

COMPETITION FOR INNOVATION

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Both antitrust and IP law are limited and imperfect instruments for regulating innovation. More fundamentally, antitrust law and intellectual property law have looked at markets in very different ways. Further, over the last three decades, antitrust law has undergone a reformation process that has made it extremely self-conscious about its goals. While the need for such reform is at least as apparent in patent law, very little true reform has actually occurred. This article briefly examines three areas in which antitrust has something useful to contribute to innovation policy. The first concerns the relationship between innovation and market structure. Second is the lesson that IP law can learn from the severe revision in remedies doctrine that antitrust has developed in order to align private antitrust enforcement with antitrust law's underlying goals. The third concerns the way that antitrust should deal with deficient intellectual property rules that grant far too many rights and defines them in excessively ambiguous or overly broad ways. Managing competition for innovation is a complex task, made more complex and difficult by deficient intellectual property policies. Although courts are not perfect institutions either, we would probably have a better and more defensible intellectual property system if we left somewhat more to the courts and less to the statutes.

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I. INTRODUCTION

Managing innovation requires a fusion of policies taken from different legal disciplines, including intellectual property (IP) and antitrust law. Perhaps the best policy in some cases is no policy at all, leaving everything to the market instead. There is reason to think however, that at least some intellectual property rights are necessary to create incentives to innovate. There is also good reason to think that some antitrust is necessary to control anticompetitive collusion, exclusion, and restraints on innovation.

Both antitrust and IP law are limited and imperfect instruments for regulating innovation. The problems with these bodies of law include high information costs, lack of sufficient knowledge, special interest capture, and the jury trial system, to name a few. More fundamentally, antitrust law and intellectual property law have looked at markets in very different and sometimes inconsistent ways. Further, over the last three decades antitrust law has undergone a reformation process that has made it extremely self-conscious about its goals and has narrowed antitrust doctrine commensurately. While the need for such reform is at least as apparent in patent and copyright law, very little true reform has actually occurred.¹

¹ See CHRISTINA BOHANNAN & HERBERT HOVENKAMP, CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION 333-60 (2012).

Antitrust has something useful to contribute to innovation policy in three areas. The first concerns the relationship between innovation and market structure. The second is the lesson that IP law can learn from the severe revision in remedies doctrine that antitrust has developed in order to align private antitrust enforcement with antitrust law's underlying goals. The third concerns the way that antitrust should deal with deficient intellectual property rules that grant far too many rights and define them in excessively ambiguous or overly broad ways.

II. COMPETITION, INNOVATION, AND MARKET STRUCTURE

Both competition and innovation are highly sensitive to market structure. Markets tend to force prices closer to cost when they have a greater number of sellers, but economies of scale may limit how small an efficient firm can be. A vast literature discusses the relationship between market structure and market competitiveness or the relevance of structure in evaluating competitive practices. Today the consensus is quite strong that in the past we gave market structure more importance than it deserved.² Nevertheless, structural queries are still essential in order to identify markets capable of being monopolized, dominant firms, the anticompetitive potential of vertical restraints, anticompetitive joint ventures of competitors, mergers that are likely to increase prices, and markets particularly susceptible to collusion.³

² On the demise of structuralism in antitrust policy, see Herbert Hovenkamp, *The Neal Report and the Crisis in Antitrust*, 5 COMPETITION POL'Y INT'L 217 (2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1348707. Important historical documents include INDUSTRIAL CONCENTRATION: THE NEW LEARNING (Harvey J. Goldschmid, H. Michael Mann & J. Fred Weston eds., 1974); EDWARD S. MASON, ECONOMIC CONCENTRATION AND THE MONOPOLY PROBLEM (1957); CARL KAYSEN & DONALD F. TURNER, ANTITRUST POLICY (1959).

³ See 2B PHILLIP E. AREEDA, JOHN L. SOLOW & HERBERT HOVENKAMP, ANTITRUST LAW 107-442 (3d ed. 2007).

