting summary judgment against monopsonization, monopolization, and attempted monopolization claims where defendant did not successfully halt price competition or raise/fix prices at an anti-competitive level).

¹²¹ *See generally Sony Elecs., Inc. v. Soundview Techs., Inc.*, 157 F. Supp. 2d 180, 183–90 (D. Conn. 2001).

¹²² *See* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 927 (1979).

¹²³ *See Wallace v. IBM*, 467 F.3d 1104, 1106 (7th Cir. 2006); Amended Complaint at 2, *Wallace*, 467 F.3d 1104 (No. 1:05-cv-00678-RLY-VSS).

¹²⁴ Associated Press, *Microsoft says Linux, Open Office, free e-mail step on patents*, MIT TECH. REV. (May 15, 2007), <https://www.technologyreview.com/Wire/18737> (IBM and Red Hat formed Open Innovation Network as Microsoft

improvements free of charge undermined IP and the incentive to develop new operating systems.¹²⁵ The SCO Group and Microsoft alleged that Linux violated 14 copyrights and 42 patents, as well as trade secrets.¹²⁶

In the *IBM* case, Judge Easterbrook held that plaintiff could not plead an antitrust claim in the absence of an allegation that IBM or Red Hat would charge monopoly prices in the future, and that he could not plead a conspiracy in restraint of trade in the absence of a showing that Linux has “a large market share” or is “a threat to consumers’ welfare in the long run.”¹²⁷ The opinion assumed, without

complained of Linux patent infringement); Don Clark, *IBM Again Pledges \$1 Billion to a Linux Effort*, WALL ST. J.: DIGITS BLOG (Sept. 16, 2013, 5:57 PM), <http://blogs.wsj.com/digits/2013/09/16/ibm-again-pledges-1-billion-to-a-linux-effort/> (IBM pledged to invest \$1 billion in Linux ventures in 2000); Gavin Clarkson, *Cyberinfrastructure and Patent Thickets: Challenges and Responses*, 12 FIRST MONDAY No. 6 (June 4, 2007), <http://ojphi.org/ojs/index.php/fm/article/view/1872/1755> (“Defensive patent pools are designed to give organizations freedom to innovate in a given technological space when that space may have intellectual property entanglements from multiple sources. One particularly good example is the Open Innovation Network (OIN).”); Raymond Hennessey, *Shares of Linux Firm Red Hat More Than Triple After IPO*, WALL ST. J., (Aug. 12, 1999), <http://www.wsj.com/articles/SB934376738897331391> (Red Hat issued shares at opening price of 46); *Investor FAQs*, RED HAT, <https://investors.redhat.com/ir-resources/investor-faqs> (last visited Feb. 1, 2017) (Red Hat issued a total of 6 million shares).

¹²⁵ Associated Press, *supra* note 124; Amended Complaint, *supra* note 123, at 2.

¹²⁶ Associated Press, *supra* note 124; Second Amended Complaint at ¶¶ 173–80, *SCO Grp., Inc. v. IBM., No. 2:03 CV 294 DAK*, 2005 WL 318784 (D. Utah Feb. 27, 2004). IBM won judgment in its favor on the copyright claim in July 2013. Partial Judgment Dismissing SCO’s Claims, *The SCO Grp., Inc. v. IBM, No. 2:03CV-00294*, slip op. at 1–2 (D. Utah July 10, 2013). IBM won the rest of the case in 2016. See Pamela Jones, *SCO v. IBM Timeline*, GROKLAW (Mar. 31, 2016, 7:07 AM), <http://www.groklaw.net/staticpages/index.php?page=20031016162215566>; Steven J. Vaughan-Nichols, *SCO’s legal war against IBM and Linux comes to an end*, ZD NET (Mar. 4, 2016, 12:08 GMT), <http://www.zdnet.com/article/scos-legal-war-against-ibm-and-linux-comes-to-an-end/>. This 12-year pendency was, of course, an eternity in Internet time, illustrating one difficulty with IP enforcement in the digital age.

¹²⁷ See *Wallace*, 467 F.3d at 1106–08 (citing *Broad. Music, Inc. v. Columbia Broad. Sys., Inc.*, 441 U.S. 1, 23 (1979); *Brooke Grp. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 232 (1993); *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 489 (1977); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 597 (1986); *Schor v. Abbott Labs.*, 457 F.3d 608, 611 (7th

citation, that new software would not be written without the zero-price open source license, and that allowing the lawsuit to proceed would “force” programmers to charge per-copy licensing fees.¹²⁸ Left unexplored was the possibility that absent an agreement to prohibit for-profit programming of Linux derivatives, some authors would write Linux derivatives for a fixed fee or percentage royalty, while others would produce gratis, increasing overall output. Rather than “forcing” programmers to charge money when they did not want to, as the opinion held,¹²⁹ the coordinated use of royalty-free licenses would be forcing those who wanted to work independently not to charge when they might have otherwise. However, this failure to balance the economic costs and benefits of the alleged restraint is consistent with the rule of reason jurisprudence since the 1980s, which throws out most cases by claiming a lack of harm without balancing anything.¹³⁰ A better approach is to permit proof of actual adverse effects on competition at trial, even in the absence of large market shares or proof that the industry will be worse off in the long-run.¹³¹ For example, it is not clear that any of the employers who restrained wages in the petrochemical or high-tech industries had

Cir. 2006); *Texaco Inc. v. Dagher*, 547 U.S. 1, 8 (2006)). These judgments closely mirrored IBM’s arguments.

¹²⁸ *Wallace*, 467 F.3d at 1107–08.

¹²⁹ *Id.* at 1108.

¹³⁰ See Michael A. Carrier, *The Rule of Reason: An Empirical Update for the 21st Century*, 16 GEO. MASON L. REV. 827, 828 (2009); Andrew Gavil, *Moving Beyond Caricature and Characterization: The Modern Rule of Reason in Practice*, 85 S. CAL. L. REV. 733, 761 (2012).

¹³¹ See, e.g., *Actavis*, 133 S. Ct. at 2236; *Cal. Dental Ass’n v. Fed. Trade Comm’n*, 526 U.S. 756, 771–78 (1999); *Fed. Trade Comm’n v. Ind. Fed’n of Dentists*, 476 U.S. 447, 460–61 (1986); *Cont’l T.V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 58–59 (1977); see also *Bhan v. NME Hosps., Inc.*, 929 F.2d 1404, 1413 (9th Cir. 1991) (“A lesser analysis may show that the restraint has actually produced significant anti-competitive effects, such as a reduction in output. If the plaintiff can make a showing of anti-competitive effects, a formal market analysis becomes unnecessary.”) (citing *Ind. Fed’n of Dentists*, 476 U.S. at 460–61); *KMB Warehouse v. Walker Mfg. Co.*, 61 F. 3d 123, 129 (2d Cir. 1995) (“This court has not made a showing of market power a prerequisite for recovery in all § 1 cases. If a plaintiff can show an actual adverse effect on competition, such as reduced output, we do not require a further showing of market power.”) (citation omitted); cf. Gavil, *supra* note 130, at 762 (explaining how “proof of actual effects ‘obviates the need’ for the inferential and circumstantial analysis of market power through the market definition of exercise”).

market power, or that any of the sports teams who suppressed student-athlete returns on labor had it, but those cases went forward.¹³² Supreme Court precedent suggests that setting prices “unresponsive to . . . demand” has a “significant potential for anticompetitive effects” that should be actionable under the rule of reason.¹³³

Since the decision in *Wallace*, scholars have attacked its facile assumption that predatory pricing and distribution restraints create benefits to consumers by passing on lower prices and more options from producers.¹³⁴ Eleanor Fox maintains that the Supreme Court decisions on which Judge Easterbrook relied employ economic theory by fiat to ignore concrete evidence that strategically low pricing by oligopolists can destroy competitors to the oligopolistic firms.¹³⁵ Steven Salop points out that the predatory pricing standard applied in the *IBM* case does not adequately prevent attempts to raise competitors’ marginal costs, prompting some or all of them to curtail their production or hike their prices.¹³⁶ Damien Geradin argues that lower royalty payments are as likely to be absorbed as higher dominant firm profits as they are to be passed on to consumers.¹³⁷ Dominant firms are themselves beneficiaries of protections from much price competition as a result of their own IP rights, loyalty discounts, and contractual protections, although firms lacking IP or whose IP is trampled upon by larger or better-connected competitors may have to pass on royalty savings to consumers or risk losses of market

¹³² See, e.g., *Todd v. Exxon Corp.*, 275 F.3d 191, 208 (2d Cir. 2001); *In re High-Tech Emp. Antitrust Litig.*, 289 F.R.D. 555, 565 (N.D. Cal. 2013); *O’Bannon v. Nat’l Collegiate Athletic Ass’n*, 7 F. Supp. 3d 955, 973 (N.D. Cal. 2014), *aff’d in part*, 802 F.3d 1049 (9th Cir. 2015).

¹³³ *Nat’l Collegiate Athletic Ass’n v. Bd. of Regents of the Univ. of Okla.*, 468 U.S. 85, 104–06 (1984).

¹³⁴ See generally HOW THE CHICAGO SCHOOL OVERSHOT THE MARK, *supra* note 21.

¹³⁵ Eleanor M. Fox, *The Efficiency Paradox*, in HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST 77, 80–86 (Robert Pitofsky ed., 2008).

¹³⁶ Steven C. Salop, *Economic Analysis of Exclusionary Vertical Conduct: Where Chicago Has Overshot the Mark*, in HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST 141, 142–43. Dr. Salop observes that targeting competitors’ distribution networks or opportunities for impairment “does not require a risky investment” in below-cost pricing, if it is “successful.” *Id.*

¹³⁷ See Geradin, *supra* note 22, at 1.

share.¹³⁸ Neal Solomon, a patent holder and CEO of a technology company,¹³⁹ argues that competition may be harmed by increasing dominant firm market share or maintaining an ability to hike or stabilize prices, by raising or sustaining monopoly profits while reducing dominant firms' costs in comparison with newer entrants who bear the cost of patented applied research (or research that cannot be patented after *Alice*), and by devaluing patents as economic units.¹⁴⁰ An oligopsony may also raise the input prices paid by firms outside of a collusive arrangement, in an umbrella and downpour model (i.e., the colluding firms are shielded by a low price umbrella, and their suppliers overcharge firms outside the collusive scheme to recoup their costs and restore their profit margins).¹⁴¹

A more fundamental error in the *IBM* case is the inexact usage of the antitrust concept of a "market." The opinion in the case states that the plaintiff identified his market as operating systems and derivative works based on Linux.¹⁴² However, the opinion then finds the plaintiff not to have a rule of reason claim because IBM and Red Hat lack market power in computer programs or software generally.¹⁴³ As in the *Microsoft* case, there is no basis for conflating the parties' specific market with the general market for computer programs or software.¹⁴⁴ When a market is narrower, and there is a smaller number of competitors, the likelihood that bid-rigging or other collusive negotiating and contracting techniques will work is greater.¹⁴⁵ Perhaps IBM has no market power in Linux-compatible

¹³⁸ See *id.* at 5 & n.13.

¹³⁹ Mr. Solomon is the CEO of Advanced System Technologies, Inc. He is the inventor of technologies dealing with robotics and digital communication, among others. See, e.g., Neal Solomon, IP WATCHDOG, <http://www.ipwatchdog.com/author/neal-solomon/> (last visited Feb. 3, 2017).

¹⁴⁰ See Solomon, *supra* note 22, at 54, 64.

¹⁴¹ See *id.* at 49 (citing, inter alia, *In re Brand Name Prescription Drugs Anti-trust Litig.*, 123 F.3d 599, 603 (7th Cir. 1997)). See also Lina Khan, *Amazon's Antitrust Paradox*, 126 YALE L.J. 564, nn. 329-334 & accompanying text (2017) (describing similar phenomenon with analogy to waterbed, which rises due to displacement as the large entity causes its area to be depressed).

¹⁴² See *Wallace v. IBM*, 467 F.3d 1104, 1106 (7th Cir. 2006).

¹⁴³ See *id.* at 1106, 1108.

¹⁴⁴ See *United States v. Microsoft Corp.*, 253 F.3d 34, 51-55 (D.C. Cir. 2001).

¹⁴⁵ See *JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775, 777 (7th Cir. 1999); Philadelphia National Bank at 50: *An Interview with Judge Richard Posner*, 80 ANTITRUST L.J. 205, 207 (2015).

operating systems or derivative works based upon them, and perhaps Linux is functionally interchangeable with proprietary operating systems, further undermining any claim that IBM had market power in 2004–2005, but this requires more analysis and evidence than a blanket assertion that “software” is one large market. It was probably inadequate, in any event, to imply that fixing a price of zero on Linux derivatives was lawful because IBM or Linux lacked market power in computer or open-source software generally.

Finally, it was not clear in the *IBM* case that the plaintiff wanted to sell software or patent licenses to IBM and Red Hat themselves, as opposed to becoming his own software concern.¹⁴⁶ At the time of the court’s decision, it was a per se antitrust violation when horizontal price fixing resulted in sellers receiving less money for their products or services, but vertical price-fixing was subject to the rule of reason.¹⁴⁷ Insofar as other patentees may be sellers to conspiring licensees, the result may differ from the one in *IBM*. Alleging or

¹⁴⁶ *Wallace*, 467 F.3d at 1106.

¹⁴⁷ See *Knevelbaard Dairies v. Kraft Foods, Inc.*, 232 F.3d 979, 988–89 (9th Cir. 2000). As the court explained:

When horizontal price fixing causes buyers to pay more, or sellers to receive less, than the prices that would prevail in a market free of the unlawful trade restraint, antitrust injury occurs. This is seen most often in claims by overcharged buyers; as to underpaid sellers it is less common in the reported cases, but is equally true.

As stated in a leading text:

When buyers agree illegally to pay suppliers less than the prices that would otherwise prevail, suppliers are obviously injured in fact. The suppliers’ loss also constitutes antitrust injury, for it reflects the rationale for condemning buying cartels — namely, suppression of competition among buyers, reduced upstream and downstream output, and distortion of prices.

Most courts understand that a buying cartel’s low buying prices are illegal and bring antitrust injury and standing to the victimized suppliers. Clearly mistaken is the occasional court that considers low buying prices pro-competitive or that thinks sellers receiving illegally low prices do not suffer antitrust injury.

Id. (quoting 2 PHILLIP AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 375b (rev. ed. 1995)) (first citation omitted).

proving that innovation or entry has actually slowed may still be an issue.¹⁴⁸

D. *Nokia*

Another hypothetical illustrates a situation that may be more complex than Soundview/Sony, but that raises important concerns about the ability of startups to compete in the new economy. Although this situation has been discussed publicly in the past, principally as an example of PAEs perpetrating holdup and demanding excessive royalties, it also has implications for counter-IP conspiracies.¹⁴⁹

In September 2011, reports appeared that Microsoft funded a deal between Nokia and MOSAID Technologies Inc. whereby the company that holds 2,000 of Nokia's wireless telephone patents and patent applications was sold to MOSAID, which would share the revenue from licensing the patents with Microsoft and Nokia.¹⁵⁰ About 1,200 of the patents and applications are essential to wireless telephone standards GSM, UMTS / WCDMA and LTE.¹⁵¹ The initial report was simply that Microsoft thereby obtained a license to the patents and held an economic interest in their licensing to third parties.¹⁵² A coalition of high-technology and manufacturing companies, however, argued that the deal might enable Nokia and/or Microsoft to evade their commitments to standard-setting organiza-

¹⁴⁸ Cf. *Streamcast Networks, Inc. v. Skype Techs., S.A.*, 547 F. Supp. 2d 1086, 1098 (C.D. Cal. 2007) (finding no cognizable antitrust injury where plaintiff alleged that deprivation of its IP and rights under a license agreement harmed innovation in the field of peer-to-peer file-sharing technology and networks, but plaintiff continued to innovate and new entrants to the market also continued).

¹⁴⁹ See Jonathan H. Ashtor et al., *Patents at Issue: The Data Behind the Patent Troll Debate*, 21 GEO. MASON L. REV. 957, 961–62, 972 (2014).

¹⁵⁰ Press Release, Covington & Burling LLP, Covington Advises Microsoft in Standards-Essential Wireless Patents Portfolio Transaction with Mosaid and Nokia (Sept. 2, 2011), <http://web.archive.org/web/20120104063924/http://www.cov.com/news/detail.aspx?news=1661>.

¹⁵¹ See *id.*

¹⁵² See *id.*

tions not to charge unfair, discriminatory, or unreasonable royalties.¹⁵³ They added: “Such arrangements alter enforcement incentives, may provide mechanisms for . . . operating companies to use PAEs as alter egos to raise rivals’ costs.”¹⁵⁴

So far, this is another wrinkle on the basic patent holdup story, as befits the stance of many technology and manufacturing companies that PAEs like MOSAID are burdensome to the economy.¹⁵⁵ However, there are two other noteworthy aspects of the Nokia–Microsoft deal. First, a similar deal between Novell and a coalition including Microsoft attracted a Department of Justice intervention as a threat to competition and open source software.¹⁵⁶ In October 2011, Barnes & Noble, Inc., which distributes some of its Nook e-book readers as an Android tablet, complained to the Department of Justice that the MOSAID deal was evidence of “Microsoft’s broader plan to shield itself from patent lawsuits while also eliminating competition from Android.”¹⁵⁷ In February 2012, Barnes & Noble argued to the International Trade Commission that Microsoft was using MOSAID and its own patents to increase the cost and decrease the output of Android devices, including by establishing a “policy

¹⁵³ Letter from Adobe Systems, Inc. et al. to the Fed. Trade Comm’n Proposed Section 6(b) Info. Requests to Patent Assertion Entities and Other Entities Asserting Patents (Dec. 16, 2013), at 16–17, https://www.ftc.gov/sites/default/files/documents/public_comments/2013/12/00068-87877.pdf.

¹⁵⁴ *Id.* at 17.

¹⁵⁵ *See id.* at 1 (claiming that “estimates, to be confirmed by the FTC’s study, are that PAE activity costs industry tens of billions of dollars per year”).

¹⁵⁶ *See* Mark Popofsky, Ropes & Gray, Remarks at How Does Antitrust Apply to the Potential Harms and Efficiencies Generated by PAE Activity? A Patent Assertion Activities Workshop Hosted by Fed. Trade Comm’n & U.S. Dep’t of Justice (Dec. 10, 2012), in https://www.ftc.gov/sites/default/files/documents/public_events/Patent%20Assertion%20Entity%20Activities%20Workshop%20/pae_transcript.pdf, at 169 [hereinafter Popofsky’s Remarks at FTC & DOJ Workshop]. Mr. Popofsky represents Google in connection with the MOSAID dispute. *See* Mark Popofsky & Michael Laufert, *Patent Assertion Entities and Antitrust: Operating Company Patent Transfers*, ANTITRUST SOURCE Apr. 2013, at 1, 7–12, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/apr13_full_source.pdf.

¹⁵⁷ John Letzing, *Google Points Antitrust Finger at Microsoft, Nokia*, WALL ST. J. (May 31, 2012), <http://www.wsj.com/articles/SB10001424052702304821304577438740232322350> (quoting a letter submitted to a U.S. Justice Dep’t by an attorney for Barnes & Noble Inc.).

of requiring that every [manufacturer or] OEM selling Android devices enter into a [Redacted] contract with Microsoft under which the OEM is required to pay a substantial royalty to Microsoft for every Android device it sells, *regardless of whether such devices actually practice any Microsoft patents*,” including for every device using future versions of Android whose contents are not known, “without Microsoft ever disclosing the patents it will sue on or that it believes are infringed by the OEM’s Android device”¹⁵⁸

In May 2012, Google argued that the deal represented exclusionary conduct in the form of raising the legal cost of adopting the Android operating system for mobile devices and tablets, due to the risk of being sued on 2,000 patents at once.¹⁵⁹ Even if 99% of the patents were invalidated or held not to be infringed, the remaining 20 could serve to enjoin a portfolio of devices (such as the Samsung Galaxy family) or reduce the profit margin on them by up to 50%.¹⁶⁰ This is a variation of the PAE holdup story, but now folded into a Section 2 or Section 7 antitrust theory premised upon deterring manufacturers from licensing the Android operating system.¹⁶¹ “Google alleges that by colluding with Microsoft and Mosaid, Nokia has betrayed its previous commitments to [licensing] open-source software, which makes outside use of collective engineering, and to the protection of essential technologies from legal threats.”¹⁶² These theories represent an instance of the counter-IP conspiracy problem from Google’s perspective. On the other hand, Microsoft called Google’s complaint a “desperate” bid to divert attention from a mobile search

¹⁵⁸ Respondents’ Pet. for Rev. of Order No. 32: Initial Determination Granting Microsoft’s Mot. for Summ. Determination of Respondents’ First Affirm. Def. of Patent Misuse, at 32–33, 36 nn.14–16, *Certain Handheld Electronic Computer Devices, Related Software, and Components Thereof*, No. 769-043 (U.S. I.T.C. Investig. No. 337-TA-769 petition filed Feb. 8, 2012).

¹⁵⁹ See Letzing, *supra* note 157.

¹⁶⁰ For example, if Samsung earned \$2 billion in potential smartphone and tablet profits in 2013, after labor and manufacturing and marketing costs, but had to pay \$1 billion in licensing fees to Microsoft, this would cut its profits in half. Another judgment for Apple or other competitor might mean that it loses money and would have been better off had an injunction sometime in 2011 or 2012 encouraged it to invest elsewhere.

¹⁶¹ See Popofsky’s Remarks at FTC & DOJ Workshop, *supra* note 156, at 168–69.

¹⁶² Letzing, *supra* note 157.

and advertising monopoly of 95% market share.¹⁶³ From Microsoft's perspective then, Google's refusal to deal on fair terms with it and Nokia (via MOSAID) could be a form of Section 2 exclusionary conduct.¹⁶⁴

Second, there are reports that the MOSAID deal was an exception to the norm of a cross-license in the smartphone industry, whereby Microsoft pays relatively little (reportedly \$20,000 to \$200,000) to Nokia and MOSAID, which in turn acquire wireless licenses at relatively low cost from Microsoft.¹⁶⁵ In the wireless technology space, such cross-licenses often include a grant-back license on improvements to the patents contained in the standard and a term "valuing each patent in the pool equally" rather than in proportion to the value contributed to consumers or the industry.¹⁶⁶ While Microsoft can partake in the benefits of sharing royalties equally with many other patentees participating in pools, MOSAID can then double dip, leveraging the full value of the Nokia patents with a share going to Microsoft.¹⁶⁷ At 2% of \$1 trillion in Android sales over a period of years by some estimates, MOSAID could take

¹⁶³ *Id.*

¹⁶⁴ *See id.*

¹⁶⁵ *See* David Balto, *Nokia and Microsoft Alliance Raises Significant Competitive Concerns*, ANTITRUST CONNECT BLOG (Jun. 13, 2012), <http://antitrustconnect.com/2012/06/13/nokia-and-microsoft-alliance-raises-significant-competition-concerns/> ("The Nokia/Microsoft patent transfer scheme harms competition and could impose a significant tax on all smartphones. As noted, trolls have no interest in cross-licenses and cannot be deterred by the possibility of countersuits, as they do not produce any products of their ownSecond, an operating company that transfers patents to trolls will usually retain a license for its own use and its customers' use. As such, the transfer to trolls further unbalance the competition balance beam, as only the original patentees' rivals will face the cost increase."). *See also* Popofsky's Remarks at FTC & DOJ Workshop, *supra* note 156, at 168 (\$20,000 figure); Ron Laurie, Managing Dir., Inflexion Point Strategy, What's Driving Patent Sales?, Presentation at IEEE Consultants Network of Silicon Valley (Feb. 19, 2013), in [http://www.bswd.com/CNSV-1302-Laurie\(IP-SIG\).pdf](http://www.bswd.com/CNSV-1302-Laurie(IP-SIG).pdf), at 48 (\$200,000 plus royalty split).

¹⁶⁶ *Microsoft Corp. v. Motorola, Inc.*, 795 F. 3d 1024, 1043 (9th Cir. 2015).

¹⁶⁷ *See* Balto, *supra* note 165 ("It is not entirely surprising that Microsoft and Nokia are desperate to disarm their competitors, and attempt to kill off open sourceThus, trolls [like MOSAID in his view] impose higher costs (whether in more expensive licenses, higher royalties, litigation expenses, or settlements) on the operating companies they target, and in turn consumers.").

in \$20 billion and pay out a large share to Microsoft.¹⁶⁸ Microsoft and Nokia may thereby evade pledges that Nokia made not to seek royalties of more than 2% against devices that infringe many of its patents at once.¹⁶⁹

Moreover, Barnes & Noble has argued that Microsoft has effectively tied a license to practice patents covering the Windows operating system to a license to practice patents that cover the Android operating system.¹⁷⁰ Insofar as Nokia and Microsoft had a deal under which Microsoft bought the right to sell Nokia telephones until late 2016, one might argue that they acted through MOSAID to harm competition with Windows 8 and 10 or with Nokia phones such as the Microsoft Lumia.¹⁷¹ Google's antitrust counsel argued that: "Only Microsoft likely could be held liable under Section 2 on a theory of monopoly maintenance in PC operating systems. However, Nokia—as a new stakeholder in the Windows ecosystem—might share Microsoft's incentive to hinder Android."¹⁷² The licensing of Android to third parties on terms favorable to Google would presumably be the target of this hindering effort.¹⁷³

¹⁶⁸ See Popofsky & Laufert, *supra* note 156, at 8–9.

¹⁶⁹ See *id.* at 9; Popofsky's Remarks at FTC & DOJ Workshop, *supra* note 156, at 169–70.

¹⁷⁰ See Respondents' Pet. For Rev. of Order No. 32, *supra* note 158, at 41 n.18 (citing Respondents' Resp. to Microsoft Mot. for Summ. Determination of Def.'s First Affirm. Def., *Certain Handheld Devices*, Investig. No. 337-TA-769, Mot. Docket No. 769-043 (U.S. I.T.C. response filed Dec. 19, 2011)).

¹⁷¹ Balto, *supra* note 165 (noting that MOSAID had sued HTC and began preparations to sue other Android device distributors); Paul Briden, *Nokia WILL Release Two Android Phones in 2017: Nokia 6 Was Just The Beginning*, KNOW YOUR MOBILE (Jan. 23, 2017, 11:28 AM), <http://www.knowyourmobile.com/mobile-phones/nokia-c1/23369/nokia-c1-leaks-running-android-windows-10-ahead-q4-2016-launch-A1> (explaining how Microsoft had the right until late 2016 to use Nokia's name); Natasha Lomas, *Nokia: We're In No Rush To Get Our Brand Back On Phones*, TECH CRUNCH (Feb. 21, 2016), <https://techcrunch.com/2016/02/21/nokia-were-in-no-rush-to-get-our-brand-back-on-phones/> (reporting Nokia's sale to Microsoft for the right to sell Nokia phones).

¹⁷² See Popofsky & Laufert, *supra* note 156, at 11 n.66 (citing *Perington Wholesale, Inc. v. Burger King Corp.*, 631 F.2d 1369, 1377 (10th Cir. 1979) ("sustaining complaint for conspiracy to monopolize claim where supplier assertedly shared downstream firm's incentive to maintain its monopoly").

¹⁷³ For example, Samsung Electronics, perhaps the most prominent Android licensee, has paid Microsoft more than \$1 billion in a single year and perhaps

Furthermore, Microsoft allegedly obtained a grant-back license on improvements to the patents that it and Nokia vested in MOSAID.¹⁷⁴ Such a license, even if non-exclusive, has the potential to degrade the competitive process of innovation by “entrench[ing] licensors in dominant positions” in specific fields of technology.¹⁷⁵ One way of entrenching a dominant position, for example of Microsoft in PC-compatible operating systems, is to dilute the incentive of potential competitors such as Nokia to spend resources on research and development in the field.¹⁷⁶ The Supreme Court has expressed concern that “the fruits of invention of an entire industry might be systematically funneled into the hands of the original patentee.”¹⁷⁷ The Department of Justice and Federal Trade Commission (FTC) have stated that grant-backs that contain nonessential patents and patents outside the scope of the initial licensing transaction are more likely to raise antitrust concerns.¹⁷⁸ However, courts and the antitrust agencies have rejected “per se” treatment of such licenses due to the possibility that a non-exclusive grant-back

several billion dollars over the past several years. See Jack Ellis, *Samsung Electronics has paid billions in royalties to secure freedom to operate*, IAM (Nov. 27, 2014), <http://www.iam-media.com/blog/detail.aspx?g=51889180-c81c-49ee-afbf-f56a9eed7eaf>.

¹⁷⁴ See Popofsky & Laufert, *supra* note 156, at 8 n.54 (quoting MOSAID–Nokia–Microsoft royalty contract, stating that “Microsoft obtains a ‘worldwide, irrevocable, non-exclusive, perpetual, and fully paid-up license under any Later Acquired Patents to’ make and supply its products”). MOSAID has since changed its name to Conversant Intellectual Property Management Inc. See Letter from Adobe Systems, *supra* note 153, at 11 n.42 (citing *About Us*, CONVERSANT INTELL. PROP. MGMT. (2014), <http://www.conversantip.com/about>).

¹⁷⁵ JAY DRATLER, JR. & STEPHEN M. MCJOHN, LICENSING OF INTELLECTUAL PROPERTY § 7.09, at 7-86 (2014).

¹⁷⁶ Although Nokia did not release a PC-compatible operating system, it might be well-situated due to its 800 patents on wireless technology (other than cellular telecommunications standards such as LTE) to develop and release one, as Android and subsequently Google did. Cf. Popofsky & Laufert, *supra* note 156, at 9–11 (describing Android as threat to Windows); Respondents’ Pet. for Rev. of Order No. 32, *supra* note 158, at 32–36 & nn.14–16 (similar).

¹⁷⁷ *Transparent-Wrap Mach. Corp. v. Stokes & Smith Co.*, 329 U.S. 637, 647 (1947).

¹⁷⁸ ANTITRUST ENFORCEMENT, *supra* note 18, at 58; U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY 30 (Apr. 6, 1995), <https://www.justice.gov/sites/default/files/atr/legacy/2006/04/27/0558.pdf> [hereinafter DOJ & FTC GUIDELINES].

(which used to be called a back-license) will encourage the licensee to share the licensor's risk of nonrecovery of royalties and spur the licensor onto greater investments in the field of technology.¹⁷⁹ Where, as with Microsoft and Nokia, the parties formerly competed directly, and may compete again after late 2016, the perpetuation of the grant-back and the "funneling" of Android or other mobile device revenues into Microsoft's hands may not pass muster under antitrust's rule of reason.¹⁸⁰ If Nokia does not compete on a plane of "competitive equality" with Microsoft with respect to its Android products, competition may have been unduly impaired.¹⁸¹

¹⁷⁹ See DRATLER & MCJOHN, *supra* note 175, at 7-88–7-89.

¹⁸⁰ *Cf. id.* at 7-90–7-91 (suggesting that grant-back may not be permissible where parties compete, and that they actually did not in *Transparent-Wrap*, 329 U.S. at 638–39, 638 n.1). See also John Herrman, *What Windows Phone 7 Could Have Been*, GIZMODO (Feb. 25, 2010, 3:09 PM), <http://gizmodo.com/5480387/what-windows-phone-7-could-have-been>; Brandon Miniman, *Thoughts on Windows Phone 7 Series (BTW: Photon is Dead)*, POCKETNOW (Feb. 17, 2010, 10:01 AM), <http://pocketnow.com/2010/02/17/thoughts-on-windows-phone-7-series-btw-photon-is-dead>; *Steve Ballmer wishes Windows Mobile 7 had already launched, but they screwed up*, MOBILETECHWORLD (Sept. 24, 2009), <http://www.mobiletechworld.com/2009/09/24/steve-ballmer-wishes-windows-mobile-7-had-already-launched-but-they-screwed-up/>; Nicholas Kolakowski, *Microsoft Explains Windows Phone 7 Lack of Compatibility*, EWEEK (Mar. 15, 2010), <http://www.eweek.com/c/a/Mobile-and-Wireless/Microsoft-Explains-Windows-Phone-7-Lack-of-Compatibility-588900>; Augusto Valdez, Senior Prod. Manager, Windows Phone Bus. Experience, & Terry Myerson, Vice President, Windows Phone Eng'g, Microsoft Corp., *Windows Phone 7: A New Kind of Phone*, Remarks at TechEd North America 2010 (June 8, 2010), <http://channel9.msdn.com/Events/TechEd/NorthAmerica/2010/WPH201>; Press Release, Microsoft Corp., *Nokia and Microsoft Announce Plans for a Broad Strategic Partnership to Build a New Global Mobile Ecosystem*, (Feb. 11, 2011), <https://news.microsoft.com/2011/02/10/nokia-and-microsoft-announce-plans-for-a-broad-strategic-partnership-to-build-a-new-global-mobile-ecosystem/#sm.001ehzo4e19zpepqxb92mp41312kx#VaB8cmHGPKsKgTlr.97>.

¹⁸¹ *Cf. DRATLER & MCJOHN, supra* note 175, at 7-90 (suggesting that equality and reciprocity are important to rule of reason analysis of a grant-back); Chris Smith, *Google and Nokia might finally make the Android phone fans are dying for*, BGR/YAHOO! TECH (Apr. 7, 2017), <https://www.yahoo.com/tech/google-nokia-might-finally-android-phone-fans-dying-000017680.html>. The impairment might have gone both ways in this transaction, reducing Microsoft's incentive to revive and invest in devices utilizing the Windows Phone platform of 2004–2011, and reducing Nokia's incentive to improve and expand the Symbian operating system for mobile devices. See *Symbian*, WIKIPEDIA, <https://en.wikipedia.org/wiki/Symbian> (last visited Mar. 21, 2017) (collecting sources); *Windows*

Microsoft may have essentially agreed *ex ante* with Nokia not to bid separately on its later-acquired patents.¹⁸² Nokia has sold some patent portfolios for nearly \$600 million each.¹⁸³ Traditionally, such *ex ante* joint negotiations as to the terms and conditions on which patents would be licensed to multiple parties did not occur, “apparently out of fear that they could be condemned under the antitrust laws as an unlawful exercise of monopsony power.”¹⁸⁴ The Omnipoint consent decree between the Department of Justice and a bidder on Federal Communications Commission spectrum licenses resolved a civil suit based on “an [anticompetitive] agreement to refrain from bidding.”¹⁸⁵ There is little reason to distinguish between bidding on government property or regulatory licenses, and on private patent rights and remedies.¹⁸⁶ When Congress and the President considered the issue of immunizing joint efforts to set technical standards, they excluded from the immunity the actions of individual members of a standards development organization to fix patent license rates, as well as “any agreement or conspiracy that would set

Phone, WIKIPEDIA, https://en.wikipedia.org/wiki/Windows_Phone (last visited Mar. 21, 2017) (collecting sources).

¹⁸² See Popofsky & Laufert, *supra* note 156, at 8–10; Florian Mueller, *Microsoft-Nokia deal results in cost-effective combination of patent cross-license agreements*, FOSS PATENTS (Sept. 2013), <http://www.fosspatents.com/2013/09/microsoft-nokia-deal-results-in-cost.html> (After follow-up deal to cross-license patents with Nokia, Microsoft said that it “will have the most cost-effective patent arrangements for smart devices,” which commentator called “a far more important competitive advantage than many people think today.”).

¹⁸³ See Laurie, *supra* note 165, at 48.

¹⁸⁴ Morse, *supra* note 23, at 22. Cf. David J. Teece & Edward F. Sherry, *Standards Setting and Antitrust*, 87 MINN. L. REV. 1911, 1953–54 (2003) (noting that such negotiations raise antitrust concerns); Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1944–47 (2002) (maintaining that negotiations to cap royalties paid for standard-essential patents should be excluded from antitrust safe harbor for standard-setting).

¹⁸⁵ See Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 147–48, 148 n.74 (citing Competitive Impact Statement at 1–2, *United States v. Omnipoint Corp.*, Civil Action No. 1:98CV02750, (D.D.C. Nov. 10, 1998), <https://www.justice.gov/atr/case-document/file/506876/download>).

¹⁸⁶ See Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 148 & n.76 (In both cases, antitrust enforcement is “consistent with a long line of public and private antitrust cases . . . in which courts have scrutinized oligopsonistic collusion under the rule of *per se* illegality.”).

or restrain prices of any good or service,” and efforts aimed at sharing “information among competitors relating to cost, sales, profitability, prices, marketing or distribution of any product, process, or service that is not reasonably required for the purpose of developing or promulgating a voluntary consensus standard, or using such standard in conformity assessment activities.”¹⁸⁷ It would be appropriate to draw an analogy to the market for mergers and acquisitions of companies, where an *ex ante* agreement not to bid over a certain amount on a particular firm would help prove monopsony or an oligopsonistic conspiracy.¹⁸⁸ Classical bid-rigging under the antitrust

¹⁸⁷ Standards Development Organization Advancement Act of 2004, 15 U.S.C. § 4301(c) (2015); Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 124 (defining a standards development organization as one in which “owners and users of patents agree to establish standards that make possible the production of interoperable end products that use patented technologies as inputs,” as with standards-setting organizations).

¹⁸⁸ See Dahl v. Bain Capital Partners, LLC, 589 F. Supp. 2d 112, 114, 119 (D. Mass. 2008) (reasoning that plaintiffs’ allegations that the defendants “conspired to pay less than fair value for the Target Companies, which in turn deprived the Target Companies’ Shareholders of the true value of their shares upon sale of the Target Companies,” do “‘plausibly suggest’ an illegal agreement” existed in violation of § 1), *further proceedings at* 937 F. Supp. 2d 119, 138 (D. Mass. 2013) (Where evidence suggested that Defendants were “adhering to some code agreed to by the Defendants not to ‘jump’ announced deals,” such “evidence tends to exclude the possibility of independent action” and indicates “overarching agreement between the Defendants to refrain from ‘jumping’ each other’s announced proprietary deals.”); Elizabeth Bailey, *Are Private Equity Consortia Anticompetitive? The Economics of Club Bidding*, ANTITRUST SOURCE, Apr. 2007, at 5–6, http://www.americanbar.org/content/dam/aba/publishing/antitrust_source/Apr07_FullSource4_30.authcheckdam.pdf (“Competition can be softened, or even eliminated, through explicit agreements on which bidder will win the auction [Company] auctions have the flavor of a repeated game in that some private equity firms face each other time and time again in auctions for different Target Companies.”); Robert Connolly, *Last Defendant, Carlyle Group, Settles in Leveraged Buyout Collusion Case*, CARTEL CAPERS (Sept. 5, 2014), <http://cartelcapers.com/blog/last-defendant-carlyle-group-settles-leveraged-buyout-collusion-case/> (“[W]here firms have been working together in legitimate joint ventures the lines of communication are open and the tempting allure of ‘not leaving money on the table’ in a bidding war can lead to agreements outside the joint venture context to simply not compete against one another.”); Jessica Jackson, *Much Ado About Nothing? The Antitrust Implications of Private Equity Club Deals*, 60 FLA. L. REV. 697, 699, 699 n.17 (2008) (“The DOJ is examining the possibility of collusion among private equity firms and is trying to discover attempts by clubs to reduce purchase prices Red flags would be agreements to

laws similarly involved concerted action to interfere with the price mechanism that often sustains the efficient satisfaction of consumer demand in a market economy.¹⁸⁹ Likewise, *ex ante* coordination on licensing costs resembles *ex ante* understandings among firms not to drive up the salaries of scientifically- or technically-trained employees who create millions or billions of dollars of value for their employers.¹⁹⁰

In 2007, however, the Department of Justice and Federal Trade Commission argued that joint *ex ante* negotiation to reduce license rates should be analyzed under the rule of reason.¹⁹¹ As Sidak points

pull out of a bid, rewards for pulling out of bids, or rotating bids between deals.”); Thomas Piraino Jr., *Antitrust Implications of “Going Private” and Other Changes of Corporate Control*, 49 B.C. L. REV. 971, 1006 (2008) (“[O]ligopolists’ tacit collusion is both more durable and more difficult to discover than an explicit arrangement. Thus, in change-of-control transactions, shareholders will be harmed more by implicit agreements among potential purchasers to refrain from competing against each other.”); Greg Roumeliotis, *UPDATE 1-Carlyle Group to pay \$115 mln to settle collusion suit -source*, REUTERS (Aug. 29, 2014, 7:54 PM), <http://www.reuters.com/article/privateequity-collusion-settlement-idUSL1N0QZ2RD20140829> (“Carlyle Group LP has agreed to pay \$115 million to settle a lawsuit accusing it of conspiring with other buyout firms not to outbid each other on some takeovers that occurred prior to the financial crisis, a person familiar with the matter said on Friday.”).

¹⁸⁹ See *Harkins Amusement Enters., Inc. v. General Cinema Corp.*, 850 F.2d 477, 488 (9th Cir. 1988) (“[Agreements that] eliminate the possibility of bidding . . . eliminate the opportunity for the small competitor to obtain the choice [opportunities], and put a premium on the size of the [contracting purchasers]. They are, therefore, devices for stifling competition and diverting the cream of the business to the large operators It is hardly necessary to add that distributors who join in such arrangements by [buyers] are active participants in effectuating a restraint of trade”) (quoting *United States v. Paramount Pictures*, 334 U.S. 131, 154–55 (1948)).

¹⁹⁰ See *Todd v. Exxon Corp.*, 275 F.3d 191, 213–14 (2d Cir. 2001).

¹⁹¹ See Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, 161–62 & nn.111–16; Deborah Platt Majoras, Chairman, Fed. Trade Comm’n, *Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting*, Remarks Delivered at Stanford University for Standardization and the Law: Developing the Golden Mean for Global Trade (Sept. 23, 2005), at 7, <http://www.ftc.gov/speeches/050923/stanford.pdf>; Geradin, *supra* note 22, at 12. The rule of reason involves, among other things, analysis of the “nature of the restraint and its effect, actual or probable,” its history and purported justification, and the defendant’s “intent [which] may help the court to interpret facts and to predict consequences.” *Board of Trade of Chicago v. United States*, 246 U.S. 231, 238 (1918). It is often used when economic practices are unfamiliar to courts and

out, this effectively repudiated the case law under Section 1 of the Sherman Act, particularly *Knevelbaard Dairies v. Kraft Foods*.¹⁹² There, the Ninth Circuit held that horizontal maximum price-fixing for the price of an input, in that case milk for cheese, is “a *per se* antitrust violation.”¹⁹³ The court explained:

The fallacy of this argument [in favor of fixing “low” prices] becomes clear when we recall that the central purpose of the antitrust laws, state and federal, is to preserve competition. It is competition—not the *collusive fixing of prices at levels either low or high*—that these statutes recognize as vital to the public interest. The Supreme Court’s references to the goals of achieving “the lowest prices, the highest quality and the greatest material progress,” and of “assur[ing] customers the benefits of price competition,” do not mean that conspiracies among buyers to depress acquisition prices are tolerated. Every precedent in the field makes clear that the interaction of competitive forces, not price-rigging, is what will

may have unexpected beneficial results. *Per se* violations are often confined to such familiar, obviously harmful practices as price-fixing, territorial market division, and certain group boycotts involving concerted refusals to deal. *See* NYNEX Corp. v. Discon, Inc., 525 U.S. 128, 133 (1998) (group boycotts and market division); *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 218 (1940) (horizontal price-fixing); *United States v. Terminal R.R. of St. Louis*, 224 U.S. 383, 409–413 (1912) (group boycott and concerted denial of access to essential facility); *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373, 405 (1911) (vertical price-fixing), *abrogated by* *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 882 (2007); *Capital Imaging Assocs., P.C. v. Mohawk Valley Med. Assocs., Inc.*, 996 F.2d 537, 542–43 (group boycotts and market division).

¹⁹² 232 F.3d 979, 988 (9th Cir. 2000).

¹⁹³ *Id.* at 987–88 (emphasis added). The court pointed out that California state law supported the same conclusion:

The same rule applies in California: “Under both California and federal law, agreements fixing or tampering with prices are illegal *per se*.” The California statute explicitly makes price fixing by buyers unlawful. *See* Cal. Bus. & Prof. Code § 16720(c) (prohibiting any combination to prevent competition in the “sale or purchase of any commodity” (emphasis added)). *Id.* at 986 (first citation omitted).

benefit consumers. [Supreme Court cases] “have emphasized the central interest in protecting the economic freedom of participants in the relevant market.”¹⁹⁴

Whether known as buyers’ cartels or cooperative buying, conspiracies to achieve monopsony harm the economy by interfering with the price-demand-supply loop.¹⁹⁵ Although Microsoft may benefit from not paying additional royalties on follow-on patents covering technologies developed in 2012 or beyond by Nokia or MOSAID, it may have collusively fixed the price for such patents at a low level by bundling them into the deal for existing patents. The controversy between Google and Microsoft over MOSAID may give the courts reason to resolve the apparent conflict between the per se price-fixing cases under *Knevelbaard* and the rule of reason governing grant-backs under *Transparent Wrap* and its progeny.

E. *Rockstar Consortium/Corp.*

Consider another hypothetical situation in which Google invests supracompetitive profits from the Google.com search engine, Android operating system, and YouTube video-based social network into reimbursing its competitors for refusing to deal with potential licensors to Google of the patented technology needed to operate the most advanced search engine, mobile OS, or video sharing site. Would this not be just as competitive as investing these profits to bribe Google’s server or bandwidth suppliers not to sell to Facebook, Apple, Amazon, Microsoft Bing or Xbox, or some other competitive platform?¹⁹⁶ Indeed, would not these technology giants be better-situated to protect themselves and remain viable than impecunious inventors and startup companies whose technologies

¹⁹⁴ See *id.* at 988 (emphasis added) (citations omitted); see also Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 187–88.

¹⁹⁵ See *Vogel v. Am. Soc’y of Appraisers*, 744 F.2d 598, 601 (7th Cir. 1984); *N. Jackson Pharmacy, Inc. v. Caremark RX, Inc.*, 385 F. Supp. 2d 740, 747 (N.D. Ill. 2005).

¹⁹⁶ Cf. Melamed, *supra* note 59, at 377 (characterizing the following as “naked exclusion” without procompetitive justification of any kind: “For example, if Firm A . . . pays suppliers of inputs that are needed by the rival but not used by Firm A not to do business with the rival, Firm A can exclude the rival from the marketplace without creating any plausible efficiency benefit.”).

threaten to be swallowed up? This hypothetical suggests that it may not be justified to treat conspiracies or abuse of dominance at the expense of patent or copyright licensors less seriously than other exclusive dealing or exclusionary conduct.