A vast literature is also concerned with the relationship between market structure and the rate of innovation. This literature suggests, for example, that patenting works much better in some situations than in others.⁴ In some markets, trade secrets or simple first-mover advantages do more to further innovation than patenting does.⁵ The optimal length of a patent or copyright varies from one market to another, even though the actual length generally does not.⁶ By most measures, the rate of innovation also varies with the number of firms in a market. Namely, the rate of innovation is highest in moderately concentrated markets, and tapers off as the market tends toward either monopoly or more atomistic competition.⁷ One pair of authors has concluded that there is probably more empirical literature on the relationship between innovation and market structure than in any field in industrial organization economics.⁸ One would never know it, however, from looking at patent or copyright cases or even the IP statutes themselves. While structural issues play a major role in antitrust policy, intellectual property policy very largely proceeds on the assumption that market structure is irrelevant.

⁴ See JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* (2008); see also DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW COURTS CAN SOLVE IT* (2009).

⁵ See Richard C. Levin, Wesley M. Cohen & David C. Mowery, *R&D Appropriability, Opportunity and Market Structure: New Evidence on Some Schumpeterian Hypotheses*, 75 AM. ECON. REV. (PAPERS & PROC.) 20 (1985).

⁶ See Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1597 (2003).

⁷ See Philippe Aghion, Nick Bloom, Richard Blundell, Rachel Griffith & Peter Howitt, *Competition and Innovation: An Inverted-U Relationship*, 120 Q.J. ECON. 701 (2005).

⁸ Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1059–1107 (Richard Schmalensee & Robert D. Willig eds., 1989); Wesley M. Cohen, *Fifty Years of Empirical Studies of Innovative Activity and Performance*, in 1 HANDBOOK OF THE ECONOMICS OF INNOVATION 129 (Bronwyn H. Hall & Nathan Rosenberg eds., 2010).

The grandparent of innovation policy in the United States was Joseph Schumpeter, the Austrian-born, German immigrant who taught economics at Harvard during the 1930s and 1940s. Schumpeter is in fact well known for two quite different theories about innovation, although they came out of the same general argument. The first is a theory about the amount that innovation contributes to economic growth, later formalized and supported empirically by economists such as Robert M. Solow. The second is a theory about which market structure is most conducive to innovation, which a decade after Schumpeter's death produced a very famous "debate" with another economist, Kenneth Arrow.

Schumpeter's first theory was that innovation contributes far more to economic growth than does competition under constant technology. That is to say, moving a market to more competitive performance while holding technology constant certainly produces some gains, but these gains are nothing like the ones that can be obtained from technological advances. Looking at his own profession, Schumpeter lamented that neoclassical economics in the first part of the twentieth century had developed theories of monopolistic competition, imperfect competition, and ruinous competition leading to monopoly or collusion, all of which deviated sharply from the classical trust in markets. Reading this literature, one would conclude that markets under industrialization had become much less competitive in comparison with some "entirely imaginary golden age of perfect competition that at some time somehow metamorphosed itself into the monopolist age."⁹ In fact, however, the standard of living measured by hours of labor per unit of goods had risen dramatically during the very time that economic theory was becoming so pessimistic.

⁹ See JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 81 (2d ed. 1947). On the development of Schumpeter's ideas about innovation and economic growth, see THOMAS K. MCCRAW, *PROPHET OF INNOVATION: JOSEPH SCHUMPETER AND CREATIVE DESTRUCTION* 347–75 (2007).

Fundamentally, Schumpeter's view was a critique of what had been happening in neoclassical economics through the first half of the century. The obsession with equilibrium, demand curves, pricing, and competitive strategy tended to see business firms as buyers and sellers. "Efficiency" largely meant productive efficiency in the sense of eliminating needless steps or achieving economies of scale. The theory of monopoly focused on output and price under constant technology. Even product differentiation in the 1930s-era model of monopolistic competition¹⁰ was regarded mainly as a bad thing because it prevented prices from moving all the way to marginal cost.¹¹

What all of this theory ignored, argued Schumpeter, was the truly immense contribution that innovation had made to economic growth and the standard of living. Further, far from being a consequence of competition, innovation tended to be a product of monopoly because only dominant firms had the incentives to engage in significant amounts of innovative activity.