Smartphone technology lies at the intersection of computer/Internet and cellular technology.¹⁹⁷ This led Nokia and other handset companies to turn to licensing patents and trademarks as their sales had declined.¹⁹⁸ The Antitrust Division of the Department of Justice has focused its enforcement activity on standards-essential patents and efforts to evade alleged commitments to license such patents on fair, reasonable, and nondiscriminatory terms (F/RAND terms).¹⁹⁹ Similarly, the Federal Trade Commission has focused its patent-related inquiries into PAE activity and its costs.²⁰⁰ One such matter involved Rockstar Bidco, “a partnership that included Apple, Microsoft, Research in Motion, Sony, and Ericsson[] and its acquisition of 6,000 patents and patent applications from Nortel at a bankruptcy auction.”²⁰¹ The concern was whether Apple, Microsoft, etc. could use the patents to “hold up” and “foreclose” competition from smaller firms.²⁰² The Antitrust Division concluded that Microsoft was more likely to try to maximize the Nortel licensing revenue than to shut down Android makers or charge them “supracompetitive royalties.”²⁰³ Therefore, Microsoft’s participation in the consortium to acquire the Nortel portfolio was not “likely to substantially lessen

¹⁹⁷ See Statement of Joseph F. Wayland, *supra* note 18.

¹⁹⁸ *See id.*

¹⁹⁹ *See id.*

²⁰⁰ Edith Ramirez, Chairwoman, Fed. Trade Comm’n, Competition Law & Patent Assertion Entities: What Antitrust Enforcers Can Do, Remarks Before Comput. & Comm’n Indus. Ass’n & Am. Antitrust Inst. Program 8 (June 20, 2013), https://www.ftc.gov/sites/default/files/documents/public_statements/competition-law-patent-assertion-entities-what-antitrust-enforcers-can-do/130620paespeech.pdf.

²⁰¹ Statement of Joseph F. Wayland, *supra* note 18.

²⁰² *Id.*

²⁰³ *Id.*

competition for wireless devices.”²⁰⁴ Moreover, Microsoft had issued licenses that covered such newly acquired patents to most Android makers.²⁰⁵

This, again, is mostly a reread of the patent holdup narrative. Some commentators, however, have viewed the Rockstar deal through the lens of a counter-IP conspiracy. Glenn Manishin argues that the Rockstar consortium is “horizontal collusion,” one aim of which is to deter Google or Samsung from filing patent claims of their own against consortium members when they come out with new devices.²⁰⁶ Google and Samsung would already have limited their own royalties by entering into cross-licensing arrangements of various kinds, which Rockstar might enable Ericsson or Microsoft to avoid, creating a degree of asymmetry of risk.²⁰⁷ Brian Kahin contends that big companies using consortia like Rockstar to acquire patents can sue their rivals without incurring counterclaims based on the rivals’ own patents, because consortia do not practice the rivals’ patents.²⁰⁸ The participants might still file suit on their own patents against Rockstar’s targets, but would fear having their own patents invalidated and becoming entangled in repeated worldwide claims and counterclaims filed by multiple allied patentees.²⁰⁹ They

²⁰⁴ *Id.*

²⁰⁵ *See id.*; Press Release, U.S. Dep’t of Justice, Decision to Close Investigations of Google Inc.’s Acquisition of Motorola Mobility Holdings and the Acquisitions of Certain Patents by Apple Inc., et al. (Feb. 12, 2012), <http://www.justice.gov/opa/pr/2012/February/12-at-210.html>.

²⁰⁶ Glenn Manishin, *Rockstar’s Patent Trolling Conspiracy*, DISCO (Apr. 17, 2014), <http://www.project-disco.org/competition/041714-rockstars-patent-trolling-conspiracy/>.

²⁰⁷ *See id.*; *cf.* Popofsky & Laufert, *supra* note 156, at 9–12 (making similar point about Nokia side of MOSAID deal).

²⁰⁸ *See* Brian Kahin, *Proving Damages in a Thermonuclear War*, DISCO (June 29, 2012), <http://www.project-disco.org/intellectual-property/proving-damages-in-a-thermonuclear-war/>.

²⁰⁹ *See id.*; *cf.* Florian Mueller, *Supreme Court grants Samsung’s petition to review Apple’s smartphone design patents case*, FOSS PATENTS (Mar. 21, 2016), <http://www.fosspatents.com/2016/03/supreme-court-grants-samsungs-petition.html> (noting that “one of its iPhone design patents at issue in the [Samsung] case, the D’677 patent, has been held invalid by the Central Reexamination Division of the United States Patent and Trademark Office in an ongoing reexamination. Should this decision to be affirmed, then it will be harder and harder for Apple to collect the amount of damages originally awarded.”).

might enjoy more leverage in bids to prevent “cloning” of their products based on somewhat contestable patents such as Apple’s minimalist iPhone design or slide-to-unlock feature.²¹⁰ By combining their forces, dominant firms could minimize the impact of smaller rivals’ patents.

Even without leveraging patents into more powerful patent lawsuits of the consortium, or to deter the filing of patent lawsuits against its members, the consortium could be evidence of a buyers’ cartel. Consider the analogy to a seller’s cartel. Just as an individual seller requires a cartel in order to sell at supracompetitive prices rather than to cut prices to gain market share, an individual buyer of patent assignments or licenses would—but for the cartel—purchase them if the expected value of doing so was greater than the administrative, business-related, and litigation-related costs of the patents’ enforcement.²¹¹ The excess profits of a buyers’ cartel, which threaten “ruinous” competition for patents, are like the excess profits of a sellers’ cartel, which threaten to attract “excess capacity” to produce and sell their product or service.²¹² Such market conditions reflective of collusion, and actions against individual firms’ short-

²¹⁰ See Florian Mueller, *Apple insists on anti-cloning provisions as part of any patent settlement with Samsung*, FOSS PATENTS (Jan. 20, 2014), <http://www.foss-patents.com/2014/01/apple-insists-on-anti-cloning-provision.html>.

²¹¹ Cf. *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 361 (3d Cir. 2004) (in cartel, members do not cut prices as expected to gain market share, but instead maintain or raise prices to match competitors’ supracompetitive pricing); *Law v. Nat’l Collegiate Athletics Ass’n*, 134 F.3d 1010, 1014–15, 1022 (10th Cir. 1998) (cartel may fix maximum purchase prices to inhibit costs competition among its members, thereby degrading the quality of the service its members purchase as input); ABA SECTION OF ANTITRUST LAW, ANTITRUST LAW DEVELOPMENTS 11–12 (5th ed. 2002) (in cartel cases: “[a]mong the most important plus factors are those that tend to show that the conduct would be in the parties’ self-interest if all agreed to act in the same way but would be contrary to their self-interest if they acted alone.”).

²¹² *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 657 (7th Cir. 2002) (describing “ruinous” price competition as a situation in which “excess capacity . . . makes price competition more than usually risky and collusion more than usually attractive.”); *Omnicare, Inc. v. UnitedHealth Grp., Inc.*, 629 F.3d 697, 705 (7th Cir. 2011) (“Ordinarily, price-fixing agreements exist between sellers who collude to set their prices above or below prevailing market prices. But buyers may also violate § 1 by forming what is sometimes known as a ‘buyers’ cartel.’”); *Vogel v. Am. Soc’y of Appraisers*, 744 F.2d 598, 601 (7th Cir. 1984) (“Just as a sellers’ cartel enables the charging of monopoly prices, a buyers’

term self-interest, are indicators—plus factors—for the existence of a cartel.²¹³ The communications among a consortium’s members could be evidence of an unlawful agreement.²¹⁴

In 2012, the Department of Justice concluded that it would raise “a significant concern” if a party used patents to condition its own commitment not to seek an injunction on an acquired patent to an adversary’s commitment not to seek an injunction.²¹⁵ Apple and Microsoft were in the clear because they had committed to license the Rockstar patents on F/RAND terms, and Apple was bound anyway

cartel enables the charging of monopsony prices; and monopoly and monopsony are symmetrical distortions of competition from an economic standpoint.”)

²¹³ See *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993); *Monsanto Co. v. Spray-Rite Serv. Corp.*, 465 U.S. 752, 768 (1984); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 588 (1986); *Omnicare, Inc.*, 629 F.3d at 705–06; *In re High-Fructose Corn Syrup*, 295 F.3d at 656–57; *Todd v. Exxon Corp.*, 275 F.3d 191, 198–99 (2d Cir. 2001); *Vogel*, 744 F.2d at 601–02; *O’Bannon v. Nat’l Collegiate Athletic Ass’n*, 7 F. Supp. 3d 955, 991 (N.D. Cal. 2014), *aff’d in part*, 802 F.3d 1049 (9th Cir. 2015).

²¹⁴ See *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 201–09 (1940) (describing communications concerning strategic purchases of low-priced or distressed petroleum products to stabilize prices); *Ambook Enter.’s v. Time, Inc.*, 612 F.2d 604, 616–18 (2d Cir. 1979) (communications plus motive to conspire may be used to infer conspiratorial agreement); *Fears v. Wilhelmina Model Agency, Inc.*, No. 02 Civ. 4911(HB), 2004 WL 594396, at *14 (S.D.N.Y. Mar. 23, 2004) (holding that “evidence of parallel pricing coupled with the evidence of discussions and agreements among association members, demonstrates a material issue of disputed fact as to whether [the] members acted independently with regard to models’ commissions.”), *aff’d in part*, *Masters v. Wilhelmina Model Agency, Inc.*, 473 F.3d 423 (2d Cir. 2007); *In re Nasdaq Market-Makers Antitrust Litig.*, 894 F. Supp. 703, 713 (S.D.N.Y. 1995) (“It is enough that a concert of action is contemplated and that the defendants conformed to this arrangement.”) (citations omitted); *In re Med. X-Ray Film Antitrust Litig.*, 946 F. Supp. 209, 218 (E.D.N.Y. 1996) (“[S]eemingly innocent or ambiguous behavior can give rise to a reasonable inference of conspiracy in light of the [economic] background”) (citing *Minpeco, S.A. v. Conticommodity Serv.’s, Inc.*, 673 F. Supp. 684, 688 (S.D.N.Y. 1987)).

²¹⁵ Press Release, U.S. Dep’t of Justice, Statement of the Department of Justice’s Antitrust Division on Its Decision to Close Its Investigations of Google Inc.’s Acquisition of Motorola Mobility Holdings Inc. and the Acquisitions of Certain Patents by Apple Inc., Microsoft Corp. and Research in Motion Ltd. (Feb. 13, 2012), <https://www.justice.gov/opa/pr/statement-department-justice-s-antitrust-division-its-decision-close-its-investigations>.

by commitments that Novell had made to the Open Invention Network.²¹⁶ Besides underlining the power of the patent holdup theory, this disposition suggested that significant antitrust issues would be raised by a scheme to deny patent owners a remedy to which they are entitled—in this instance, an injunction—by leveraging a portfolio of other patents.²¹⁷ For example, if Rockstar members expanded aggressively into networking, cloud storage, data analytics, or other adjacent markets, Rockstar could put tremendous pressure on the firms holding patents in those fields not to assert them to prevent going out of business. In one case, Rockstar allegedly sued the customers of a spin-off of Nortel, telling them—allegedly falsely—that they were not licensed to practice cable technologies, and asking them to sign non-disclosure agreements to hinder the spin-off’s ability to identify and find its licenses for the Rockstar patents.²¹⁸

F. RPX

In 2013, a U.S. District Court issued a decision that echoes much of the foregoing analysis.²¹⁹ A patent owner alleged that in the fall of 2011, three or more manufacturing companies did not respond individually to its offer of a license to a patent, which was the basis of four pending lawsuits.²²⁰ One of the companies, Motorola, allegedly told the plaintiff that it wanted all negotiations on its behalf to

²¹⁶ See generally *id.*

²¹⁷ See *id.* (noting that “Motorola Mobility, a manufacturer of smartphones and computer tablets and the holder of a portfolio of approximately 17,000 issued patents and 6,800 applications, including hundreds of SEPs relevant to wireless devices that Motorola Mobility,” did “not directly provide the same assurance as the other companies’ statements concerning the exercise of its newly acquired patent rights.”).

²¹⁸ See David Long, *Rockstar sued by Arris who manufactures equipment sold to cable operators involved in Rockstar litigation*, ESSENTIAL PATENT BLOG (Jan. 31, 2014), <http://www.essentialpatentblog.com/2014/01/rockstar-sued-by-arris-who-manufactures-equipment-sold-to-cable-operators-involved-in-rockstar-litigation/>; see also David Long, *Cisco Files counterclaim against Rockstar based on assertions against cable operators that purchase Cisco equipment*, ESSENTIAL PATENT BLOG (Feb. 3, 2014), <http://www.essentialpatentblog.com/2014/02/cisco-files-counterclaim-against-rockstar-based-on-assertions-against-cable-operators-that-purchase-cisco-equipment/>.

²¹⁹ *Cascades Comput. Innovation LLC v. RPX Corp.*, Case No.: 12–CV–01143 YGR, 2013 WL 6247594, at *12 (N.D. Cal. Dec. 3, 2013).

²²⁰ See *id.* at *3–5.

be done by RPX Corporation—a “defensive patent aggregator”—whose members pay a subscription fee to obtain the right to practice more than 2,950 patents in various fields, which RPX bought or negotiated at “wholesale prices.”²²¹ The patent owner argued that this arrangement created “a monopsony in the market to *buy* [its] patents, not a monopoly in the market to *sell* them.”²²² It contended that RPX had a 75% market share, based on its members’ shares in the market for Android smartphones and tablets, which was the only market that plaintiff claimed was relevant to the market for its patents.²²³ The court agreed that a 75% share of phones and tablets, or over 90% of phones alone, supported plaintiff’s monopsony claim.²²⁴ Moreover, it accepted the plaintiff’s argument that its patent was “valid and infringed, lends a competitive advantage, and had been driven to sub-competitive prices by the three Manufacturing Defendants’ domination of the buyer’s market, leading smaller players to capitalize on the market conditions created by the alleged conspiracy.”²²⁵ Although, as the conduct of LG and Phillips who licensed the patent illustrated, the RPX members had the right to act alone and purchase licenses or entire patents, the court accepted the allegation that there was an informal “agreement or understanding to deal only through RPX, despite being contractually permitted to do otherwise,” and that this tended to restrain trade unlawfully.²²⁶

The court, however, did not exclude the possibility of a finding, after discovery and perhaps a trial, that RPX’s role would be a First Amendment-protected exercise of the potential infringers’ right to dispute their liability and reach a favorable settlement.²²⁷ It is questionable whether an agreement or understanding not to license patents outside of an aggregator is ancillary or incidental to First Amendment petitioning of the courts for redress of grievances, such as discovery documents or demand letters seeking to resolve suits immediately prior to the filing of a suit. This type of long-term, subscription-based arrangement seems to be different in important

²²¹ *See id.* at *3–4.

²²² *Id.* at *14.

²²³ *See id.* at *16.

²²⁴ *See id.* at *16.

²²⁵ *Id.* at *12.

²²⁶ *Id.*

²²⁷ *See id.* at *1.

ways from a one-time communication necessary for or closely tied to the resolution of a discrete legal matter. Extending the First Amendment to this sort of commercial transaction and combination of firms would raise questions about whether secret mergers or pricing cartels could be formed while litigation seeking approval to merge or set prices was pending.

Another question that will arise is whether any impact on competition is insufficiently exclusionary under Section 2, or has procompetitive aspects that outweigh its anticompetitive ones under Section 1. Dr. Carl Shapiro calls this a type of patent insurance that reduces risk, and a “new asset class” in the financial space, made up of “defensive strategies” relating to patent risk.²²⁸ Michael Kallus of RPX told an Application Developers Alliance event that “there is no way to steer clear of infringement,” and that the patent system is inefficient due to the Patent and Trademark Office’s procedures, and high litigation costs.²²⁹ Such evidence may support a theory that RPX has a procompetitive justification as a type of insurance.

As with Rockstar, the cost-cutting justification of RPX will no doubt be taken seriously.²³⁰ However, there is precedent that a potential to save costs at some point is not sufficient to justify conspiring against the efforts of suppliers or other sources of essential inputs to compete on a level playing field.²³¹ As one scholar observes:

In another case, *Law v. NCAA*, the 10th Circuit held that a NCAA rule limiting colleges to four basketball coaches and limiting the earnings of a particular category of coaches, violated Section 1 of the Sherman Act. The court further stated that the schools’ argument that the rule would reduce the schools’ costs

²²⁸ Kellogg School of Management, *Carl Shapiro on how to prevent patent trolls from tanking your startup*, YOUTUBE (Apr. 20, 2015), <http://www.youtube.com/watch?v=hv4PBjkItYo>.

²²⁹ Mateo Fowler, *Michael Kallus of RPX Corporation: Part 2*, YOUTUBE (Apr. 15, 2013), <http://www.youtube.com/watch?v=dvzzfvYYegs>.

²³⁰ The two entities are actually connected, insofar as in 2014, RPX bought “a portfolio of 4,000 patent assets from Rockstar Consortium LLC.” Victoria Slind-Flor, *RPX, Guess Goods, Omega, Disney: Intellectual Property*, BLOOMBERG (Feb. 4, 2015), <https://www.bloomberg.com/news/articles/2015-02-04/rpx-guess-goods-omega-disney-intellectual-property>.

²³¹ *Law v. Nat’l Collegiate Athletics Ass’n*, 134 F.3d 1010, 1022 (10th Cir. 1998).

was not valid because if cost-cutting were a legitimate procompetitive justification, “any group of competing buyers could agree on maximum prices.” The court also said that “[l]ower prices cannot justify a cartel’s control of prices charged by suppliers, because the cartel ultimately robs the suppliers of the normal fruits of their enterprises” and that “setting maximum prices reduces the incentive among suppliers to improve their products.”²³²

Consider another hypothetical in which conspiracies against suppliers or other small businesses took the form of “cost cutting.” In 1984, an insurance company began requesting that an insurance industry association that somehow gained regulatory authority replace the standard commercial general liability insurance form, which insured against all occurrences during the policy period whenever made, with a similar form that only insured against claims made during the policy period.²³³ This switch had the capacity of making insurance cheaper because costly claims made outside the policy period for pollution or birth defects could prompt insurers to fear heavy losses and raise rates.²³⁴ Yet, the Ninth Circuit deemed this level of coordination within the insurance industry to violate the antitrust laws because it distorted the competitive process, replacing the price mechanism with a cartel-like arrangement that reduced the choices enjoyed by insurance buyers in the market.²³⁵

A hypothetical from the world of mergers and acquisitions illustrates this point in another way. One of the most important merger challenges of President Obama’s first term involved the ticketing

²³² Natalie Rosenfelt, *The Verdict on Monopsony*, 20 LOYOLA CONSUMER L. REV. 402, 410–11 (2008) (citing *Law v. Nat’l Collegiate Athletics Ass’n*, 134 F.3d 1010, 1022 (10th Cir. 1998)).

²³³ *In re Ins. Antitrust Litig.*, 938 F.2d 919, 923–24, 928–29 (9th Cir. 1991), *aff’d sub nom. Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 771–77 (1993); see also Kenneth S. Abraham, *The Rise and Fall of Commercial Liability Insurance*, 87 VIRGINIA L. REV. 85, 92 (2001).

²³⁴ Abraham, *supra* note 233, at 103.

²³⁵ See *In re Ins. Antitrust Litig.*, 938 F.2d at 923–24, 928–29.

service Live Nation, which received an offer from the dominant service Ticketmaster to merge.²³⁶ Live Nation had competed vigorously by offering favorable terms to artists and venues.²³⁷ The two firms argued that they should be allowed to merge because the merger would reduce concert venues' negotiating costs, even though it would combine the vast majority of the ticketing business into one monopoly.²³⁸ The Department of Justice disagreed and saw the merger as anticompetitive unless the merged company agreed not to tie content and ticketing, not to use ticketing data to win over artist management or promotion contracts, and not to degrade or leverage its own software platform that helps venues sell tickets for themselves.²³⁹ Rather than exercising blind deference because of possible savings—extracted on behalf of the concert venues using cooperative buying to reduce payments to hundreds of artists and record labels—the Department of Justice saw a massive database, combined operation, and content farm as a threat to competition.²⁴⁰

The traditional justification for monopsony falls away when a dominant firm is offering low rather than high prices as a buyer. That justification is as follows: when a dominant firm overbuys an input or pays too much for it, this may result in increased production (and reduced prices due to the law of supply and demand), and therefore benefit to consumers.²⁴¹ Even if a firm is not dominant, its overbuying or over-accumulation of inputs will benefit consumers as it increases its output in a competitive market.²⁴² In that scenario, the input's producers and their employees will reap their rewards from a growing market.²⁴³ As a result, investors will be tempted to create new suppliers or to expand existing ones. By contrast, when a dominant firm pays too little for an input or refuses to buy it, the input's

²³⁶ See Competitive Impact Statement at 5, *United States v. Ticketmaster Entm't, Inc.*, No. 1:10-cv-00139, 2010 WL 5699134 (D.D.C. July 30, 2010).

²³⁷ See *id.* at 10–11.

²³⁸ See Deborah Garza & Elizabeth Arens, *The Ticketmaster/Live Nation Consent Decree*, LAW 360 (Mar. 9, 2010, 4:53 PM), <https://www.law360.com/articles/153658/the-ticketmaster-live-nation-consent-decree>.

²³⁹ See Competitive Impact Statement, *supra* note 236, at 16–17.

²⁴⁰ See *id.* at 17–18.

²⁴¹ See Steven C. Salop, *Anticompetitive Overbuying by Power Buyers*, 72 ANTITRUST L.J. 669, 675–77 (2004).

²⁴² See *id.* at 675–76.

²⁴³ See *id.* at 677.

market dries up and any employees risk layoffs, while vendors of the input firm are threatened with non-payment of their invoices.²⁴⁴

The size of RPX in comparison to Sony or Rockstar is also cause for concern. The “industry-wide” scope of exclusive dealing, if that is what RPX represents to a seller like Cascades Computer Innovation due to the scope of participation in its initiatives, may persuade a court that it has a sufficient negative effect to be unlawful.²⁴⁵ Industry-wide use of exclusivity clauses reduces the share of the market characterized by free competition, and may raise barriers to entry.²⁴⁶ Thus, although commonality of a practice within an industry may be looked to as a defense, it actually compounds the problem from the standpoint of maintaining competition.²⁴⁷

G. LimeWire

A copyright-related dispute that arose before the Rockstar and RPX matters may actually shed light on counter-IP conspiracies as well.²⁴⁸ A claim based upon such a conspiracy confronts the heightened pleading standards for antitrust conspiracy and parallelism by agreement rather than by shared interest.²⁴⁹ LimeWire, a defendant

²⁴⁴ See *id.* at 672–73.

²⁴⁵ *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 334 (1961).

²⁴⁶ See, e.g., *Standard Oil Co. v. United States*, 337 U.S. 293, 314 (1949); *Magnus Petroleum Co., Inc. v. Skelly Oil Co.*, 599 F.2d 196, 203 (7th Cir. 1979) (noting that a “company-wide [or] industry-wide practice” may lead to “foreclosure of a significant amount of competition”); *Twin City Sportservice, Inc. v. Charles O. Finley & Co.*, 676 F.2d 1291, 1304–05 (9th Cir. 1982) (finding such barriers where restrictive contracts were common in the industry).

²⁴⁷ See Dismissal Order, *In re Beltone Elec.’s Corp.*, 100 F.T.C. 68, 210–11 (July 6, 1982) (Docket 8928), 1982 WL 608293, at *5–6.