At the same time, Schumpeter saw innovation as something extremely unpredictable and uneven. The growth it produced was neither gradual nor continuous. Sporadically and unpredictably a work of genius would come along, which would yield a tremendous spurt in productivity, a period of copying, and then the industry would settle into a new temporary equilibrium until another spurt occurred. This "process of creative destruction," as Schumpeter called it,¹² involved new technologies repeatedly upending older ones in an unpredictable but dramatic fashion that produced

¹⁰ Invented mainly by one of Schumpeter's colleagues in the Harvard Department of Economics. EDWARD CHAMBERLIN, *THE THEORY OF MONOPOLISTIC COMPETITION: A RE-ORIENTATION OF THE THEORY OF VALUE* (1933). On Schumpeter's own attitudes toward the theories of monopolistic competition and imperfect competition, see JOSEPH A. SCHUMPETER, *HISTORY OF ECONOMIC ANALYSIS* 1116–19 (Routledge 1994) (1954).

¹¹ Schumpeter continued these critiques in his *History of Economic Analysis*. SCHUMPETER, *supra* note 10, at 975.

¹² See SCHUMPETER, *supra* note 9, at 81.

far more economic growth than the ordinary forces of price competition.

A decade later, Robert M. Solow created an empirical model, often called the neoclassical growth model, from which he estimated the nonfarm economic growth rate as a function of rising output in relation to inputs of labor and capital, assuming no changes in technology. The amount of actual historical growth exceeded this amount very substantially and was thus a “residual,” for which the model could not account. Solow attributed the residual to innovative improvements and concluded that as much as ninety percent of economic growth came from these improvements rather than mere capital accumulation under constant technology.¹³

Today we have an abundance of literature and diverse types of models about economic growth.¹⁴ While they disagree about precise numbers, they all agree on one thing: in an economy where technology does not change, innovation very likely contributes more to economic growth than does competitive operation.

Schumpeter’s second theory has to do with the relationship between market structure and innovation. Schumpeter argued that monopolists, or dominant firms, are more likely innovators than are the firms in competitively structured markets. First, monopolists have the resources to fund research and development, and are typically in a

¹³ See Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. ECON. & STAT. 312 (1957); Robert M. Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J. ECON. 65 (1956); see also Philippe Aghion & Peter Howitt, *Capital, Innovation, and Growth Accounting*, 23 OXFORD REV. ECON. POL’Y 79 (2007); Zvi Griliches, *The Discovery of the Residual: A Historical Note*, 34 J. ECON. LIT. 1324 (1996). Solow himself was not much of a fan of Schumpeter’s somewhat flourishing, nontechnical approach to the problem. See Solow’s 2007 review of McCRAW, *supra* note 9, disparaging SCHUMPETER, *supra* note 9, as an “overarching [attempt] to capture a whole socioeconomic system in a few grand generalizations.” Robert M. Solow, *Heavy Thinker*, NEW REPUBLIC, (July 12, 2007, 12:00 AM), www.tnr.com/article/heavy-thinker.

¹⁴ See ELHANAN HELPMAN, *THE MYSTERY OF ECONOMIC GROWTH* (2004).

stronger position to raise outside capital. Further, because of its market-dominating position, the monopolist has less to fear from copying by rivals, and thus it is in a better position to appropriate the results of innovation.¹⁵ The problem of price theory that found monopoly to be inferior, Schumpeter argued, was that it always assumed that the monopolist was doing exactly the same thing as competitors, and that its output was lower and prices higher. In reality, however, “there are superior methods available to the monopolist which either are not available at all to a crowd of competitors or are not available to them so readily.”¹⁶ This difference made dominant firms the great engines of technological improvement.