²⁴⁸ See generally *Arista Records LLC v. Lime Group LLC*, 532 F. Supp. 2d 556, 563 (S.D.N.Y. 2007).

²⁴⁹ See *id.* at 568, 574 (antitrust claimant or counterclaimant must allege “injury of the type the antitrust laws were intended to prevent and that flows from that which makes defendants’ acts unlawful.”) (citations omitted); *id.* at 576 (“As the Supreme Court recently instructed in *Bell Atlantic v. Twombly*, to state a § 1 claim for conspiracy, a party must state ‘allegations plausibly suggesting (not merely consistent with) agreement.’”) (citations omitted); *id.* at 577 (to state such a claim, a pleading must allege a “clue as to which of the [thirteen counter-defendants] . . . supposedly agreed, or when and where the illicit agreement took place.”) (quoting *Bell Atlantic v. Twombly*, 550 U.S. 544, 565 n. 10); *id.* at 578 (“[W]hile the plaintiff may believe the defendants conspired . . . , the defendants’

in a suit principally based on contributing to and inducing copyright infringement, pled an antitrust counterclaim based in part on the plaintiffs' and counter-defendants' refusal to deal with LimeWire's MagnetMix—a system for detecting and recommending licensed sources of popular music.²⁵⁰ Insofar as LimeWire's product was a peer-to-peer ("P2P") file-sharing software application like Napster or Grokster, where users could share music without paying for it, LimeWire requested the hashes, or unique identifiers of digital files using their metadata, that could detect music belonging to the counter-defendants and enable LimeWire to direct searchers for such music to sites like iTunes.²⁵¹ The counter-defendants allegedly used the Recording Industry Association of America ("RIAA") to try to force LimeWire to use an alternative music filtering solution and to somehow partner with another digital music distribution firm called iMesh, which had obtained the hashes to defendant record labels' popular songs.²⁵²

For the most part, the LimeWire dispute is a traditional "refusal to deal" case. However, the court's resolution of LimeWire's antitrust counterclaims bears lessons for counter-IP conspiracy disputes. First, the court explained that LimeWire had antitrust standing to challenge conduct that was "impeding its ability, and the ability of other P2P retailers utilizing hash-based filtering technology, to operate as effective competitors in the digital distribution market."²⁵³ Even though LimeWire would be an "intra-brand" competitor of iMesh by offering the same defendant's popular music on its platform, the court declared that LimeWire had plausibly alleged antitrust injury to "the ability of P2P retailers using hash-based filtering technology to compete effectively against other intra-brand competitors."²⁵⁴ Eventually, the court dismissed LimeWire's Section 1

allegedly conspiratorial actions could equally have been prompted by lawful, independent goals which do not constitute a conspiracy.") (quoting *Twombly*, 550 U.S. at 566–57) (internal quotation marks omitted in original); *id.* at 580 (Second Circuit "precedents support application of *Twombly* to the conspiracy claims asserted under both Section 1 and Section 2") (internal citation and quotation marks omitted).

²⁵⁰ See generally *Arista Records*, 532 F. Supp. 2d at 563.

²⁵¹ See *id.* at 562–564, 564 n.8.

²⁵² See *id.* at 562–64.

²⁵³ *Id.* at 572.

²⁵⁴ *Id.* at 573.

claim because the RIAA did not implement the conspiracy to exclude MagnetMix and use only iMesh.²⁵⁵ At the same time, the court suggested that had Limewire explained the RIAA's action on behalf of the counter-defendants, it might have pled a plausible Section 1 claim.²⁵⁶ Moreover, the court opined that the counter-defendants had a legitimate reason to prefer iMesh because it was licensed under relevant patents covering hash filtering.²⁵⁷ Had they lacked this justification for rejecting MagnetMix, and had LimeWire pled a plausible agreement, then it might have had a Section 1 claim.²⁵⁸ With respect to Section 2, LimeWire failed to allege that the RIAA members "sought to unite in a single monopolistic entity" or "to allocate shares of the relevant market."²⁵⁹ This raises the possibility that an owner of intellectual property, confronting an industry that seeks to unite in a monopoly or to allocate parts of the market by declining to license the owner's properties (which would help industry members compete more vigorously), may have claims under Section 1 for the plausible agreement and Section 2 for conspiracy to monopolize.²⁶⁰

H. *The NCAA, the NFL, and the UFC*

Another argument that participants in alleged counter-IP conspiracies are likely to make is that whatever decline or depression of royalties to IP owners occurred, it was necessary to achieve some beneficial result, such as a joint venture (Nokia-Microsoft, the RPX community, etc.).²⁶¹ A pair of famous cases involving rule of reason analysis came to different conclusions when similar questions were raised.²⁶² A third case is ongoing and the stakes have just been raised dramatically.²⁶³ In the first case, the Ninth Circuit concluded that rules banning student-athletes from licensing of their names, likenesses, or photographs for consideration, adopted by an association of colleges and universities having athletic programs, constituted an

²⁵⁵ See *id.* at 577–78.

²⁵⁶ See *id.* at 577.

²⁵⁷ See *id.* at 578–79.

²⁵⁸ See generally *id.* at 577–79.

²⁵⁹ *Id.* at 580.

²⁶⁰ See generally *id.*

²⁶¹ See *supra* Section III.D; see also *supra* Section III.F

²⁶² See *infra* notes 264 & 266.

²⁶³ See *infra* note 268.

unlawful restraint of trade.²⁶⁴ The rules were simply more restrictive than necessary, because compensating basketball and football players up to the level of the full cost of college attendance would promote competition for players while not transforming college sports into minor-league professional operations.²⁶⁵ In the second case, a district court declined to rule that prohibiting NFL football players from obtaining compensation for images or footage containing their portraits or likenesses violated the Sherman Act.²⁶⁶ It reasoned that game footage was a joint product of the teams combined in a league, and that the restraint was just as necessary as one prohibiting Tom Cruise from selling clips of himself in *Mission: Impossible* films.²⁶⁷ In the third case, a judge refused to dismiss a claim that the Ultimate Fighting Championship conspired against fighters' individual sponsorship and promotional contracts.²⁶⁸ The case arguably became supercharged when the UFC was sold for \$4 billion.²⁶⁹

What do these last three cases teach us about counter-IP conspiracies? First, the rule of reason is not such a loose standard as to permit any degree of malicious or irrational exclusion of IP licensors

²⁶⁴ O'Bannon v. Nat'l Collegiate Athletic Ass'n, 802 F.3d 1049, 1052–53, 1079 (9th Cir. 2015).

²⁶⁵ See *id.* at 1061–66; see also O'Bannon v. Nat'l Collegiate Athletic Ass'n, 7 F. Supp. 3d 955, 973 (N.D. Cal. 2014) (plaintiff's expert testified that buyers' cartel was created because "FBS football and Division I basketball schools are buyers seeking to acquire recruits' athletic services and licensing rights, paying for them with full grants-in-aid but no more."); *id.* (district court concluded that "NCAA exercises market power, fixes prices, and restrains competition in" licensing NCAA athletes' names and likenesses for videogame use).

²⁶⁶ See *Washington v. Nat'l Football League*, 880 F. Supp. 2d. 1004, 1007–08 (D. Minn. 2012).

²⁶⁷ See *id.*

²⁶⁸ See Order at 18, *Le v. Zuffa, LLC*, No. 2:15-cv-01045-RFB-PAL, 2016 WL 6134520, at *18 (D. Nev. Oct. 19, 2016); Kat Greene, *No Quick KO For UFC In Fighters' MMA Monopoly Suit*, LAW360 (Sept. 28, 2015), <http://www.law360.com/articles/708038/no-quick-ko-for-ufc-in-fighters-mma-monopoly-suit>.

²⁶⁹ Darren Rovell & Brett Okamoto, *Dana White on \$4 billion UFC sale: 'Sport is going to the next level'*, ESPN (July 11, 2016), http://www.espn.com/mma/story/_/id/16970360/ufc-sold-unprecedented-4-billion-dana-white-con-firms; see also Michael McCann, *Antitrust lawsuit, if successful, could unravel the UFC*, SPORTS ILLUSTRATED (Dec. 17, 2014), <http://www.si.com/mma/2014/12/16/ufc-antitrust-lawsuit-cung-le>.

from their only or best markets.²⁷⁰ Second, the rule of *American Needle v. NFL*²⁷¹ and its progeny that sports teams could conspire with each other in terminating or conspiring against a supplier or customer is not so aggressive as to require the NCAA to abandon amateurism or the NFL to allow players to sell their own “greatest hits” collections.²⁷² Finally, the balance of statutory and contractual rights between the real people who make an enterprise work, and the executives who run it, can be a key determinant of enterprise value.²⁷³

III. EMPIRICAL AND THEORETICAL ECONOMIC APPROACHES TO CONSPIRACIES AGAINST IP OWNERS

A. *The Patent Crisis on the Sell Side*

While “patent crisis” concerns are typically motivated by patent seller or licensor power, there is growing unease about buyer or licensee power.²⁷⁴ The incredible growth of the digital economy,

²⁷⁰ See generally *O’ Bannon*, 802 F.3d 1049; *Washington*, 880 F. Supp. 2d 1004; *Zuffa, LLC*, 2016 WL 6134520.

²⁷¹ See 560 U.S. 183, 204 (2010).

²⁷² See *Washington*, 880 F. Supp. 2d at 1006.

²⁷³ See generally *O’ Bannon*, 802 F.3d 1049; *Washington*, 880 F. Supp. 2d 1004; *Zuffa, LLC*, 2016 WL 6134520.

²⁷⁴ See James Bessen, *The patent troll crisis is really a software patent crisis*, WASH. POST: THE SWITCH (Sept. 3, 2013), <https://www.washingtonpost.com/news/the-switch/wp/2013/09/03/the-patent-troll-crisis-is-really-a-software-patent-crisis/>; James Bessen, Jennifer Ford, & Michael J. Meurer, *The Private and Social Costs of Patent Trolls: Do nonpracticing entities benefit society by facilitating markets for technology?*, REGULATION, Winter 2011–2012, at 26, www.cato.org/sites/cato-org/files/serials/files/regulation/2012/5/v34n4-1.pdf; James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 14 (2005) [hereinafter Bessen & Meurer, *Lessons*]; JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 141 (2008) [hereinafter BESSEN & MEURER, PATENT FAILURE]; Alex Blumberg & Laura Sydell, *When Patents Attack*, NPR (July 22, 2011, 8:04 PM), <http://www.npr.org/blogs/money/2011/07/26/138576167/when-patents-attack>; Colleen V. Chien, *Reforming Software Patents*, 50 HOUS. L. REV. 325, 335 (2012) [hereinafter Chien, *Reforming*]; Charles Duhigg & Steve Lohr, *The Patent, Used as a Sword*, N.Y. TIMES (Oct. 7, 2012), www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition.html?_r=0; Steven

smartphone sales, advertising markets, and streaming content has culminated in the success of the FAANG companies, or Facebook, Apple, Amazon, Netflix, and Google.²⁷⁵ As consumers of patent rights, and participants in occasional or long-term alliances and associations relevant to the subject of patent licensing, their size and influence may raise new concerns.

Fee shifting, damages caps, and building “defensive” patent aggregators like RPX are said to be the solutions to the traditional patent crisis.²⁷⁶ Royalty stacking, with as many as 250,000 patents being applicable to a single smartphone product, is a prime target of the appeals for damages reform.²⁷⁷ Weeding out invalid patents is another priority for reform advocates, as typified by the America Invents Act (“AIA”), *Alice* and *KSR International v. Teleflex*.²⁷⁸

Levy, *The Patent Problem*, WIRED (Nov. 13, 2012, 6:30 AM), www.wired.com/2012/11/ff-steven-levy-the-patent-problem/; Ben Parr, *Why the coming patent crisis is inevitable*, CNET (Apr. 04, 2012, 8:09 AM), <http://www.cnet.com/news/why-the-coming-patent-crisis-is-inevitable/>. The prominent technology-law blog Techdirt has published dozens, and probably hundreds, of such articles, with ten in June 2016 alone, see TECHDIRT, <https://www.techdirt.com/search.php?q=&search=Search&edition=&tid=Patents> (last visited Jan. 28, 2017). These concerns are often focused on holdup or holdout power. See Bessen & Meurer, *Lessons*, *supra* note 274 at 2–3, 14–18, 24, 27; Chien, *Reforming*, *supra* note 274, at 336–344, 369–373, 377–79, 385–387; Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1941 (2002); Lemley & Shapiro, *Patent Holdup*, *supra* note 7, at 2001–08, 2010–25. The prominent empirical intellectual-property researcher James Bessen has probably published a similar amount of work on Twitter. @JamesBessen, TWITTER, <https://twitter.com/JamesBessen> (last visited on Jan. 18, 2017).

²⁷⁵ The FANG companies are Facebook, Amazon, Netflix, and Google, but Apple is often grouped with them as competing with Google and Amazon (and Netflix and Facebook vis à vis digital video), so FAANG makes sense as well. See Chuck Jones, *FANG Stocks and Apple: Cash Flows and Valuation Analysis*, FORBES (Feb. 7, 2016, 3:01 PM), www.forbes.com/sites/chuckjones/fang-stocks-and-apple-cash-flows-and-valuation-analysis/#477550366806.

²⁷⁶ See Bessen & Meurer, *Lessons*, *supra* note 274, at 22–24; Chien, *Reforming*, *supra* note 274, at 325, 351–90; ARTI RAI ET AL., *supra* note 18; Cf. Mark Lemley, *Rational Ignorance at the Patent Office*, 95 NORTHWESTERN L. REV. 1495, 1513–24 (2001).

²⁷⁷ See Chien, *Reforming*, *supra* note 274, at 336 (citing RPX Corp., Registration Statement (Form S-1) 59 (Sept. 2, 2011)).

²⁷⁸ Todd Klein, Comment, *eBay v. MercExchange and KSR Int’l Co. v. Teleflex, Inc.: The Supreme Court Wages War Against Patent Trolls*, 112 PENN. ST. L. REV. 295, 310 (2007).

Along with *eBay v. MercExchange*, these decisions are threatening to greatly reduce patentees' bargaining position. After *eBay*, the vast majority of individual, small-business, and licensing-entity patentees seeking injunctive relief as leverage to negotiate a settlement, as real property owners do with developers such as a casino or professional sports team owner, experienced denial of the relief they sought.²⁷⁹ Justice Kennedy's view, which did not command a majority, that PAEs and plaintiffs hoping for holdup should not receive injunctive relief even though the Patent Act does not contain such rules, has persuaded many courts, which "followed Justice Kennedy's instruction to be wary of granting injunctions where there is the *potential* for patent holdup."²⁸⁰ In 2011, Congress passed the AIA on a promise to protect American jobs by, among other things, invalidating business method patents more rapidly with a "transitional proceeding," banning tax strategy patents, and improving patent quality with post-grant review proceedings.²⁸¹

With the AIA, *Bilski*, and *eBay* in place, the market value of patents granted in the United States has fallen by 65 to 85%.²⁸² Patent damage awards peaked in 2012, with 2014 and 2015 combined

²⁷⁹ Although more than 2,500 patent cases were commenced each year from 2003 to 2013, only 17 permanent injunctions were granted on average per year during that period. See Mark Lemley, *The Surprising Resilience of the Patent System*, 95 TEX. L. REV. 1, 4 (2016) [hereinafter Lemley, *Surprising Resilience*] (rate of patent cases commenced per year in figure one); Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After eBay: An Empirical Study*, 101 IOWA L. REV. 1949, 1958, 1975, 1988, 1988 n. 247 (2016) [hereinafter Seaman, *Permanent Injunctions*] (patentees granted injunctions in 158 decisions issued between May 2006 and May 2013, or 23 decisions per year, a number equal to less than 1% of the number of cases commenced; the threat of injunctive relief, however, may have resulted in higher royalties than would have been paid absent a lawsuit) (citing EVOLVING IP MARKETPLACE, *supra* note 17, at 5); see also Richard A. Epstein, *The Property Rights Movement and Intellectual Property*, REGULATION, Winter 2008, at 62, <https://object.cato.org/sites/cato.org/files/serials/files/regulation/2007/12/v30n4-7.pdf>.

²⁸⁰ Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 141, 141 n. 49 (emphasis added).

²⁸¹ See Cong. Research Serv., Summaries: S. 23 (112th): *America Invents Act*, GOVTRACK.US, <https://www.govtrack.us/congress/bills/112/s23/summary> (last visited Jan. 18, 2017).

²⁸² Richard Baker, *Guest Post: America Invents Act Cost the US Economy over \$1 Trillion*, PATENTLYO (June 8, 2015), <http://patentlyo.com/patent/2015/06/america-invents-trillion.html> ("According to Scott Bechtel of

not equaling the total for 2012 alone.²⁸³ Royalty awards in court are running at a quarter to half of their 2012 level.²⁸⁴ Settlements may be down by even more than that because most of them are not publicized.²⁸⁵ As a former judge of the Federal Circuit explained, after attempting to set up a transparent patent deals marketplace:

We used to have, for the most part in this country, what I'll call an honor system where companies that were using technologies patented by others willingly took licenses without being forced by court orders to do so. The honor system now is largely gone. [Today,] no one would take a license, because in every case, and [including in cases of] very high quality portfolios, standard essential patents sponsored by major wonderful companies that you all know, nobody would take a license to any of these portfolios. In every case the business people wanted to and in every case there [sic] outside counsel told them don't do it. Don't take a license, don't negotiate, don't respond. If you get sued call us and we'll file an [inter partes review], we'll defend you in court. You'll

AmiCOUR IP Group, an experienced patent broker, 'US Patents have lost 2/3rds of their value since the AIA was passed in 2011.'"); *id.* ("A bigger sampling of deal values can be found in IPOfferring's Patent Value Quotient Annual Report of patent sales. This report has been issued from 2012 through 2014 . . . [and] show[s] the dramatic drop in patent values over 13,564 patent sales in 93 deals over a three year period . . . The overall sales dropped from \$3 Billion to well under one half billion in patent sales per year, or by 84%."); Brief of Amicus Curiae Small Business Technology Council in Support of Petitioner at 12, *In re Trading Techs. Int'l, Inc.*, No. 2016-120 (Mar. 15, 2016), <http://sbtc.org/wp-content/uploads/2016/03/Small-Business-Technology-Council-amicus-03.15.pdf> ("At least two studies have shown that the value of patents has dropped by as much as over 80% since the passage of the AIA. The average market price of a patent has dropped from about one million fifty thousand dollars in the first half of 2011, before the passage of the AIA to about one hundred and ninety thousand dollars in the second half of 2014, a drop of 82%.")

²⁸³ Lemley, *Surprising Resilience*, *supra* note 279, at 26.

²⁸⁴ *See id.*

²⁸⁵ *See id.* at 25.

probably win. We can drag it out and make it so punitive for the owner that they'll probably lose the war of attrition.²⁸⁶

Small businesses have little chance of issuing paid-up licenses to multinational giants in this system.²⁸⁷ Meanwhile, judicial remedies withered; although more than 2,500 patent cases were commenced each year from 2003 to 2013, only 17 permanent injunctions were granted on average per year during that period.²⁸⁸ Computer software, consisting of something like 7% of the 2,500 patent cases commenced, or at least 175 cases, resulted in only about 5 injunctions per year in the period between 1995 and 2013.²⁸⁹ In today's economy, when most new products implicate more than one patent or component, irreparable injury and the balance of hardships may not favor injunctions.²⁹⁰

Patents alleged to be invalid under Section 101 after *Bilski* and *Alice* are vastly more likely to be cancelled than to be upheld.²⁹¹ Reviewing this data, Ben Dugan presents an estimate whereby nearly 15% of patents, or 280,000, are invalid under *Alice* and *Bilski*.²⁹²

²⁸⁶ Gene Quinn, *Judge Michel says Congress stuck in a time warp on patent reform*, IP WATCHDOG (May 12, 2015), <http://www.ipwatchdog.com/2015/05/12/judge-michel-says-congress-stuck-in-a-time-warp-on-patent-reform/id=57648/>.

²⁸⁷ Paul Morinville, *How the U.S. is killing innovation and why it matters for entrepreneurs*, IP WATCHDOG (Oct. 24, 2015), <http://www.ipwatchdog.com/2015/10/24/how-the-u-s-is-killing-innovation-and-why-it-matters-for-entrepreneurs/id=62679/>. Cf. John R. Harris, *The Patent System is Under Assault – Startups, Should You Care? Ten Things About Patents That Startups Need to Consider*, 44 AIPLA Q.J. 27, 28–29 (2016).

²⁸⁸ See Lemley, *Surprising Resilience*, *supra* note 279, at 3, 4 fig. 1; See Seaman, *Permanent Injunctions*, *supra* note 279, at 1969, 1983–84.

²⁸⁹ The grant rate averaged about 53%. See Seaman, *Permanent Injunctions*, *supra* note 279, at 1984 tbl. 1, 1984 n. 230.

²⁹⁰ See Benjamin Petersen, *Injunctive Relief in the Post-eBay World*, 23 BERKELEY TECH. L.J. 193, 198 (2008); Seaman, *Permanent Injunctions*, *supra* note 279, at 1995.

²⁹¹ See Robert R. Sachs, *#AliceStorm: When It Rains, It Pours . . .*, FENWICK & WEST: BILSKIBLOG (Jan. 22, 2016), <http://www.bilskiblog.com/blog/2016/01/alicestorm-when-it-rains-it-pours.html> [hereinafter Sachs, *#AliceStorm*].

²⁹² See Ben Dugan, *Estimating the Impact of Alice v. CLS Bank Based on a Statistical Analysis of Patent Office Subject Matter Rejections 34–35* (Feb. 23, 2016) (unpublished manuscript), http://ssrn.com/abstract_id=2730803 (“We can

Still, Mark Lemley observes that judged empirically, reforms from *MercExchange* to *Alice* have not “much changed the ever-increasing number of patent applications, patent grants, or patent lawsuits,” or even “patentees’ win rate in court or the damage awards they receive when they do win.”²⁹³ These overall figures may not fully reflect the particular periods of time or sectors of the economy experiencing the fastest change in circumstances, such as the 31% fall in the rate at which patentees secured preliminary injunctive relief between 2006 and 2011,²⁹⁴ the 80% fall in the share of patent cases in which a permanent injunction is issued and the patentee enjoys the statutory right to exclude (now less than 1% of all cases filed),²⁹⁵ the 40% drop in patent lawsuit filings after implementation of the AIA from Fall 2013 to Fall 2014,²⁹⁶ or massive declines in the rate at which independent inventors are issued patents: 50% in the computer memory and data processing/business method fields from 2010 to 2015, and 66% in the computer architecture and processor field from 2010 to 2015.²⁹⁷ Other trends include the 200% to 400%

estimate the number of patents invalidated under *Alice* by classifying claims from a sampling of patents issued prior to the *Alice* decision. In one analysis, we evaluated the first independent claim from one percent of the issued patents in our patent corpus, limited to patents issued between 2001 and 2013 inclusive . . .”).

²⁹³ Lemley, *Surprising Resilience*, *supra* note 279, at 50.

²⁹⁴ See Kirti Gupta & Jay P. Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases* 9 fig. 3 (Univ. of Ill. Coll. of Law, Working Paper No. 17-03, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2629399. Gupta and Kesan note that because permanent injunctions are rare, preliminary injunctions are important as a yardstick for “the impact of the *eBay* decision on injunctions.” *Id.* at 3.