Writing roughly a generation later, Kenneth Arrow took sharp issue with almost every one of Schumpeter’s arguments.¹⁷ On the appropriation question, he argued the intellectual property laws should substitute for market dominance as a device for protecting the fruits of innovation. Second, small firms have everything to gain if they innovate aggressively and much to lose if they do not. Third, when the dominant firm innovates, it tends to stay in the path it has already established for itself, lest it lose the value of previous investment. By contrast, the smaller rival is in a better position to profit by upending old technology. As a result, truly radical innovations are more likely to come from smaller outsiders.

¹⁵ SCHUMPETER, *supra* note 9, at 83.

¹⁶ *Id.* at 100–01.

¹⁷ See Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS 609 (Universities-National Bureau Comm. for Econ. Research ed. 1962). For good analytic summaries of the vast literature on the debate, see Cohen & Levin, *supra* note 8; Richard Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?*, in 6 INNOVATION POLICY AND THE ECONOMY 159 (Adam B. Jaffe et al. eds., 2006); see also Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575 (2007).

The monopoly versus competition debate over innovation has revolved around two issues. First, what is the relationship between overall industry structure and the rate of innovation? Here the dominant, although not unanimous, answer seems to be that the innovation curve is an inverted "U,"¹⁸ with the highest rates of innovation occurring in moderately concentrated markets and tapering off as the market becomes either more monopolized or more competitive.¹⁹

The second issue revolves around the following question: Where can we expect the most or the most important innovations to come from established, larger firms or smaller rivals? The answer here is less conclusive, but it is certainly important that larger, established firms have made heavy investments in their own established technology and product designs, so they are more likely to innovate within an established path. By contrast, the newcomer has less invested and thus a wider array of directions in which its innovation can go. As a result, we can reasonably expect more radical innovations to come from smaller, new firms. The history of information technologies shows dominant firms dedicated to established systems continuously upended by smaller rivals.²⁰ One illustration is the truly heroic efforts that AT&T made during its regulated monopoly

¹⁸ See Philippe Aghion et al., *Competition and Innovation: An Inverted U-Relationship*, 120 Q.J. ECON. 701 (2005); see also PHILLIPE AGHION & RACHEL GRIFFITH, *COMPETITION AND GROWTH: RECONCILING THEORY AND EVIDENCE* (Karl Gunnar Persson ed. 2005); F.M. Scherer, *Market Structure and the Employment of Scientists and Engineers*, 57 AM. ECON. REV. 524 (1967); F.M. Scherer, *Research and Development Resource Allocation Under Rivalry*, 81 Q.J. ECON. 359 (1967); Morton I. Kamien & Nancy Schwartz, *On the Degree of Rivalry for Maximum Innovative Activity*, 90 Q.J. ECON. 245 (1976); Cátia Felisberto, *The Relationship Between Competition and Incumbent's Innovation*, 12 J. INDUS. COMPETITION & TRADE 21 (2010).

¹⁹ However, some find that more competition leads to more innovation. See, e.g., Baker, *supra* note 17, at 585–87.

²⁰ In telecommunications, see TIM WU, *THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION EMPIRES* 1–32, 173–86 (2010).

period to thwart the divergent technologies of smaller rivals offering alternative wireless services.²¹ Another is the efforts by Microsoft in the 1990s to prevent the evolution of internet-based operating systems and information processing, which would threaten Microsoft's established model in which operating systems and most programs resided on each computer's hard drive.²²

Today, important parts of U.S. antitrust policy tend to side with Arrow in this debate, as I believe they should. For example, the 2010 Merger Guidelines express a strong concern about larger firms acquiring highly innovative small firms in order to either capture or shut down their innovation efforts.²³

The relationship between market structure and innovation raises one perplexing question: Why is structure so important in an antitrust analysis of competition but almost completely ignored in the law of intellectual property rights? Very likely, the main reason is that the IP laws were established long before modern concerns about market structure were developed, a change that took place mainly in the early twentieth century. By contrast, antitrust policy developed simultaneously with these concerns regarding market structure and expressly incorporated them at a fairly early stage.²⁴ Antitrust law has always been viewed as a mechanism for assessing and controlling competition. The

²¹ For a good, brief account, see Konstantinos K. Stylianou, *An Innovation-Centric Approach of Telecommunications Infrastructure Regulation*, 16 VA. J.L. & TECH. 221 (2011).

²² See generally *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9 (D.D.C. 1999), *aff'd in part, rev'd in part*, 253 F.3d 34 (D.C. Cir. 2001).

²³ U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 6.4 (2010), available at www.ftc.gov/os/2010/08/100819hmg.pdf. The theory is discussed in Herbert Hovenkamp, *Harm to Competition Under the 2010 Horizontal Merger Guidelines*, 39 REV. INDUS. ORG. 3 (2011).

²⁴ See, e.g., Herbert Hovenkamp, *United States Competition Policy in Crisis, 1890–1955*, 94 MINN. L. REV. 311 (2009); Herbert Hovenkamp, *The Antitrust Movement and the Rise of Industrial Organization*, 68 TEX. L. REV. 105 (1989).

fact is, however, that the promotion of innovation is much less central to intellectual property law than the promotion of price competition is to antitrust law. Rather, the IP statutes and most of the relevant case law have tended to view IP as a set of property rights, which are absolute in the sense that they are largely invariant to market structure or market-specific incentives to innovate. Relatively few decisions assess a particular IP doctrine against theoretical or empirical accountings of the impact on innovation. Indeed, in the area of copyright law, the Supreme Court has largely read the innovation-incentivizing preface to the Constitution's Intellectual Property Clause out of the document. It has permitted both retroactive copyright extensions and even the retroactive granting of copyrights to works that were never covered under US copyright law to begin with.²⁵ Such decisions cannot be squared with the limitation on the Constitution's grant of the intellectual property power that it be reasonably calculated to "promote the Progress of Science and useful Arts."²⁶

The outcome of the Schumpeter-Arrow debate has important consequences for antitrust policy. If one believes that the most important innovations come from dominant firms, then the role of antitrust law should be fairly modest. Dominant firms typically do not need very much protection from the antitrust laws and most of their innovative conduct is presumably unilateral. Further, smaller rivals are less deserving of antitrust protection as long as we believe that they are mainly free riders or other kinds of copyists rather than true innovators themselves.

²⁵ See *Golan v. Holder*, 132 S. Ct. 873 (2012) (affirming a retroactive grant of copyrights, which gave copyright protection to some works previously in the public domain); *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (affirming a congressional grant of retroactive copyright term extensions).

²⁶ U.S. CONST. art. I, § 8, cl. 8 (granting Congress the power "To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries").

By contrast, if Arrow is correct and ground-breaking innovations are more likely to come from small firms, then antitrust has a much bigger role to play. First, larger firms with entrenched investments to defend are more likely to use exclusionary practices directed against rivals, and these practices may amount to restraints on innovation. Second, innovations from smaller firms are more likely to be collaborative rather than unilateral.

III. HARMS AND REMEDIES

After years of litigation, antitrust scholars have learned that devising good substantive rules is very difficult. To say that courts are not good at quantifying market power or assessing the overall economic effects of practices is a serious understatement. One thing the Supreme Court has done, however, is put goals ahead of substance by examining the nature of the plaintiff's harm. For example, analyzing the impact of the essentially vertical merger in the *Brunswick* case, in which a supplier of bowling equipment acquired a struggling bowling alley in Pueblo, Colorado, could be extremely difficult.²⁷ Over the last half century, antitrust policy has waffled between extreme hostility to and extreme tolerance of vertical mergers. The analysis almost always provokes sharp disagreements about the creation of efficiencies, for which the opportunities are manifold, and foreclosure of rivals.²⁸ But the plaintiff in the *Brunswick* case was a competing bowling alley and the theory of its complaint was that Brunswick was going to rejuvenate the acquired alley, thus increasing the amount of bowling competition in Pueblo, Colorado. Once we understand the nature of the plaintiff's injury it is easy to dismiss this complaint without getting knotted up in the intricacies of market definition and merger law. It is not antitrust's purpose to prevent markets from becoming more