²⁹⁵ See *id.* at 10 fig. 4; see also Ryan T. Holte, *The Misinterpretation of eBay v. MercExchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. 677, 679, 719 (2015); Andrew Beckerman-Rodau, *The Supreme Court Engages in Judicial Activism in Interpreting the Patent Law in eBay, Inc. v. MercExchange, L.L.C.*, 10 TUL. J. OF TECH. & INTELL. PROP. 165, 192 (2007).

²⁹⁶ See Brian Pomper, *In Considering Patent Law Changes, Don't Forget Impact on Universities*, IP WATCHDOG (Feb. 15, 2015), <http://www.ipwatchdog.com/2015/02/15/patent-law-changes-impact-on-universities/id=54690/>.

²⁹⁷ See U.S. PATENT & TRADEMARK OFF., PATENT COUNTS BY CLASS BY YEAR - INDEPENDENT INVENTORS: JANUARY 1977 -- DECEMBER 2015 Lines 705–06, 712–13 (2016), https://web.archive.org/web/20160506040807/http://www.uspto.gov/web/offices/ac/ido/oeip/taf/cbcbby_in.htm.

increase in rejections on patentability grounds of applications covering transportation, construction, electronic commerce, agriculture, and national security, as a percentage of all Patent & Trademark Office responses to applications in those areas.²⁹⁸ E-commerce patent applications also saw a 200 to 400% rise in the chance of being rejected as involving unpatentable subject matter in July 2014 to May 2015 versus January 2012 to May 2014.²⁹⁹ The number of patent cases filed, moreover, declined from 3,025 in the first half of 2013, before the AIA took full effect, to 2,238 in the first half of 2016, after its implications had become obvious.³⁰⁰ Although small businesses employ a large share of America's scientists and technologists, and generate many times as many patents per employee as large multinational corporations, these small businesses are losing their ability to enforce or benefit from their patents because patent owners must first accumulate millions or tens of millions of dollars in preparation for lengthy litigation and the threat—often baseless—of attorney's fees shifting.³⁰¹ Once disfavored on account of the

²⁹⁸ See Robert Sachs, *The One Year Anniversary: The Aftermath of #AliceStorm*, FENWICK & WEST: BILSKIBLOG (June 20, 2015), <http://www.bilskiblog.com/blog/2015/06/the-one-year-anniversary-the-aftermath-of-alicestorm.html> [hereinafter Sachs, *One Year Anniversary*]; see also James Cosgrove, *The Most Likely Art Units for Alice Rejections*, IP WATCHDOG (Dec. 14, 2015), <http://www.ipwatchdog.com/2015/12/14/the-most-likely-art-units-for-alice-rejections/id=63829/>.

²⁹⁹ See Sachs, *One Year Anniversary*, *supra* note 298.

³⁰⁰ See Brian Howard, *2015 First Half Patent Case Filing Trends*, LEX MACHINA (July 14, 2015), <https://lexmachina.com/2015-first-half-patent-case-filing-trends/> [hereinafter Howard, *2015 First Half Patent Case Filing Trends*] (3,025 cases filed in first half of 2013); Richard Lloyd, *First half US patent litigation down dramatically with new suits falling by almost 1,000*, IAM (July 5, 2016), <http://www.iam-media.com/Blog/Detail.aspx?g=e6d2dc31-5d07-4e5c-8875-0e6c5eb48bd9> (2,238 cases brought in the first half of 2016). *Cf. also* Pomper, *supra* note 296 (filings fell 40% from AIA effective date of September 2013 to a year later).

³⁰¹ See Letter from Charles Giancarlo, Chairman of the Bd. of Advisors, The Alliance of U.S. Startups and Inventors for Jobs, to the Hon. Bob Goodlatte, Chairman, Judiciary Comm. & the Hon. John Conyers, Ranking Member, Judiciary Comm. (June 10, 2015), http://innovationalliance.net/wp-content/uploads/2015/06/Letters-and-Statements-on-HR-9_062615-tc.pdf; Letter from Robert N. Schmidt, Co-Chair, Small Bus. Tech. Council, to the Hon. Bob Goodlatte, Chairman, House Judiciary Comm. (June 10, 2015), http://innovationalliance.net/wp-content/uploads/2015/06/Letters-and-Statements-on-HR-9_062615-tc.pdf.

principle that litigants have a due-process and free-speech right to petition the courts for redress of grievances, the practice of requiring an often impecunious patent owner to pay for the expensive attorneys of a potentially quite wealthy defendant is becoming more prevalent.³⁰² The Chair of the National Venture Capital Association (“NVCA”) warned that the rise of fee-shifting in patent cases “will have a devastating impact on startups trying to enforce their patents against large incumbents and on small companies facing legal challenges by larger, well-financed competitors.”³⁰³ According to Mike Remington, who enforces the University of Wisconsin’s patents, and retired Chief Judge Paul Michel of the U.S. Court of Appeals for the Federal Circuit, patent enforcement is becoming the reserve of the wealthy, because small and independent firms cannot afford the “war chest” of millions needed to initiate a lawsuit.³⁰⁴ As the Chair of the NVCA explained, changes in the law “mean[] that any entrepreneur who seeks to defend their patent will have to take into

³⁰² See Gene Quinn, *Courts Award Attorneys’ Fees on 50% of Motions Post Octane*, IP WATCHDOG (Apr. 14, 2015), <http://www.ipwatchdog.com/2015/04/14/courts-award-attorneys-fees-on-50-of-motions-post-octane/id=56770/> (citing FED. CIRCUIT BAR ASS’N, A COMPARISON OF PRE *OCTANE* AND POST *OCTANE* DISTRICT COURT DECISIONS ON MOTIONS FOR ATTORNEYS’ FEES UNDER SECTION 285 1, 1 (2015), <http://ipwatchdog.com/materials/FCBA-Fee-Shifting-Paper.pdf>); Gene Quinn, *Is the Patent System Self Correcting, or Are We Going Too Far?*, IP WATCHDOG (July 15, 2015), <http://www.ipwatchdog.com/2015/07/15/is-the-patent-system-self-correcting-or-are-we-going-too-far/id=59821/> [hereinafter Quinn, *Is the Patent System Self-Correcting*] (“The Supreme Court’s decision in *Octane Fitness v. Icon Health & Fitness* granted district court judges broad discretion to award attorneys fees as they see fit in patent litigation. This decision, and a decision in a companion case (i.e., *Highmark, Inc. v. Allcare Health Management System, Inc.*) derailed patent reform during the 113th Congress.”).

³⁰³ Scott Sandell, *Correcting the record of venture capital’s views on patent reform*, HILL CONGRESS BLOG (Apr. 15, 2015 11:00 AM), <http://thehill.com/blogs/congress-blog/technology/238941-correcting-the-record-of-venture-capitals-views-on-patent>; see also Adam Mossoff, *Repetition of Junk Science & Epithets Does Not Make Them True*, IP WATCHDOG (Nov. 19, 2015), <http://www.ipwatchdog.com/2015/11/19/repetition-of-make-them-true/id=63302/>; Daniel Spulber, *The Innovation Act Will Harm Income, Employment, and Economic Growth*, IP WATCHDOG (Feb. 24, 2015), <http://www.ipwatchdog.com/2015/02/24/the-innovation-act-will-harm-income-employment-and-economic-growth/id=55035/>.

³⁰⁴ Gene Quinn, *Patent Reform Fuels Fear, Paralyzes U.S. Innovation Market*, IP WATCHDOG (June 15, 2015), <http://www.ipwatchdog.com/2015/06/15/patent-reform-fuels-fear-paralyzes-innovation-market/id=58743/>

account the risk that losing in court could bankrupt their company.”³⁰⁵ Why, indeed, would anybody take that risk in order to obtain an incremental gain in revenue, and often no profit?

B. *The Holdup Justification Reconsidered*

Economist Tim Simcoe argues that transfers of wealth from operating companies to patent assertion entities do not prove harm to competition.³⁰⁶ One would have to show increased costs or lower quantities of products or services in order to prove harm to competition and not just to competitors.³⁰⁷ Such evidence is lacking in the case of computer and electronic products, software, and cellular equipment.³⁰⁸ Moreover, there is reason to doubt that absent the present patent licensing system, there would be a low-cost and frictionless equilibrium in which all technologies were licensed and used at optimal levels.³⁰⁹ On the other hand, like copyright collecting societies and rights organizations, most notably ASCAP, PAEs can reduce transaction costs in patent licensing by consolidating patents, offering bundles of licenses, and sparing individual inventors

³⁰⁵ Sandell, *supra* note 303.

³⁰⁶ Gina Smith, *Patent Assertion Entity Activities — Session 3/4* (statement from Tim Simcoe to FTC-DOJ at 24:15–24:27), ANEWDOMAIN (2012), http://anewdomain.net/2012/12/23/doj-ftc-investigation-of-patent-trolls-intellectual-ventures-mosaid../#disqus_thread [hereinafter Statement from Tim Simcoe to FTC-DOJ].

³⁰⁷ *Id.* at 26:48–27:00.

³⁰⁸ See Jennifer Lee & Andrew G. Schmidt, *Research and Development Satellite Account Update: Estimates for 1959–2007*, 90 SURVEY OF CURRENT BUSINESS no. 12, Dec. 2010, at 16, 47 Table 7.1A: Gross Output by Industry with R&D Treated as Investment, 1987–2007, available at https://www.bea.gov/scb/pdf/2010/12%20December/1210_r-d_tables.pdf. (showing increased output by software publishers of about six times the 1987 level as of 1999, whereas all industries doubled their output, and communications equipment manufacturers tripled output); see also J. Gregory Sidak, *Holdup, Royalty Stacking, and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 713, 718–19 (2008) [hereinafter Sidak, *Holdup, Royalty Stacking*] (characterizing holdup of communications and Internet industries as a speculative possibility); Hannibal Travis, *Patent Alienability and Its Discontents*, 17 TULANE J. TECH. & INTELL. PROP. 109, 128–29 (2014) (noting how some of most-affected companies by patent assertion—Apple, Google, Intel, and Microsoft—were earning fabulous profits after the media warned that patents could be too costly to them).

³⁰⁹ Statement from Tim Simcoe to FTC-DOJ, *supra* note 306 at 25:05–26:20

the fixed costs of getting up to speed on patent law and economics.³¹⁰ The antitrust agencies have observed that patents and other forms of IP “may in some cases be misappropriated more easily than other forms of property,” a fact which “may justify the use of some restrictions [on IP-related competition] that might be anticompetitive in other contexts.”³¹¹

Recent empirical research has revealed that even where holdup was supposed to be the most common—the Internet industry and particularly the 3G mobile Internet sector—evidence of it is lacking.³¹² Three studies published from 2014 to 2016 came to this conclusion, as did one prescient study in 2008.³¹³ Galetovic, Haber, and

³¹⁰ See *id.*; Josef Drexl, *Competition in the Field of Collective Management: Preferring ‘Creative Competition’ to Allocative Efficiency in European Copyright Law*, in COPYRIGHT LAW: A HANDBOOK OF CONTEMPORARY RESEARCH 268 (Paul Torremans ed., 2007); Paul Torremans, *Collective Management in the United Kingdom (and Ireland)*, in COLLECTIVE MANAGEMENT OF COPYRIGHT AND RELATED RIGHTS 283 (Daniel Gervais ed., 2010) [hereinafter COLLECTIVE MANAGEMENT]; see also Lawrence Helfer, *Collective Management of Copyrights and Human Rights: An Uneasy Alliance Revisited*, in COLLECTIVE MANAGEMENT, *supra* at 94; Glynn Lunney, *Copyright Collectives and Collecting Societies: The United States Experience*, in COLLECTIVE MANAGEMENT, *supra* at 339–364, 370–71; Daniel Gervais, *Collective Management of Copyright and Related Rights from the Viewpoint of International Norms and the Acquis Communautaire*, in COLLECTIVE MANAGEMENT, *supra* at 18–22, 27. ASCAP stands for the American Society of Composers, Authors, and Publishers. See WILLIAM LANDES & RICHARD POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 116 (2009).

³¹¹ DOJ & FTC GUIDELINES, *supra* note 178, at 20.

³¹² See ROBERT MERGES & JOHN DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 939 (4th ed. 2007) [hereinafter MERGES & DUFFY] (noting that holdup was expected as of 2005–2006 in Internet services industry) (citing Br. of *Amicus Curiae* Yahoo! Inc. in Support of Petitioner, *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (No. 05-130)); Lemley & Shapiro, *Patent Holdup*, *supra* note 7, at 1992, 2025–29 (one might expect holdup where there are many “essential” patents, such as those covering cell phones, memory devices, Wi-Fi, and the MP3 music format for Internet delivery); Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 604–09 (2007) (anticipating holdup in industries using cellular, computer, and modem technologies); Daniel G. Swanson & William J. Baumol, *Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power*, 73 ANTITRUST L.J. 1, 3 (2005) (one might expect holdup and market power in telecommunications and Internet sectors).

³¹³ Alexander Galetovic et al., *An Empirical Examination of Patent Holdup*, 11 J. OF COMPETITION L. & ECON. 549, 551 (2015) [hereinafter Galetovic et al.,

Levine found that the prices of personal computers, smartphones, audiovisual products, and televisions declined much more rapidly than prices in non-holdup industries, and showed little evidence of reduced holdup following *eBay*,³¹⁴ which legal scholars believed would sap the right to exclude and harm patentees.³¹⁵ Similarly, Galetovic and Gupta find that while the number of standard-essential patents in the cellular device industry rose from 800 to 1,600 between 2002 and 2011, the industry grew less concentrated, the level of effective competition rose by nearly 20% measured by number of participating (equivalent) manufacturers, and the average selling price declined more than two-thirds (from nearly \$500 to \$150).³¹⁶

Likewise, John Duffy points out several problems with the patent crisis and PAE holdup narratives.³¹⁷ As a theoretical matter, invalid patents have little to do with being a PAE, and they are vulnerable to changes to the law of obviousness after *KSR*.³¹⁸ The jury system and various problems with the cost of litigation, such as the availability of discovery, the institution of the deposition, and the panoply of motion practice options and pretrial filing requirements having nothing to do with PAEs.³¹⁹ Moreover, PAEs and NPEs are simply particular forms of contract—licensing and assignment—

An Empirical Examination of Patent Holdup] (citing Damien Geradin et al., *Competing Away Market Power? An Economic Assessment of Ex Ante Auctions in Standard Setting*, 4 EUR. COMPETITION J. 443 (2008)); Jonathan Barnett, *From Patent Thickets to Patent Networks: The Legal Infrastructure of the Digital Economy*, 55 JURIMETRICS J. 1, 1–2 (2014); Alexander Galetovic & Kirti Gupta, *Royalty Stacking and Standard Essential Patents: Theory and Evidence from the World Mobile Wireless Industry 1* (Stanford Univ., Hoover Inst. Working Grp. on Intellectual Prop., Innovation, and Prosperity Working Paper 2016), <http://hooverip2.org/wp-content/uploads/ip2-wp15012-paper.pdf>.

³¹⁴ See Galetovic et al., *An Empirical Examination of Patent Holdup*, *supra* note 313, at 570–72.

³¹⁵ See MERGES & DUFFY, *supra* note 312, at 944–45 (collecting sources).

³¹⁶ See Galetovic & Gupta, *supra* note 313, at 1, 5 & Figs. 7–8, 10. The 20% rise is the difference between about six competitors in 2002 on a firm equivalent basis (which assumes all firms are same size) and nearly eight in 2012. See *id.* at 5, Fig. 10.

³¹⁷ See generally Case W. Reserve Univ. Sch. of Law, *The Role of Non-Practicing Entities in the Modern Patent System: A Debate - Topic I*, YOUTUBE (Feb. 24, 2012), <https://www.youtube.com/watch?v=uE0EyTRPE7s>.

³¹⁸ See *id.* at 22:00–25:00.

³¹⁹ See *id.* at 44:00–45:00.

just as the corporation and limited liability company are forms of contract.³²⁰ There is no reason to favor “vertical corporate integration” over “small innovative firms” who rely on a licensing system with multiple players in different roles, rather than doing everything in-house.³²¹ A small firm that focuses on applied research, without manufacturing facilities or a legal department, may serve a valuable function in the economy.

Even if overcompensation of patent holders at the expense of operating companies is deemed to be a problem, there is some question regarding whether it is still possible after patent validity and remedies have been drastically scaled back by *eBay*, *KSR*, *Bilski-Mayo-Alice*, *Octane*, *Ericsson*, *Motorola* (one Ninth Circuit and two Federal Circuit decisions), and *Intellectual Ventures I v. Capital One Financial*.³²² In an environment characterized by extreme re-

³²⁰ See *id.* at 22:00–25:00.

³²¹ *Id.*

³²² See *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1039–40 (9th Cir. 2015) (holding that courts may award nominal royalty as “reasonable” for patent infringement, and that F/RAND-encumbered patent may not be enforced by injunction unless infringer unilaterally or persistently refuses offer of F/RAND royalty); *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1342–43 (Fed. Cir. 2014), *overruled by Williamson v. Citrix Online, LLC*, 792 F.3d 1339 (Fed. Cir. 2015) (*Apple* held that F/RAND licensees may be able to recover attorneys’ fees from owners of F/RAND-encumbered patents who seek to assert right to exclude those who have not accepted what holder deems to be F/RAND license terms); *Ericsson, Inc. v. D-Link Sys.’s, Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014) (holding that patent royalties may only be based on “incremental” value of claimed invention, not its contribution to the value of a patented technical standard); *Intellectual Ventures I v. Capital One Fin., Corp.*, No. PWG-14-111, 2016 WL 160263 at *6–7 (D. Md. Jan. 14, 2016); James Brooks et al., *Ninth Circuit Upholds Landmark FRAND Decision and Jury Verdict*, ORRICK ANTITRUST WATCH (Aug. 1, 2015), <http://blogs.orrick.com/antitrust/2015/08/01/ninth-circuit-upholds-landmark-frand-decision-and-jury-verdict/> (Ninth Circuit in *Motorola* endorsed popular strategy whereby potential patent infringers extract F/RAND licensing commitments from patent holders in order to license their patents at rates that do not reflect the statutory right to exclude, and to threaten attorneys’ fees in event that right to exclude is asserted); Thomas F. Cotter, *Federal Circuit Affirms in Part and Reverses in Part Judge Posner’s Decision in Apple v. Motorola*, COMPARATIVE PATENT REMEDIES (Apr. 25, 2014), <http://comparativepatentremedies.blogspot.com/2014/04/federal-circuit-affirms-in-part-and.html> (Federal Circuit held in *Motorola* that courts may award nominal royalty close to zero for patent infringement, and that as long as negotiations with an infringer are ongoing, a patent owner may not

luctance to enjoin patent infringement, falling awards, dramatic declines in the value of patents, and bureaucrats becoming very receptive to arguments that patents should be invalidated, it is questionable whether the vestiges of holdup power justify ex ante joint negotiations.³²³ Patents are no longer, if they ever were, in a blocking position with respect to new technologies.³²⁴ Some patents, like real

exclude the infringer even though it refuses an offer of a F/RAND royalty rate); Tony Dutra, *Federal Circuit Overturns Substantial Portion of Apple v. Motorola Patent Case Dismissal*, BLOOMBERG BNA'S PAT., TRADEMARK, & COPYRIGHT L. DAILY (Apr. 30, 2014), <http://www.bna.com/federal-circuit-overturns-n17179890038/> (nominal royalty holding in Motorola); Michelle Miller & Janusz Ordoover, *Intellectual Ventures v. Capital One: Can Antitrust Law and Economics Get Us Past the Trolls?*, COMPETITION POLICY INT'L: ANTITRUST CHRONICLE (Jan. 19, 2015), <https://www.competitionpolicyinternational.com/intellectual-ventures-v-capital-one-can-antitrust-law-and-economics-get-us-past-the-trolls->(antitrust law may eliminate overcompensation of PAEs by holding some of them liable for patent aggregation that violate antitrust principles); Jason Rantanen, *Ericsson v D-Link: Standards, Patents, and Damages*, PATENTLYO (Dec. 4, 2014), <http://patentlyo.com/patent/2014/12/ericsson-standards-damages.html> (Federal Circuit in *Ericsson* held that only incremental value of patented technology may serve as royalty based in cases involving multiple technologies, and that courts may instruct juries to reject attempted holdup of infringers in appropriate cases); Sachs, #*AliceStorm*, *supra* note 291; *see also* Sachs, *One Year Anniversary* *supra* note 298.

³²³ Cf. Travis, *supra* note 308, at 153–161 (explaining variety of options for infringers threatened with holdup, including attempts to cancel patents in USPTO, apportionment of damages among patented and unpatented components or features of a product or service, and competition law remedies).

³²⁴ Even prior to the reforms of 2006–2013, patents may not have been in a blocking position in the sense required by holdup theory, i.e. a position that results in overcompensation of the patent holder above and beyond the level deemed appropriate to incentivize the underlying inventive activity, *see generally* Sidak, *Holdup, Royalty Stacking*, *supra* note 308, at 714–19, because the government could intervene against firms that accumulated too many patents or very important ones, such as AT&T and IBM, firms that knowingly obtained less vital patents which nevertheless should not have issued, firms knowingly suing noninfringers or practitioners of the prior art in bad faith, and against combinations or conspiracies of firms jointly using or trying to use patents as a weapon to unreasonably restrain trade or to tend to create a monopoly market share. *See* F.M. Scherer, *Conservative Economics and Antitrust: A Variety of Influences*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 30, 38 (Robert Pitofsky ed., 2008); Herbert Hovenkamp, *The Harvard and Chicago Schools and the Dominant Firm in id.* at 109, 118–19; ANTITRUST LAW DEVELOPMENTS (SIXTH) 1127–28 (Jonathan M. Jacobson ed., 2007) (discussing *United States v. Krasnov*, 143 F. Supp. 184 (E.D. Pa. 1956), *aff'd per curiam*, 355 U.S. 5 (1957)); Letter from Joel I. Klein,

properties in the way of economic developments like casinos or stadiums, present questions of just compensation en route to the furtherance of the public good, rather than or “extortion” or “holdup” of the “productive” members of society by property “trolls.”³²⁵

The growth of sales and of R&D in sectors of the economy allegedly being devastated by patent holdup indicates that more frequent patent enforcement does not necessarily harm competition or innovation.³²⁶ The numbers of patent grants and of lawsuits are not that surprising if the data are adjusted, as they should be, to account for the tremendous scale of patent-related investments in the United States. Adjusted for economic activity, rates of patent filing and enforcement are more stable. Scholars typically suggest that patent crisis should be measured by deviations from historical norms of patent issuance, enforcement by federal litigation, licensing costs, and damage awards.³²⁷ Steven Haber, however, adds that one should ac-

Assistant Attorney General, U.S. Dep’t of Justice Antitrust Div., to Garrard Beeney (Dec. 16, 1998), <https://www.justice.gov/atr/response-koninklijke-philips-electronics-nvs-sony-corporation-japans-and-pioneer-electronic> (declaring that Department of Justice would be inclined to pursue enforcement action against a combination or pool of patent owners that “proves to be anticompetitive in purpose or effect.”); see also Jeanne Clark, *Patent Pools: A Solution to the Problem of Access in Biotechnology Patents?*, USPTO 4–5 (Dec. 5, 2010), www.uspto.gov/patents/law/patent_pools.pdf (characterizing case law on combinations of patent rights); Steven C. Carlson, *Patent Pools and the Antitrust Dilemma*, 16 YALE J. ON REG. 359, 368 (1999) (similar).