²⁷ *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477 (1977).

²⁸ See 4A PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ch. 10 (3d ed. 2009).

competitive. In the wake of *Brunswick*, the “antitrust injury” doctrine developed as a mechanism for denying standing to plaintiffs who had not suffered the kind of harm that the antitrust laws were designed to remedy.²⁹ That holding was in apparent violation of the explicit provision of Section 4 of the Clayton Act, which gives a damages action to “any person who shall be injured” by an antitrust violation,³⁰ placing no limitation whatsoever on the nature of the injury.

Given the constitutional purpose of the patent and copyright laws to promote innovation—a goal that is stated much more specifically than Congress’s power to regulate commerce that empowers the antitrust laws—the same thing should apply with even more force to IP. In fact, analyzing the impact of a particular IP practice or accused infringement on innovation is generally far more difficult than analyzing impacts on ordinary price competition for antitrust purposes. So IP law should require a more potent theory of harm, particularly in light of the fact that virtually all post-issuance enforcement of patents or copyrights comes from private plaintiffs.

For private plaintiffs, the analogy between antitrust and intellectual property enforcement is strong. While the vast majority of antitrust lawsuits are brought by private plaintiffs, one finds an even higher percentage of private plaintiffs in patent and copyright infringement suits. Private antitrust plaintiffs do not sue in order to promote competition, but rather to protect their own interests, which may or may not coincide with competitive outcomes. Consumers are preferred plaintiffs; competitors are suspect. By the same token, in intellectual property law the plaintiffs are rights holders protecting their own property interests. One could say the same thing about IP that then-Professor Frank Easterbrook once said about predatory pricing cases—the actions should be given to consumers rather than

²⁹ See 2A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 335–59 (3d ed. 2007).

³⁰ 15 U.S.C. § 15 (2012).

competitors.³¹ Consumers' interests are most directly aligned with practices that promote innovation, while rights holders are interested in maximizing the scope of their protection, and infringement defendants in avoiding liability. The interests of neither group are a reliable surrogate for the amount and scope of IP protection that promotes innovation.

In fact, the law should not be pushed that far, and it never has been for antitrust law. Competitor lawsuits are still routinely permitted, although with more restrictions than three decades ago.³² Nevertheless, the fact remains that, just as the interests of consumers in antitrust cases are most consistently aligned with greater competition, the interests of consumers in IP cases are most consistently aligned with the promotion of innovation. This is true, at least, when the consumers themselves are not the infringers, something that occurs almost exclusively in copyright. The antitrust injury doctrine helps to ensure that private plaintiff interests in antitrust cases are more aligned with those of consumers. IP law needs an equivalent doctrine that will do the same for patent and copyright infringement.

For all of the attacks on private antitrust enforcement, the fact is that a strong link exists between antitrust damages and competitive harm, particularly in overcharge cases. We condemn properly defined antitrust violations because they cause higher consumer prices and also the "deadweight loss" from inefficient customer substitution. If we have defined the conduct correctly, an antitrust violation produces competitive harm or, in attempt cases, viably threatens to do so.

The effects of IP infringements are very different, however. In the short run, nearly all infringing activities *increase* output, and thus, at least presumptively, increase economic welfare. One can posit a hypothetical situation in

³¹ Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 333-35 (1981).