³²⁵ Cf. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1108–09 (1972) (describing characteristics of legal entitlements to be compensated for injuries, where it is difficult or legally impossible to compel pre-injury bargaining on pain of injunction); see generally MERGES & DUFFY, *supra* note 312, at 968 (analogizing patent damages in post-*eBay* environment in which injunctions are more likely to be denied to the liability rules explained by Calabresi and Melamed, and comparing them to forced transactions accompanied by compensation in eminent domain law).

³²⁶ Barnett, *supra* note 313, at 1 (noting that there are “continuous robust levels of research and development (R&D) investment, coupled with declining prices, in technology markets that have operated under intensive patent issuance and enforcement for several decades”).

³²⁷ See Stuart Minor Benjamin & Arti K. Rai, *Who’s Afraid of the APA? What the Patent Law System Can Learn from Administrative Law*, 95 GEO. L.J. 269, 270 (2007); Bessen & Meurer, *Lessons*, *supra* note 274, at 2–3, 24–27; Chien,

count for the costs and losses from issuance, enforcement, and litigation by assessing them as a share of gross domestic product (“GDP”).³²⁸ Daniel Spulber points out that one should measure the costs of patent litigation in view of the value of patent assets, which contribute a large chunk of America’s estimated \$8 trillion or more in IP and 40 million jobs related in some way to the enjoyment of IP rights.³²⁹ In this context, the cost of patent enforcement to public companies, whether \$70 billion in 2007,³³⁰ or \$29 billion in 2011, may be proportionate to the investments being protected.³³¹ Adjusted for the size of the economy, the corpus of patents, and population size, patent litigation may be rarer today than it was in the distant past.³³²

The output of businesses prone to file for patents rose from about \$746 billion in 1986 to about \$1.6 trillion in 2010, adjusted for inflation, and R&D may have increased even more rapidly.³³³ For this

Reforming, *supra* note 274, at 342–48; Lemley, *Surprising Resilience*, *supra* note 279, at 6, 15–22.

³²⁸ Stephen Haber, *Patents and the Wealth of Nations*, 23 GEO. MASON L. REV. 811, 833 (2016).

³²⁹ Spulber, *supra* note 303. *See also* ECONOMICS & STATISTICS ADMINISTRATION & USPTO, INTELLECTUAL PROPERTY AND THE U.S. ECONOMY: INDUSTRIES IN FOCUS ii (2012) (“These IP-intensive industries support tens of millions of jobs and contribute several trillion dollars to our gross domestic product (GDP).”); *id.* at vii (“IP-intensive industries accounted for about \$5.06 trillion in value added, or 34.8 percent of U.S. gross domestic product (GDP), in 2010.”); *id.* at 3 (“[T]hese industries accounted for 27.1 million, or 18.8 percent, of all jobs in 2010”); *id.* at 45 (“Patent-intensive and copyright-intensive industries accounted for 5.3 and 4.4 percent of GDP, with \$763 billion and \$641 billion in value added, respectively.”).

³³⁰ Timothy Lee, *The patent lawsuit crisis in 5 charts*, VOX (May 28, 2014, 8:00 AM), <http://www.vox.com/2014/5/28/5745770/the-patent-lawsuit-crisis-in-5-charts> (citing James Bessen et. al., *Trends in Private Patent Costs and Rents for Publicly-Traded United States Firms*, (Boston Univ. School of Law, Public Law Research Paper No. 13-24, 2015), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2278255).

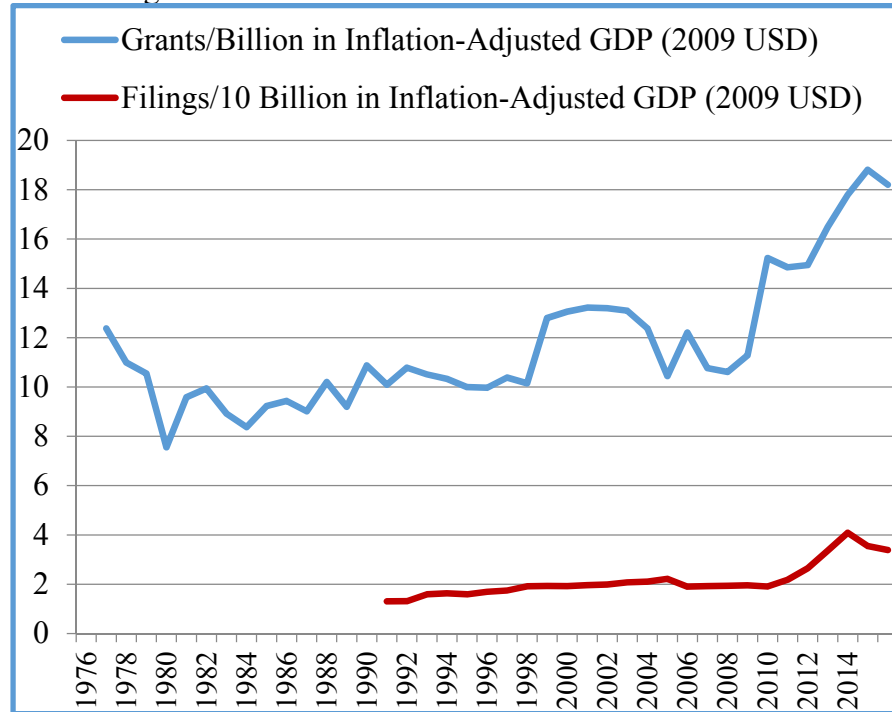
³³¹ Bessen & Meurer, *The Direct Costs from NPE Disputes*, *supra* note 17, at 397, 408. Neither this nor the previous estimate included all costs generated by the patent system, or even all in-house counsel and business interruption/time-related costs. *See id.* at 389–99 & n. 59.

³³² *See* Spulber, *supra* note 303 (citing Ron Katznelson).

³³³ *See* U.S. Dep’t of Commerce, *Gross Output by Industry*, BUREAU OF ECONOMIC ANALYSIS (2016), https://www.bea.gov/industry/xls/io-annual/GDPbyInd_VA_1947-2015.xlsx. These figures are the sum of GDP in the machinery;

reason, Figure 1 portrays the relationship between patents issued and patent lawsuits and GDP in the United States. It shows that in 2005, at the height of the alleged spike in abusive litigation and costly rent-seeking with respect to patents due to PAEs (prior to *KSR*, *Bilski*, the AIA, etc.), the rates of patent grants and new case filings were lower than in 1993 with respect to patent grants, and lower than in the late 1970s for grants.

Figure 1: Ratios of U.S. Utility Patent Grants and (All) Patent Case Filings to U.S. GDP³³⁴



computer and electronic products; electrical equipment, appliances, and components; miscellaneous manufacturing; chemical products; and plastics and rubber products industries, flagged by the USPTO as patent-reliant or patent-intensive. R&D investment in two of the more patent-reliant industries, computer and electronic equipment and chemical products, tripled in real terms from 1995 to 2007. See Lee & Schmidt, *supra* note 308, at 33 Table 2.1: Investment in R&D by Type of Funder, 1959–2007.

³³⁴ Based on the following sources: Administrative Office of the U.S. Courts, *Table C-2A: U.S. District Courts—Civil Cases Commenced, by Nature of Suit, During the 12-Month Periods Ending September 30, 1998 Through 2002* (2002), http://www.uscourts.gov/sites/default/files/statistics_import_dir/c02asep

Although the number of patent cases filed has accelerated, with 1,000 in about 1990, 2,000 in 1997, 3,000 in 2004, 4,000 in 2011, and 5,000 in 2012, the number filed per additional \$100,000,000 in GDP is more stable, ranging from 100 to 400, or between one and four cases filed per \$10 billion in GDP.³³⁵ There is no “hockey stick” or J-shaped curve to prove exponential growth of patent lawsuit filings in comparison to GDP. This is remarkable because the share of GDP attributable to high-tech and R&D appears to be growing quite rapidly, which would suggest that patenting activity would rise disproportionately rapidly as well.³³⁶

02.pdf; Administrative Office of the U.S. Courts, *Table 4.7: U.S. District Courts—Copyright, Patent, and Trademark Cases Filed* (2008), http://www.uscourts.gov/sites/default/files/statistics_import_dir/Table407_2.pdf; Administrative Office of the U.S. Courts, *Table 4.7: U.S. District Courts—Copyright, Patent, and Trademark Cases Filed* (2008), <http://www.uscourts.gov/file/19694/download>; Brian Howard, *Lex Machina 2015 End-of-Year Trends*, LEX MACHINA (Jan. 7, 2016), <https://lexmachina.com/lex-machina-2015-end-of-year-trends>; PricewaterhouseCoopers LLP, *2007 Patent and Trademark Damages Study* (2007), at 8, <https://www.pwc.com/us/en/forensic-services/publications/assets/2007-patent-study.pdf>; Bureau of Economic Analysis, U.S. Dep’t of Commerce, Current-dollar and “Real” GDP (2017), <https://www.bea.gov/national/xls/gdplev.xls>; Table 1.1: Real Gross Domestic Product and Real Gross Domestic Product With R&D Treated as Investment, 1959–2007; USPTO, *U.S. Patent Activity Calendar Years 1790 to the Present: Table of Annual U.S. Patent Activity Since 1790*, https://www.uspto.gov/web/offices/ac/ido/oeip/taf/h_counts.htm; USPTO, Patent Technology Monitoring Team, *Patent Counts by Country, State, and Year—Utility Patents* (December 2015), https://www.uspto.gov/web/offices/ac/ido/oeip/taf/cst_utl.htm.

³³⁵ See PRICEWATERHOUSECOOPERS LLP, 2016 PATENT LITIGATION STUDY: ARE WE AT AN INFLECTION POINT? 1, Fig. 1 (2016), <https://www.pwc.com/us/en/forensic-services/publications/assets/2016-pwc-patent-litigation-study.pdf> [hereinafter PWC, 2016 PATENT LITIGATION STUDY]; see generally ECONOMICS & STATISTICS ADMINISTRATION & USPTO, *supra* note 329.

³³⁶ For example, while gross output per industry in 2005 dollars doubled for all industries between 1987 and 2005, it rose almost six times for computer systems design and related services, seven times for computer and electronic product manufacturing, and more than 35 times for software publishing. See Lee & Schmidt, *supra* note 308, at 48 Table 7.1B. Gross Output by Industry With R&D Treated as Investment, 1987–2007.

GDP is a very rough measure of whether patent enforcement is proportionate to the value it creates or maintains because most of GDP would exist without patent law.³³⁷ Therefore, Figure 2 charts patent case filings against patent-reliant industries' value added. In 2012, the USPTO classified 26 industries as "patent-intensive," based on reflecting an above-average count for patents granted in the industry as a ratio to total employment in it, as of 2004-2008.³³⁸ These industries supported 3.9 million jobs and \$763 billion in value-added in 2010.³³⁹ They deem patents to be an effective mechanism for earning returns on new product investments about 15% to 55% of the time.³⁴⁰

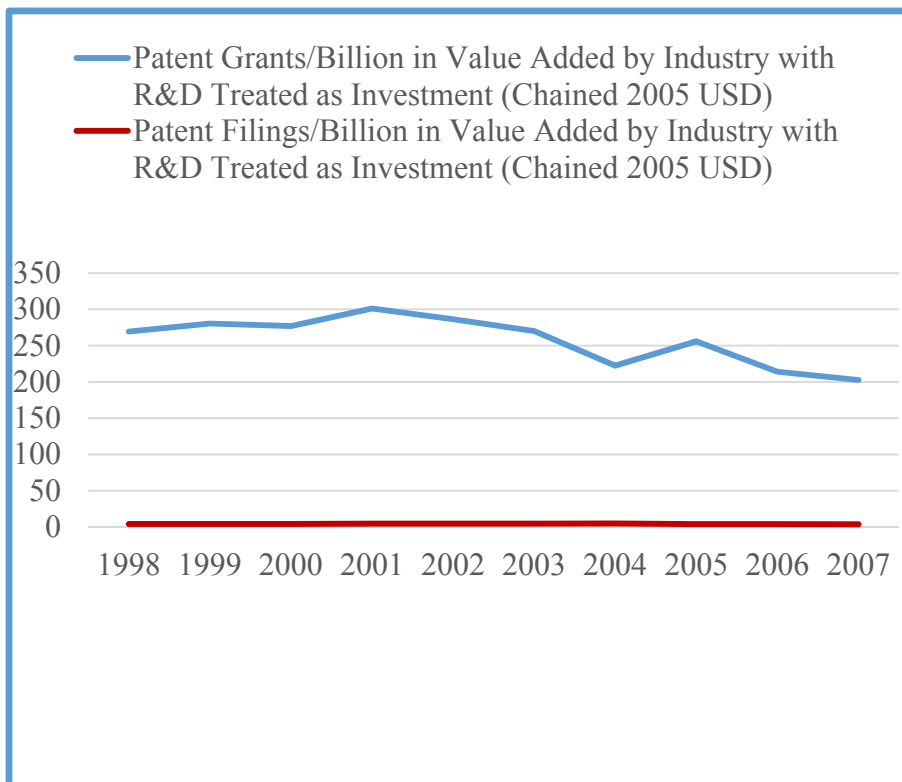
³³⁷ See generally Tim Callen, *Gross Domestic Product: An Economy's All*, INTERNATIONAL MONETARY FUND (March 28, 2012), <http://www.imf.org/external/pubs/ft/fandd/basics/gdp.htm>.

³³⁸ See ECONOMICS & STATISTICS ADMINISTRATION & USPTO, *supra* note 279, at 8.

³³⁹ See *id.* at vii, 45.

³⁴⁰ See *id.* at 10.

Figure 2: Ratios of Utility Patents and (All) Patent Case Filings to Product of Patent-Reliant Industries³⁴¹



Although patent case filings have grown, there were fewer than 50 such cases for every \$10 billion in economic activity in some of the key industries from which patents emerge. Likewise, patent grants by the USPTO are up almost 200% since the mid-1990s, but are below the late 1970s level, and new patents still issue less than 200 times for every billion dollars in economic activity in related fields.

These data may help dispel the notion of unjustifiable growth in patenting activity that may reflect abusive tactics or a flawed legis-

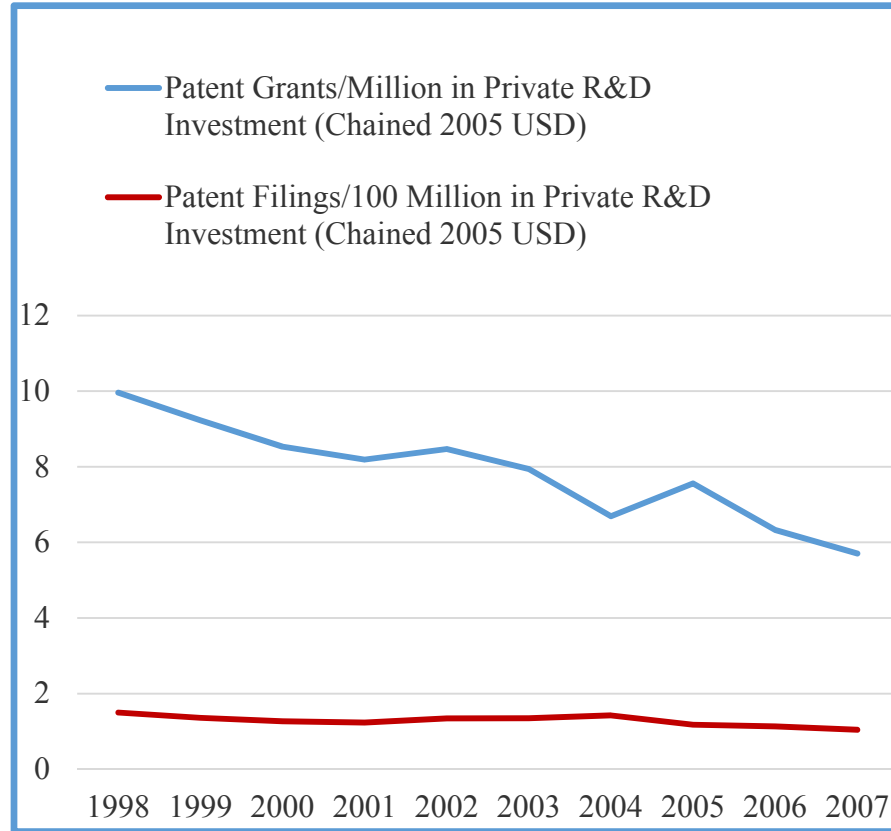
³⁴¹ Bureau of Economic Analysis, U.S. Dep't of Commerce, 2010 R&D Satellite Account, Table 7.3A Value Added by Industry with R&D Treatment as Investment, 1998-2007 (2010), https://www.bea.gov/newsreleases/general/rd/2010/1998_2007_rd_data_2010RDSA.xls.

lative framework pre-2011. Patent grants range from 200 to 400 utility patents per billion in inflated-adjusted economic product of patent-reliant industries, with the high-end figure being seen in 1998–2001 as opposed to more recently. Patent case filings range from about one to three cases per \$1,000,000, with the high-end figures coming in 1998, not 2007.³⁴²

Next, Figure 3 illustrates how patent enforcement rates compare to the value of the patent R&D that these enforcement actions are intended to protect. Figure 3 charts patent grants as a share of private R&D investment, and patent lawsuit filings as a share of private R&D investment. These data are only available from the U.S. government until 2007, so the chronological scope of the figure is limited.

³⁴² These figures are necessarily quite rough, because the USPTO employs a contestable standard for patent-reliant industries: rather than patents per employee, one might have looked to patents per \$1,000,000 in industry revenue, patents issued annually per firm or per industry, or some other measure. Moreover, some of the data reflected in Figure 2 may not be included within the USPTO's definition of patent-reliant industries, because that definition does not map precisely onto the statistics on output by industry classification from the Bureau of Economic Analysis of the U.S. Department of Commerce.

Figure 3: Ratios of Utility Patents and (All) Patent Case Filings to Private R&D Investment³⁴³



Filings and grants are actually down from the late 1990s as a share of private R&D investment.³⁴⁴

Finally, Figures 4, 5, and 6 are based upon the relationship between trends in patent damage awards, and trends in output of patent-reliant industries, as in Figure 2. Another possibility is that the industries that see the highest level of patenting activity enjoy strong revenue growth, but that their profits are decimated by patent holdup as a “tax on innovation,” thereby putting innovators at

³⁴³ Based on Figure 1 Sources, and PRICEWATERHOUSECOOPERS LLP, 2015 PATENT LITIGATION STUDY: A CHANGE IN PATENTEE FORTUNES 4 (2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf>; Lee & Schmidt, *supra* note 308.

³⁴⁴ See Figure 3.

risk.³⁴⁵ To explore this hypothesis, Figure 5 presents data concerning the relationship between levels of patenting and patent enforcement on the one hand, and on the other hand, the output of some of the industries most-affected by patent holdup—information and data processing services, software and other publishing, and computer and electronic products.³⁴⁶ While Figure 4 is based upon a recent empirical report on patent litigation by PricewaterhouseCoopers, Figure 5 is based upon a database constructed by Mazzeo, Hillel, and Zyontz to study patent awards.³⁴⁷ They illustrate a declining burden of patent litigation, in median terms, in proportion to the rising output of the patent-reliant industries. Figure 6 is based upon average patent award data from PricewaterhouseCoopers and Lex Machina.³⁴⁸ It includes a ratio of awards to GDP in patent-reliant industries.

³⁴⁵ See, e.g., Elise Ackerman, *The \$29 Billion Tax on Innovation*, FORBES (Sept. 12, 2012, 10:58 AM), <http://www.forbes.com/sites/eliseackerman/2012/09/12/the-29-billion-tax-on-innovation/#4c8f99973ed6>; Michael J. Mandel, *BusinessWeek on innovation*, IPBIZ (Oct. 04, 2004), <http://ipbiz.blogspot.com/2004/10/businessweek-on-innovation.html>; Martin Zwillling, *Software Patents are Becoming a Tax on Innovation*, FORBES (July 6, 2011, 11:20 PM), <http://www.forbes.com/sites/martinzwilling/2011/07/06/software-patents-are-becoming-a-tax-on-innovation/#681eb2915eca>; see also Bessen & Meurer, *The Direct Costs from NPE Disputes*, *supra* note 17, at 416–17; Kai-Uwe Kuhn, *Justifying Antitrust Intervention in ICT Sector Patent Disputes: How to Address the Hold-Up Problem*, 9 COMPETITION POL'Y INT'L 100 (2013).

³⁴⁶ See *infra* Figure 5.

³⁴⁷ See *infra* note 350.

³⁴⁸ See *infra* note 351.

Figure 4: Median Patent Damage Award as a Share of Patent-Reliant Industries' Output³⁴⁹

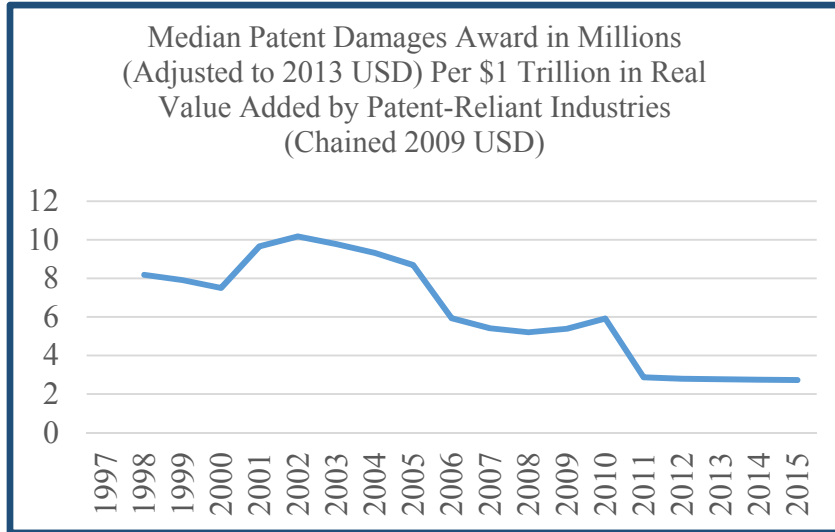
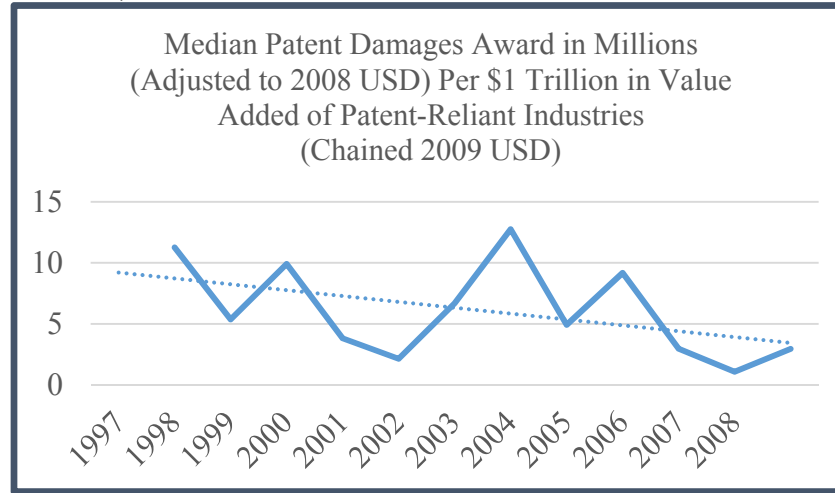


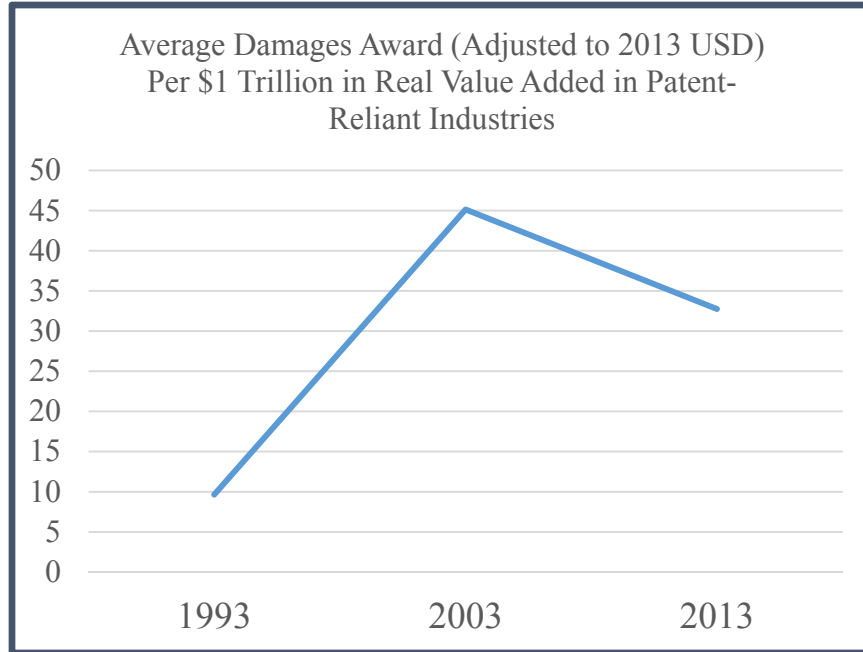
Figure 5: Median Patent Damages Award in Millions (Alt. Measure) as a Share of Patent-Reliant Industries' Value Added³⁵⁰



³⁴⁹ Based on Figure 1 Sources, and PRICEWATERHOUSECOOPERS LLP, 2015 PATENT LITIGATION STUDY: A CHANGE IN PATENTEE FORTUNES 4 (2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf>; U.S. Dep't of Commerce, *Gross Output by Industry*, BUREAU OF ECONOMIC ANALYSIS (2016), https://www.bea.gov/industry/xls/io-annual/GDPbyInd_VA_1947-2015.xlsx.

³⁵⁰ Michael Mazzeo, Jonathan Hillel, & Samantha Zyontz, *Are Patent Infringement Awards Excessive?: The Data Behind the Patent Reform Debate* 13

Figure 6: Long-Term Trend in Average Patent Damage Award Per 1,000 USD in Product³⁵¹



These figures tend to undermine the notion that patents sap the profitability of high-tech innovators. Median damage awards in patent cases are actually trending towards zero, as a share of R&D invested. There were three years between 1999 and 2003 in which

(Univ. of Ind. Working Paper, 2010), https://kelley.iu.edu/BEPP/documents/patentdamages_mhz.docx; U.S. Dep't of Commerce, *Gross Output by Industry*, BUREAU OF ECONOMIC ANALYSIS (2016), https://www.bea.gov/industry/xls/io-annual/GDPbyInd_VA_1947-2015.xlsx.

³⁵¹ Based on Figure 1 sources, and 2003 dollars in 2013, Inflation Calculator (2017), <http://www.in2013dollars.com/2003-dollars-in-2013>; 1993 dollars in 2013, Inflation Calculator (2017), <http://www.in2013dollars.com/1993-dollars-in-2013>; Howard, 2015 *First Half Patent Case Filing Trends*, *supra* note 300; OWEN BYRD & BRIAN HOWARD, LEX MACHINA, 2013 PATENT LITIGATION YEAR IN REVIEW (2014), <http://pages.lexmachina.com/rs/lexmachina/images/LexMachina-2013%20Patent%20Litigation%20Year%20in%20Review.pdf>; PRICEWATERHOUSECOOPERS LLP, 2007 PATENT AND TRADEMARK DAMAGES STUDY 13 (2007), <https://www.pwc.com/us/en/forensic-services/publications/assets/2007-patent-study.pdf>.

the median patent damage award was greater than \$9 million, but zero such years since 2004.³⁵² There were five years between 2004 and 2008 in which the median patent award was greater than \$2 million, but this did not occur in 2012-2014.³⁵³ Thus, the median award in 2012-2014 was 75%-80% down from the 1995-2010 period.³⁵⁴ Moreover, between 1982 and 1992, the median level of damages in reported decisions was probably in excess of \$1 million, which would be between \$1.7 and \$2.1 million in 2016 dollars, and possibly up to \$8.5-10.5 million.³⁵⁵ Even more surprising, the average reported damages award was \$11.2 million, which would be between \$19 and \$24 million in 2016.³⁵⁶ Figure 6, in particular, suggests a dramatic decline in relative average damage awards between 2003 and 2013, which is consistent with the findings of Lex

³⁵² See PRICEWATERHOUSECOOPERS LLP, 2011 PATENT LITIGATION STUDY: PATENT LITIGATION TRENDS AS THE “AMERICA INVENTS ACT” BECOMES LAW 9 (2011), <http://www.pwc.com/us/en/forensic-services/publications/assets/2011-patent-litigation-study.pdf> [hereinafter PWC, 2011 PATENT LITIGATION STUDY].

³⁵³ See *id.*; see also BYRD & HOWARD, *supra* note 351, at 12 (2014), <http://pages.lexmachina.com/rs/lexmachina/images/LexMachina-2013%20Patent%20Litigation%20Year%20in%20Review.pdf>; Michael Loney, *2014 Median US Patent Litigation Damages Were Second Lowest in 20 Years*, MANAGING IP (May 27, 2015), <http://www.managingip.com/Article/3457364/2014-median-US-patent-litigation-damages-were-second-lowest-in-20-years-PwC.html> (stating that 2014 median had to be lower than either 2012 or 2013).

³⁵⁴ See PWCs, 2011 PATENT LITIGATION STUDY, *supra* note 352, at 9 (\$5 million median damages in 1995-2010); BYRD & HOWARD, *supra* note 351, at 12 (\$1 to \$1.25 million median in 2012-2013); Loney, *supra* note 353 (2014 median had to be lower than 2012 or 2013).

³⁵⁵ See Ronald B. Coolley, *Overview and Statistical Study of the Law of Patent Damages*, 75 J. OF THE PAT. & TRADEMARK OFF. SOC'Y 515, 515-17 (1993); 1992 DOLLARS IN 2016 – INFLATION CALCULATOR, <http://www.in2013dollars.com/1992-dollars-to-2016-dollars> (last visited Jan. 23, 2017); 1987 DOLLARS IN 2016 – INFLATION CALCULATOR, www.in2013dollars.com/1987-dollars-to-2016-dollars (last visited Jan. 23, 2017). The higher figures result from a median damages level that is closer to \$5 million than to \$1 million. Mr. Coolley's chart suggests that the median lies somewhere between those two figures. The range of higher figures results from differences in inflation adjustments, the higher one adjusting to 1982, the lower to 1987, halfway through the period covered by Coolley's study.

³⁵⁶ The average is calculated as \$1.7 billion divided by 152 decisions. See Coolley, *supra* note 355, at 515-18; see also 1992 DOLLARS IN 2016 DOLLARS – INFLATION CALCULATOR, *supra* note 355; 1987 DOLLARS IN 2016 – INFLATION CALCULATOR, *supra* note 355.

Machina and PricewaterhouseCoopers concerning median awards.³⁵⁷

Neither the overall level of patent enforcement nor the scale of the typical patent damages award is particularly shocking or excessive in the context of U.S. economic activity. Anecdotal evidence regarding corporations frequently cast as patent defendants bears these findings out. Some of the firms most likely to be sued for patent infringement in 2014—Apple, Actavis, Samsung, Google, Mylan, LG, Microsoft, and HTC—have experienced stunning profit growth since the 2000s or the 1990s.³⁵⁸

As the holdup rationale for buy-side oligopolistic bargaining practices loses its urgency, the danger of depressing prices in the market for patent licenses takes center stage. Like other per se violations of section 1, joint royalty-setting may promote competition

³⁵⁷ See BYRD & HOWARD, *supra* note 351, at 12; see also PWC, 2011 PATENT LITIGATION STUDY, *supra* note 352, at 9.

³⁵⁸ See BRIAN C. HOWARD, LEX MACHINA, 2014 PATENT LITIGATION YEAR IN REVIEW 18 (2015); see also *Google's net income from 2001 to 2015 (in million U.S. dollars)*, STATISTA (2016), <http://www.statista.com/statistics/266472/google-net-income/>; Min Jeong-Lee, *LG Electronics' Net Profit Surges; Company Sells Record Number of Smartphones in Third Quarter*, WALL ST. J. (Oct. 29, 2014), <http://www.wsj.com/articles/lg-electronics-net-profit-surges-on-strong-smartphone-sales-1414566069>; Luke Jones, *HTC Records Q4 Profit and Sales Growth*, MOBILEBURN (Jan. 7, 2015), <http://www.mobileburn.com/24079/news/htc-record-q4-profit-and-sales-growth>; Erin McCarthy, *Actavis Swings to Profit as Revenue Surges*, WALL ST. J. (Aug. 5, 2014), <http://www.wsj.com/articles/actavis-swings-to-profit-as-revenue-surges-1407240585>; *Microsoft's Net Income from 2002 to 2015 (in billion U.S. dollars)*, STATISTA (2016), <http://www-statista.com/statistics/267808/net-income-of-microsoft-since-2002/>; Mylan Inc., 2014 Annual Report (Form 10-K), pg. 50 (Mar. 2, 2015) <http://apps.shareholder.com/sec/viewerContent.aspx?companyid=ABEA-2LQZGT&docid=10531256>; SAMSUNG ELEC.'S, 2014 ANNUAL REPORT 1–7 (2015), http://www.samsung.com/common/aboutsamsung/download/companyreports/2014_E.pdf; Lance Whitney, *Apple beats world record in quarterly profits*, CNET MOBILE (Jan. 28, 2015), <http://www.cnet.com/news/apple-beats-world-record-in-quarterly-profits-s-p/>. Famous patent holders have also thrived, with Amazon.com's Jeff Bezos being named the world's 15th richest person in early 2015, and Priceline.com's gross income nearly tripling from 2011 through 2015. See Chase Peterson-Withorn, *Forbes Billionaires: Full List Of The 500 Richest People In The World 2015*, FORBES (Mar. 2, 2015), <http://www.forbes.com/sites/chasewithorn/2015/03/02/forbes-billionaires-full-list-of-the-500-richest-people-in-the-world-2015/#74d3493e16e3>; PRICELINE GROUP, INC., MARKETWATCH <http://www.marketwatch.com/investing/stock/pcln/financials> (last visited Jan. 16, 2017).

and aggregate welfare. Thus, the DOJ-FTC Antitrust Guidelines for the Licensing of Intellectual Property suggested that the agencies endorse a “coordinated development” model of patent licensing because it “may promote” commercialization of “technologies that are in a blocking position.”³⁵⁹ However, the rarity with which that occurs given the overall weakness of patents may be insufficient to require rule of reason analysis.

A decision, as alleged in *Sony* and *RPX*, not to license patents except through an exclusive or quasi-exclusive aggregator or buyers’ collective, may violate Section 1 of the Sherman Act by raising patentees’ costs. Where the aggregator or collective is less responsive and more resistant to traditional licensing overtures, this may restrain trade by raising patent owners’ cost of enforcing and monetizing their rights.³⁶⁰ Such a restraint may even warrant per se treatment because the firms agreeing among themselves not to deal with it enjoy a dominant market position; this refusal interferes with a market that is essential for a patentee to compete, and there is no persuasive argument that the refusal will increase competition or efficiency in the long run.³⁶¹ Under the rule of reason, a more complicated analysis will be in order.

C. Antitrust Macroeconomics and Intellectual Property

Monopolization and restraints of trade could be increasing inequality and reducing economic growth, according to some economists.³⁶² Microsoft Windows revenue propelled the meteoric rise in

³⁵⁹ 4 Trade Reg. Rep. (CCH) ¶ 13,132, ¶¶ 2.1-2.3 (April 6, 1995); see also Morse, *supra* note 23, at 18–19, 24 n. 7–8.

³⁶⁰ See generally *In re Beer Antitrust Litig.*, 2002-1 Trade Cas. (CCH) ¶73,671 (N.D. Cal. 2002) (plaintiff stated claim based on plaintiff’s increased costs due to defendant’s exclusivity incentive program for distributors of its product, which allegedly increased defendant’s market share by 3.5%, even as court dismissed claim for per se illegal boycott where plaintiff did not lose access to essential facility, market, or source of supply).

³⁶¹ See *id.*; see also generally *O’Bannon v. Nat’l Collegiate Athletic Ass’n*, 802 F.3d 1049 (9th Cir. 2015); cf. *MCI Commc’ns v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1132–33 (7th Cir. 1983).

³⁶² See, e.g., LAWRENCE LESSIG, *REPUBLIC, LOST: HOW MONEY CORRUPTS CONGRESS—AND A PLAN TO STOP IT* 156–58 (2011) (arguing that U.S. culture of innovation and upward mobility is being undermined by skyrocketing executive compensation at largest corporations); BARRY LYNN, *CORNERED: THE NEW MONOPOLY CAPITALISM AND THE ECONOMICS OF DESTRUCTION* 130–31 (2010)

the wealth of the richest man in the world in most recent years.³⁶³ Some scholars blame Chicago School antitrust theory for rising economic inequality,³⁶⁴ and in particular decisions on monopolization such as *Brooke Group*, and decisions on restraints of trade such as *Business Electronics*, *Jefferson Parish Hospital*, *Illinois Brick*, and *Pueblo Bowl-o-Mat*.³⁶⁵ Notably, Chicago School orthodoxy would also suggest that counter-IP conspiracies should be presumptively

(arguing that self-employment rate in United States has plummeted 60% below historic levels to one of lowest rates in industrialized world, due to rising power and wealth of big businesses); Barry C. Lynn, *Killing the Competition: How the New Monopolies are Destroying Open Markets*, HARPER'S MAG., Feb. 2012, at 27, 32 [hereinafter Lynn, *Killing the Competition*] (putting buyer power at the heart of a theory of rising arbitrary economic power); THOMAS PIKETTY, CAPITAL IN THE TWENTY-FIRST CENTURY 312 (Arthur Goldhammer trans., 2014) [hereinafter PIKETTY, CAPITAL] (observing that lack of competition among employers may lower wage rates below marginal productivity rates, that wage regulations may reduce this inefficiency and draw more people into employment, that high-level executive pay is driving much of rise in inequality, and that income and wealth on the high end, such as those of Microsoft founder Bill Gates, are increasing); JOSEPH E. STIGLITZ, THE GREAT DIVIDE: UNEQUAL SOCIETIES AND WHAT WE CAN DO ABOUT THEM (2015), pt. I, 123–25 (arguing that market power redistributes income and wealth from consumers to producers, who capitalize it in the form of stock market valuations); JOSEPH E. STIGLITZ, THE PRICE OF INEQUALITY: HOW TODAY'S DIVIDED SOCIETY ENDANGERS OUR FUTURE 54–61 (2012) (arguing that enhanced monopoly power is increasing inequality).

³⁶³ See PIKETTY, CAPITAL, *supra* note 362, at 440; THOMAS PIKETTY, WHY SAVE THE BANKERS? AND OTHER ESSAYS ON OUR ECONOMIC AND POLITICAL CRISIS 105 (Seth Ackerman, trans., 2016).

³⁶⁴ See Lynn, *Killing the Competition*, *supra* note 362, at 32; PIKETTY, CAPITAL, *supra* note 362, at 549; STIGLITZ, *supra* note 362, at 54–61. See also Dylan Matthews, *Antitrust was defined by Robert Bork: I cannot overstate his influence*, WASH. POST (Dec. 20, 2012), <https://www.washingtonpost.com/news/wonk/wp/2012/12/20/antitrust-was-defined-by-robert-bork-i-cannot-overstate-his-influence>.

³⁶⁵ See, e.g., *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 212 (1993); *Bus. Electr. Corp. v. Sharp Electr. Corp.* 485 U.S. 717, 720 (1988); *Jefferson Parish Hosp. Dist. v. Hyde*, 466 U.S. 2, 2–5 (1984); *Continental T. V., Inc. v. GTE Sylvania, Inc.*, 433 U.S. 36, 37 (1977); *Ill. Brick Co. v. Illinois*, 431 U.S. 720, 727 (1977); *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 480 (1977).

or virtually automatically lawful unless a conspirator has a monopoly.³⁶⁶ On the other hand, scholars such as Daniel Crane question the idea that antitrust and inequality are closely linked, due in part to the presence of middle-class investors who may reap the benefits of monopoly power or cartel overcharges, and also due to price-fixing by professionals or other service providers that may redistribute income downward from even wealthier clients.³⁶⁷ Other scholars question whether antitrust law is capable or well-suited for income or wealth redistribution.³⁶⁸ Turning to the patent-antitrust intersection, many scholars would probably join Judge Easterbrook in rejecting the notion that conspiracies against patentees could or would increase inequality, because they would blame overpatenting itself for inequality, slow growth, and deadweight loss.³⁶⁹

In a speech on patent assertion and NPEs, Professor Duffy explains how the current state of the patent system could contribute to economic inequality and monopolization, in three steps.³⁷⁰ Failing to allow patents to be enforced after their sale will mean that a large

³⁶⁶ See, e.g., *Wallace v. IBM, Inc.*, 467 F.3d 1104, 1107–08 (7th Cir. 2006); see also Andrew Gavil, *Moving Beyond Caricature and Characterization: The Modern Rule of Reason in Practice*, 85 S. CAL. L. REV. 733, 738 (2012).

³⁶⁷ See Daniel Crane, *Antitrust and Wealth Inequality*, 101 CORNELL L. REV. 1171, 1171–77 (2015).

³⁶⁸ Cf. Thomas E. Kauper, *Influence of Conservative Economics on the Development of the Law of Antitrust*, in *HOW THE CHICAGO SCHOOL OVERSHOT THE MARK: THE EFFECT OF CONSERVATIVE ECONOMIC ANALYSIS ON U.S. ANTITRUST* 40, 43 (Robert Pitofsky ed., 2008); Kirkwood & Lande, *supra* note 21, at 89.

³⁶⁹ See Jared Bernstein, *Why Is Capital So Much Stronger than Labor?*, HUFFINGTON POST (June 2, 2014, 08:03 AM), http://www.huffingtonpost.com/jared-bernstein/thomas-piketty-inequality_b_5430691.html (noting that Piketty's critics argue that patent reform and other regulatory tweaks would do more to redistribute income than Piketty's preferred tax-and-transfer systems); BESSEN & MEURER, *PATENT FAILURE*, *supra* note 274, at 141 (highlighting cost of too much patent enforcement); Dylan Matthews, *The government is the only reason U.S. inequality is so high*, WASH. POST: WONKBLOG (Dec. 5, 2013), https://www.washingtonpost.com/news/wonk/wp/2013/12/05/the-government-is-the-only-reason-u-s-inequality-is-so-high/?utm_term=.6063a4927457 (arguing that patent reform and reform of professional or other occupational licensing laws would do more to reduce inequality than income, wealth, or financial transactions taxes, or than welfare, Social Security, or subsidized health-care transfers of income).

³⁷⁰ See Case W. Reserve Univ. Sch. of Law, *The Role of Non-Practicing Entities in the Modern Patent System: A Debate - Topic II*, YOUTUBE (Feb. 28, 2012), <https://www.youtube.com/watch?v=Ge-42m5C78U> (about 00:40 – 05:17; 25:48 – 31:50).

corporation can simply bankrupt any small firm whose patents it infringes in order to get away with infringement.³⁷¹ Any attempt at enforcement of the patent after the bankruptcy sale would fail, and the case would be over.³⁷² Companies like IBM already earned billions of dollars in royalties by consolidating patents into giant portfolios and then threatening lawsuits on hundreds of patents at a time.³⁷³ Although Professor Duffy does not say so, if only the survivors of decades of competitive (and anticompetitive) warfare can effectively extract royalties, while small firms cannot, this will tend to concentrate wealth in large companies and their founders. If individual patents are worth tiny amounts of money and they have to be hoarded in the hundreds to be asserted, new inventors will have no faith in patents on pioneering technologies.³⁷⁴

If IP justice is for sale to the highest bidder, small companies may struggle to acquire and enforce their IP in order to build new businesses.³⁷⁵ Along with globalization and other demographic and macroeconomic factors, difficulties vindicating the rights of the researcher and the startup may account for the stubbornly high unemployment rate for information technology graduates (almost 15%), as well as for computer scientists (almost 9%), and engineering degree holders including electrical engineers (7.5%).³⁷⁶ Surprisingly, computers and mathematics majors as a whole suffered from unemployment rates of about 9%.³⁷⁷ There were up to twice to three times as many graduates in these fields applying for jobs as there were job openings in science, technology, engineering, and mathematics

³⁷¹ See *id.* at about 03:58–04:07.

³⁷² See *id.*

³⁷³ See *id.* at about 27:30–28:45.

³⁷⁴ See *id.* at about 31:00–32:00.

³⁷⁵ Gene Quinn, *Our Political Patent System: Is Patent Justice for Sale?*, IP WATCHDOG (Nov. 10, 2014), <http://www.ipwatchdog.com/2014/11/10/our-political-patent-system-is-patent-justice-for-sale/id=51951/> (suggesting that system of inter partes review adds an additional \$300,000 or more to cost of entry into innovation markets, and that politicized rulings influenced by lobbying are shaping course of justice).

³⁷⁶ Anthony P. Carnevale & Ban Cheah, *Hard Times: College Majors, Unemployment, and Earnings*, GEO. PUB. POL'Y INST., CTR. ON EDUC. AND THE WORKFORCE 1, 4–5, 7, 11 (2013).

³⁷⁷ See *id.* at 16.

(STEM).³⁷⁸ Thus, scientists and engineers may have to go without work in their fields even when dentists, nurses, doctors, or even lawyers find work in their respective fields.³⁷⁹

In 2014, the U.S. Census Bureau and the Bureau of Labor Statistics reported that “74 percent of those who have a bachelor’s degree in a STEM major are not employed in STEM occupations.”³⁸⁰ The rate is about 50% including master’s and doctoral degrees.³⁸¹ Electrical engineering unemployment almost doubled from 2010 to 2013.³⁸² Electrical engineering employment in aggregate fell 85,000 from 2002 through 2013.³⁸³ Computer science Ph.D. employment was lower in 2012 than in 2000 or 2001.³⁸⁴ From 2005 through 2015, computer programming jobs were down 17%, despite the explosion in smartphone and Internet of Things applications and related revenue.³⁸⁵ Non-unionized STEM workers earned about \$22.82 per hour in 2015,³⁸⁶ which is less than the wage needed to rent a one-bedroom

³⁷⁸ See Michael S. Teitelbaum, *The Myth of the Science and Engineering Shortage*, ATLANTIC (Mar. 19, 2014), <https://www.theatlantic.com/education/archive/2014/03/the-myth-of-the-science-and-engineering-shortage/284359/> (“All have concluded that U.S. higher education produces far more science and engineering graduates annually than there are S&E job openings—the only disagreement is whether it is 100 percent or 200 percent more.”).

³⁷⁹ See *id.*

³⁸⁰ Yi Xue & Richard C. Larson, *STEM crisis or STEM surplus? Yes and yes*, U.S. BUREAU OF LAB. STAT. MONTHLY LAB. REV. (May 2015), <http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm>.

³⁸¹ See DEP’T FOR PROF’L EMPS AFL-CIO, *THE STEM WORKFORCE: AN OCCUPATIONAL OVERVIEW* 8 (2016), <http://dpeaflcio.org/wp-content/uploads/STEM-Workforce-2016.pdf>; see also HAL SALZMAN ET AL., *GUESTWORKERS IN THE HIGH-SKILL U.S. LABOR MARKET* 7 (Econ. Policy Inst. ed., 2013), <http://www.epi.org/publication/bp359-guestworkers-high-skill-labor-market-analysis/> (“Professional degree programs, however, are intended to be more tightly coupled to specific occupations and industries than other degree programs, and thus we should expect graduates to have higher transition rates from those programs to occupations directly related to their fields of study.”).

³⁸² See Xue & Larson, *supra* note 380.

³⁸³ See Teitelbaum, *supra* note 379.

³⁸⁴ See *id.*; see Jordan Weissmann, *The Stagnating Job Market for Young Scientists*, SLATE (July 10, 2014, 3:24 PM), http://www.slate.com/articles/business/moneybox/2014/07/employment_rates_for_stem_ph_d_s_it_s_a_stagnant_job_market_for_young_scientists.html (last updated July 16, 2014).

³⁸⁵ See DEP’T FOR PROF’L EMPS, *supra* note 381, at 2.

³⁸⁶ *Id.* at 5.

apartment in many cities and lower than the median hourly wage for all workers—including retail and restaurant employees, etc.—in Denmark, Norway, and Switzerland.³⁸⁷ Research scientists struggle with stagnant and low earnings despite six or more years of university studies.³⁸⁸ Four in ten graduates of the biological and medical sciences and roughly 50% of chemistry graduates do not find or accept work in their field.³⁸⁹ In 2014, eight percent of Ph.Ds in engineering were either unemployed or working part-time, while another 1% was not seeking work, perhaps due to falling into the discouraged worker category due to lack of responses to their job applications and resume mailings.³⁹⁰ Nearly half of college graduates are employed in jobs suitable for high-school graduates or high-school dropouts, probably implying work outside their field of study.³⁹¹

Although STEM joblessness and overall unemployment are down since 2012, the trend line is not favorable in all respects to potential inventors, tech workers, and innovation researchers. Despite GDP growth of nearly \$2 trillion between 2014 and 2017 (from \$17.8 trillion to \$19.4 trillion), the percentage of college graduates in “good” or degree-relevant jobs has fallen every year since 2014.³⁹² And notwithstanding one of the longest economic recoveries in U.S. history, the unemployment rate for college graduates is

³⁸⁷ See Eusebio Bezzina, *In 2010, 17% of employees in the EU were low-wage earners*, EUROSTAT STATS. IN FOCUS 48/2012 2 (Dec. 11, 2012), <http://ec.europa.eu/eurostat/documents/3433488/5585412/KS-SF-12-048-EN.PDF/7d87771c-8cc0-4133-a771-56e36ca0903b> (in 2010, median gross hourly earnings were 25 Euros in Denmark and Norway, and a little less in Switzerland); NAT'L LOW INCOME HOUS. COAL., *OUT OF REACH* 2015 1, 4 (2015), http://nlihc.org/sites/default/files/oor/OOR_2015_FULL.pdf (one-bedroom housing wage is more than \$22.82 in Bay Area, Washington, D.C., and suburbs in Maryland).

³⁸⁸ See Weissmann, *supra* note 384.

³⁸⁹ See *id.*

³⁹⁰ Prachi Patel, *Unemployment for engineering PhDs lower than national average*, IEEE SPECTRUM TECH TALK BLOG (Sept. 18, 2014), <http://spectrum.ieee.org/tech-talk/at-work/unemployment-for-engineering-phds-is-inching-down>.

³⁹¹ Steve Matthews, *College grads stuck with low wages as hiring in U.S. heats up*, BLOOMBERG (Apr. 6, 2017), <https://www.bloomberg.com/news/articles/2017-04-06/college-grads-stuck-with-low-wages-as-hiring-in-u-s-heats-up>.

³⁹² See *id.*; Wendy Edelberg, *CBO's projection of federal interest payments*, CONGRESSIONAL BUDGET OFFICE BLOG (Sept. 3, 2014), <https://www.cbo.gov/publication/45684>; 2014 DOLLARS IN 2017 | INFLATION CALCULATOR, <http://www.in2013dollars.com/2014-dollars-in-2017> (last visited Apr. 10, 2017).

higher than at comparable points in recent economic expansions.³⁹³ While software developers enjoy faster job growth and lower unemployment than electrical or other engineers, the number of software developers (1.1 million) is down by as much as 30% from the year 2000, even though the software industry had more than doubled in size by value added since then (in billions of dollars).³⁹⁴ A majority of engineering, math, and life sciences graduates are employed outside the STEM areas, and it is not clear that whatever salary premium they enjoy as graduates is similar to the 31% premium enjoyed by STEM graduates in STEM jobs versus non-STEM graduates in non-STEM jobs.³⁹⁵

³⁹³ Specifically, the rate of unemployment for college graduates from 2015 to 2017 averaged about 25% higher than the average from either 1997 to 2002 or from 2006 to 2008, after the unemployment rate averaged more than double the 1997–2002 trend from 2009 to 2014 (4% unemployment rather than less than 2%). U.S. Bureau of Labor Statistics, *Unemployment Rate: College Graduates: Bachelor's Degree and Higher, 25 Years and Over*, FRED, FEDERAL RESERVE BANK OF ST. LOUIS: ECONOMIC RESEARCH, <https://fred.stlouisfed.org/series/LNU04027662> (last visited Apr. 10, 2017).

³⁹⁴ Ania Monaco, *Dismal unemployment numbers for electrical engineers*, IEEE THE INSTITUTE (Apr. 24, 2013), <http://theinstitute.ieee.org/ieeec-roundup/members/achievements/dismal-unemployment-numbers-for-electrical-engineers> (electrical engineering losing jobs, while software development gaining jobs, so software developers have lower unemployment rate); Robert J. Shapiro, *The U.S. Software Industry: An Engine for Economic Growth and Employment*, SOFTWARE & INFO. INDUSTRY ASS'N 19-21 (2014), <https://www.siiia.net/Admin/FileManagement.aspx/LinkClick.aspx?fileticket=yLPW0SrBfk4%3D&portalid=0> (software, computer systems, and data/information industry has doubled in size by value added between 2000 and 2012, or a rate of 5.3% per year); Patrick Thibodeau, *Electrical Engineering Employment Declines Nearly 10%, But Developers Up 12%*, COMPUTER WORLD (Mar. 13, 2013), <http://www.computerworld.com/article/2896721/electrical-engineering-employment-declines-nearly-10-but-developers-up-12.html> (about 1.1 million software developers in United States in 2014); LARS JOHANSON, GLENN KING, ET AL., STATISTICAL ABSTRACT OF THE UNITED STATES: 2007: THE NATIONAL DATA BOOK 1074 (2006) (software publishers, data processors, custom computer programmers, and computer system designers added up to more than 1.6 million employed persons in 2000, 30% less than which is about 1.1 million); U.S. DEP'T OF COMMERCE, ECONOMICS AND STATISTICS ADMIN., DIGITAL ECONOMY 2003, at 23 (2003), http://www.esa.doc.gov/sites/default/files/dig_econ_2003.pdf (software and computer services employed more than two million people in 2002). See also CHRISTIAN FUCHS, DIGITAL LABOUR AND KARL MARX (2014).

³⁹⁵ RYAN NOONAN, STEM JOBS: 2017 UPDATE, U.S. DEP'T OF COMMERCE, OFFICE OF THE CHIEF ECONOMIST, ECONOMICS AND STATISTICS

The plight of patent holders and researchers in the economy also has implications for rising rates of startup failure and falling rates of entrepreneurship.³⁹⁶ In the age of the Internet as a level playing field and the iPhone as a fountain of new applications and opportunities, startup activity has plummeted.³⁹⁷ Millennials are nearly 20% less likely to become new entrepreneurs than their counterparts were in 1996, and are less likely than their older family members, friends, and mentors aged 55–64 to become entrepreneurs today.³⁹⁸ Millennials may be less likely to take economic risks and are more overburdened with debt than previous generations of Americans.³⁹⁹ They account for four of every ten officially unemployed persons in the United States.⁴⁰⁰

Many policymakers at the state and federal level have declared fealty to the nostrum that STEM education will solve the unemployment problem.⁴⁰¹ However, a study released by the Federal Reserve Bank of Cleveland concluded that without patents, higher education is not the best way for a state to grow more rapidly.⁴⁰² One might

ADMINISTRATION, ESA ISSUE BRIEF #02-17 8 (2017), <http://www.esa.doc.gov/sites/default/files/stem-jobs-2017-update.pdf>.

³⁹⁶ See Benjamin Ryan, *Starved of Financing, New Businesses Are in Decline*, GALLUP BUS. J. (Sept. 4, 2014), <http://www.gallup.com/businessjournal/175499/starved-financing-new-businesses-decline.aspx>.

³⁹⁷ *Id.*

³⁹⁸ Derek Ozkal, *Millennials Can't Keep up With Boomer Entrepreneurs*, KAUFFMAN FOUND.: GROWTHOLOGY (July 19, 2016), <http://www.kauffman.org/blogs/growthology/2016/07/age-and-entrepreneurship>.

³⁹⁹ See *id.*; see also Leah McGrath Goodman, *Millennial College Graduates: Young, Educated, Jobless*, NEWSWEEK (May 27, 2015, 6:22 AM), <http://www.newsweek.com/2015/06/05/millennial-college-graduates-young-educated-jobless-335821.html> (defining Millennials in 2015 as those aged 18 to 34 years old and totaling about 75 million Americans).

⁴⁰⁰ See Goodman, *supra* note 399.

⁴⁰¹ See, e.g., Teitelbaum, *supra* note 378; see also Weissmann, *supra* note 384 (explaining that with a “substantial retraction of state funding for the state/public universities, the number of faculty went down, and in some schools, the number of graduate students decreased”) (internal quotations omitted).

⁴⁰² See Paul Bauer, Mark Schweitzer, & Scott Shane, *State Growth Empirics: The Long-Run Determinants of State Income Growth* 21–22 (Fed. Reserve Bank of Cleveland, Working Paper No. 06-06, 2006), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1022341 (finding that having above-average rates of high school or college graduates increases a state’s per capita personal income by only about 1.5%, while patents per capita increase this figure by twice as much, or 3%); Peter Harter, *Will a Patent Question Come Up At The Presidential Debates?*, IP

say that the reason is obvious: most of the knowledge and innovations generated by the scientists and technologists raised and educated in a particular state will be captured by out-of-state or foreign firms who will have no obligation to share the windfall with the people or state that made these advances possible.⁴⁰³ A potential implication of such research findings is that conspiracies against patent holders may also be conspiracies against the economies of the states in which they reside or earn their patents.⁴⁰⁴

Macroeconomic theories of economic inequality and technological change predicted that many of these trends would manifest themselves.⁴⁰⁵ Under financialization, workers enjoy a smaller share of increases in the size of the economy.⁴⁰⁶ Possibly, big finance, by

WATCHDOG (Jan. 14, 2016), <http://www.ipwatchdog.com/2016/01/14/will-a-patent-question-come-up-at-presidential-debates/id=64935/> (“The Federal Reserve Bank in Cleveland had recently done a study about what is the biggest impact for economic growth and jobs and found that patents, not education, were the biggest indicator across all 50 states.”). The study’s authors attempted to account for potential reverse causation or third causes by lagging their measure of per capita personal income five years after their measure of patents per capita, to avoid finding a relationship such as: income surges due to an exogenous factor such as natural resources or population growth. The state then uses the additional income to educate more people, which leads to more patents, as typically educated people file for patents. See Bauer, Schweitzer & Shane, *supra* note 402, at 4.

⁴⁰³ Cf. Bauer, Schweitzer & Shane, *supra* note 402, at 2 (noting that “greater levels of education and technology of some states” will sometimes “dissipate to others, leading to an equalization of knowledge stocks”).

⁴⁰⁴ See *id.* at 5 (finding that “investments in technology, as measured by the stock of patents, play the largest role in explaining the differences in per capita personal incomes across states”).

⁴⁰⁵ Philippe Aghion et al., *Innovation and Top Income Inequality 2* (IDEAS Working Paper Series, 2015), http://scholar.harvard.edu/files/aghion/files/innovation_and_top_income_inequality.pdf?m=1460399019 (“ . . . if we look at patenting and top income inequality in the US and other developed countries over the past decades, we see that these two variables tend to follow parallel evolution”).

⁴⁰⁶ See Bruce Bartlett, ‘Financialization’ as a Cause of Economic Malaise, N.Y. TIMES: ECONOMIX (June 11, 2013, 12:01 AM), http://economix.blogs.nytimes.com/2013/06/11/financialization-as-a-cause-of-economic-malaise/?_r=0 (“According to a new article in the Journal of Economic Perspectives by the Harvard Business School professors Robin Greenwood and David Scharfstein, financial services rose as a share of G.D.P. to 8.3 percent in 2006 from 2.8 percent in 1950 and 4.9 percent in 1980. The following table is taken from their article

funding and planning mergers, acquisitions, and predation against smaller high-tech firms, may be creating and maintaining monopoly power and diverting resources away from research or production and towards financial engineering.⁴⁰⁷ There is already evidence of oligopsony allegedly being exercised unlawfully at some high-tech firms.⁴⁰⁸

[Labor's] share [of national income] has fallen 12 percentage points since its recent peak in early 2001"); *id* (an International Labor Organization report "estimates that 46 percent of labor's falling share resulted from financialization").

⁴⁰⁷ See Daniel Carpenter, *What Piketty Missed: The Banks*, WASH. MONTHLY (Mar./Apr./May 2015), <http://washingtonmonthly.com/magazine/maraprmay-2015/what-piketty-missed-the-banks/> (arguing that financialization competes with commodity production or other productive economic activity for cash and investment); Joel Kotkin, *How a Few Monster Tech Firms are Taking Over Everything from Media to Space Travel and What it Means for the Rest of Us*, DAILY BEAST (Feb. 9, 2014, 6:45 AM), <http://www.thedailybeast.com/articles/2014/02/09/how-a-few-monster-tech-firms-are-taking-over-everything-from-media-to-space-travel-and-what-it-means-for-the-rest-of-us.html> ("Increasingly, American technology is dominated by a handful of companies allied to a small but powerful group of investors and serial entrepreneurs And while top executives and investors move from one firm to another, the big companies have constrained competition for those below the executive tier with gentleman's agreements not to recruit each other's top employees."); Khan, *supra* note 141, at nn. 405-28 & accompanying text (arguing that vertical integration, by enabling larger Internet firms to control more data and platforms, threatens competition with those utilizing the platforms in their businesses, including by reinforcing political clout of largest firms, and that investor largesse may promote a predation strategy that undermines suppliers' market position and ability to innovate); *cf.* Bartlett, *supra* note 406 (noting that "financial sector competes with other sectors for scarce resources" and that "rising fees paid by nonfinancial corporations to financial markets have reduced internal funds available for investment, shortened their planning horizon and increased uncertainty").

⁴⁰⁸ See, e.g., *In re Animation Workers Antitrust Litig.*, 123 F. Supp. 3d 1175, 1213 (N.D. Cal. 2015) (discussing evidence that wages of computer graphics workers were suppressed by oligopsony); see, e.g., *In re High-Tech Emp. Antitrust Litig.*, 289 F.R.D. 555, 559 (N.D. Cal. 2013) (discussing evidence of liability and damages in software engineers' antitrust litigation dealing with oligopsony); David Streitfeld, *Court Rejects Deal on Hiring in Silicon Valley*, N.Y. TIMES (Aug. 8, 2014), <https://www.nytimes.com/2014/08/09/technology/settlement-rejected-in-silicon-valley-hiring-case.html>; HIGH-TECH EMPLOYEE ANTITRUST SETTLEMENT, www.hightechemployeeelawsuit.com/ (last visited Jan. 21, 2017); *In re High-Tech Employee Antitrust Litigation*, U.S. DISTRICT CT. FOR THE NORTHERN DISTRICT OF CAL., <http://www.cand.uscourts.gov/hklhk/hightechemployee>. (last visited on Jan. 28, 2016) [hereinafter *In re High-Tech Emp. Litig. N.D. Cal. Website*].

To a degree, it would be repeating the past to attempt to experiment with very high rates of patent invalidation and very low prospects of patent monetization. Before the Federal Circuit was established in 1982,⁴⁰⁹ the rate of invalidation for litigated patents was 20 percentage points higher.⁴¹⁰ Private R&D expenditure as a share of GDP, meanwhile, was roughly 2% in the late-1970s, but rose in the Federal Circuit era of stronger patents to above 2.5% in 2000 or 2008.⁴¹¹ In the 1970s, a few large firms, notably AT&T, IBM, and Xerox, controlled a disproportionate share of the technology sector and its research.⁴¹²

If R&D declines and becomes more concentrated in a few firms, social problems resulting from those firms' practices may be aggravated. In Europe, for example, regulators and activists are linking the market power of digital giants with widespread privacy violations.⁴¹³ The European Parliament is calling for a breakup of overly

⁴⁰⁹ See Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (codified as amended in scattered sections of 28 U.S.C.); *History of the Federal Judiciary—Landmark Judicial Legislation*, FED. JUD. CTR., http://www.fjc.gov/history/home.nsf/page/landmark_22.html.

⁴¹⁰ See Lemley, *Surprising Resilience*, *supra* note 279, at 8.

⁴¹¹ See *id.* at 38 (citing Editorial, *Budgeting for the Long Run*, 10 NATURE MATERIALS 407, 407 fig. 1 (2011), <http://www.nature.com/nmat/journal/v10/n6/imagespdf/nmat3044.pdf>). Meanwhile, federal R&D as a share of GDP had declined. See *id.*

⁴¹² W.G. Shepherd, *The State of the Industrial Organization Field*, in MULTIDISCIPLINARY ECONOMICS: THE BIRTH OF A NEW ECONOMICS FACULTY IN THE NETHERLANDS 103, 114 (Peter de Gijssel & Hans Schenk eds., 2006) (discussing how in 1960s, there were “acute problems of market dominance by single firms, such as AT&T, IBM and Xerox”); DAN STEINBOCK, WIRELESS HORIZON: STRATEGY AND COMPETITION IN THE WORLDWIDE MOBILE MARKETPLACE 355 (2003) (“In the early 1950s, U.S. telecom and computer sectors were dominated by two *de facto* monopolies, AT&T and IBM . . . In the early 1970s, U.S. telecom and computer sectors were still dominated [by] the two monopolies”); see also Case W. Reserve Univ. Sch. of Law, *Topic I*, *supra* note 317, at about 50:30–52:00 (Professor Duffy noting that AT&T had a legal monopoly on telephony and relied generally on vertical integration, price regulation, and its monopoly position with companies like Apple, for example, being banned from making telephones).

⁴¹³ See, e.g., *German competition agency opens investigation against Facebook*, NEW EUR. (Mar. 2, 2016, 11:39 PM), <https://www.neweurope.eu/article/german-competition-agency-opens-investigation-against-facebook/>; Jan Philipp Albrecht, *Hands off our data!*, GREENS/EUR. FREE ALLIANCE IN THE EUR. PARLIAMENT 50, 73 (2016), <https://www.janalbrecht.eu/fileadmin/material/Doku>

large or integrated digital services, in part due to privacy concerns.⁴¹⁴

CONCLUSION

Conspiracies to depress or stabilize the royalties paid to the potential owners of intellectual property rights raise serious antitrust concerns. Such conspiracies could be inferred from evidence of communications during joint negotiations, as well as actions against apparent short-term economic interest such as declining to seek or accept a license at a rate well below expected litigation costs.⁴¹⁵ Professor Sidak has explained at length why joint negotiation of low patent license rates should be treated as a per se violation of section 1, and why the holdup story is inadequate to justify it in all cases.⁴¹⁶

The problem of counter-IP conspiracies, however, extends well beyond the patent licensing context. By analogy to the tying of software components together, the foreclosure of licensees from a patent market characterized by joint negotiation and portfolio aggregation warrants analysis under Section 1 and 2 of the Sherman Act and section 5 of the FTC Act.⁴¹⁷ The judicial decisions not to dismiss the claims involving Sony and RPX and the decision by the Department

mente/JP_Albrecht_hands-off_final_WEB.pdf; Stephanie Bodoni, *Facebook abuses 'quasi-monopoly' on user data, EU lawmaker says*, PHYS.ORG (Jan. 29, 2015), <http://phys.org/news/2015-01-facebook-abuses-quasi-monopoly-user-eu.html>.

⁴¹⁴ Resolution on Supporting Consumer Rights in the Digital Single Market, EUR. PARL. DOC. RSP 2973 (2014); James Trew, *European Parliament passes vote asking for Google to be broken up*, ENGADGET (Nov. 27, 2014), <https://www.engadget.com/2014/11/27/european-parliament-google-break-up/>.

⁴¹⁵ Cf. *Schering-Plough Corp.*, 136 F.T.C. 956, 1000–03 (2003), 2003 WL 25797209 (explaining how it would be rational for a patent litigant to pay its adversary a lump sum in order to avoid expected future litigation costs”), *vacated by Schering-Plough Corp. v. F.T.C.*, 402 F.3d 1056 (11th Cir. 2005); Herbert Hovenkamp et al., *Anticompetitive Settlement of Intellectual Property Disputes*, 87 MINN. L. REV. 1719, 1758–60 (2003) (noting how a patent litigant might legitimately pay a lump sum to his adversary measured by the “expected value of litigation and collateral costs attending the lawsuit”).

⁴¹⁶ Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 163, 175 (“[T]here are more litigated cases of collusion among buyers, in all types of markets, than there are documented cases of patent holdup”).

⁴¹⁷ See *supra* notes 107–109 and accompanying text.

of Justice to investigate the Rockstar Consortium deal for the Nokia patent rights suggest that there are risks when firms collude or agree not to license certain patents except jointly. But these risks may be mitigated in agency enforcement matters by committing to license the patents on F/RAND terms, which may be seen as a procompetitive move. The decisions involving NCAA players, UFC fighters, and Limewire music licenses clarify that these antitrust risks are not restricted to the patent law domain. A combination of market participants in an association or league to depress licensing opportunities enjoyed by IP owners may constitute anticompetitive exclusion. This is most likely to be true when the combination lacks a countervailing technical rationale (as when Microsoft adds new features that are superior to options licensed by others), a legitimate justification in blunting holdup tactics that may threaten innovation or revenue, or some purpose related to defending its own IP (as the recording industry claimed in Limewire and as the NFL asserted to justify its refusal to let players license their plays to media).

The narrative of patent crisis may have persuaded the Antitrust Division and the FTC to defer to joint negotiation in cases such as Nokia/Rockstar under the rule of reason. The fear of holdup may have resulted in what Sidak calls an agency “preference for licensees rather than licensors of patented technology.”⁴¹⁸ The courts’ response to the crisis story, as well as empirical research into the patent system, provides a basis for revisiting this preference and paying more attention to harms to licensors’ ability to compete. Eventually, the social cost of joint conduct aimed at depressing IP royalty rates may exceed the cost of holdup and related problems.

⁴¹⁸ Sidak, *Patent Holdup and Oligopsonistic Collusion*, *supra* note 19, at 188.