³² See *Brunswick Corp.*, 429 U.S. 477 (creating "antitrust injury" doctrine limiting the types of harms for which private plaintiffs can sue); see also AREEDA & HOVENKAMP, *supra* note 29, ¶ 337.

which the IP owner is a monopolist and the infringer makes a perfect copy—perhaps by pirating digital works. In that case, one might say that each sale by the infringer reduces by one the sales of the rights holder. But even that is not really true. Given its significantly lower development costs, the infringer will very likely charge a lower price than the rights owner. This is almost universally the case, for example, with situations such as digital piracy. As a result, total output will increase, although some wealth is transferred from the rights holder to the pirate.

In the much more common cases where the rights holder is not a monopolist or the infringer is making an imperfect copy, then infringement virtually always results in an output increase. Indeed, in many of these cases, the rights holder cannot show any loss of output at all, but only the nonpayment of a license fee, which again is a pure wealth transfer. In some cases, such as infringing derivative works where the goods in question are complements, not uncommon in copyright law, sales of the infringing work actually *increase* sales of the protected work. In that case the infringement is a pure Pareto improvement. For example, that is what happened in the case of Dan Brown's best-selling novel *The Da Vinci Code*. Brown acknowledged in his preface that he had borrowed some ideas from a well-done nonfiction book by Michael Baigent, Richard Leigh, and Henry Lincoln entitled *Holy Blood, Holy Grail*. That book had explored the history of the idea that Jesus Christ and Mary Magdalene had a romantic relationship. That legend was a well-established heresy in the Catholic Church. In response to the publicity attending *The Da Vinci Code*, sales of *Holy Blood* increased many fold, briefly putting the book on a British nonfiction bestseller list. Nevertheless, the publisher of *Holy Blood* brought a copyright infringement action, which was ultimately dismissed because Dan Brown

may have taken some ideas, but, critically, he did not take expressions.³³

Do output increases entail that IP infringements actually increase rather than reduce economic welfare? No, but it means that infringement remedies are justified only if we look beyond the short run and consider their impact on the incentive to innovate. If a rights holder cannot show that the type of harm it suffered is of a kind that would have reasonably deterred it from innovating the protected idea or expression in question, then that rights holder has not shown any social harm whatsoever. In the short run welfare is increased, and in the long run the incentive to innovate is not reduced. Indeed, in the case of complements the infringement can actually increase the incentive to innovate. For example, considered *ex ante*, the authors of *Holy Blood, Holy Grail* would very likely be more rather than less likely to write their scholarly book if they knew that some of its ideas would later be the subject of a blockbuster novel that acknowledged their contribution.

One problem that reformation of this nature confronts is that, thanks to years of special interest capture, the IP laws provide quite explicit measures for damages. For example, copyright damages can be measured by the infringer's gains rather than the producer's losses, thus making it possible for a rights owner to sue even though it has not been injured at all.³⁴ Copyright law also provides for statutory damages measures that require no proof of harm of any kind.³⁵ Both copyright and patent law permit damages to be based on projected lost licensing revenues.³⁶

³³ *Baigent v. Random House Group Ltd*, [2006] EWHC (Ch) 719 (Eng.), *aff'd* [2007] EWCA (Civ) 247 (Eng.); *see also* BOHANNAN & HOVENKAMP, *supra* note 1, at 53.

³⁴ 17 U.S.C. § 504(a)(1) (2012). *See* MICHAEL A. CARRIER, INNOVATION FOR THE 21ST CENTURY: HARNESSING THE POWER OF INTELLECTUAL PROPERTY AND ANTITRUST LAW 147–62 (2009).

³⁵ 17 U.S.C. § 504(a)(2) (2012).

³⁶ 17 U.S.C. § 504(b) (2012); 35 U.S.C. § 284 (2012).

The relevant issue, however, is not how damages should be measured, but whether the plaintiff is entitled to damages at all. That is, should a court concerned about innovation harm graft onto the damages provision a requirement that before the plaintiff is entitled to damages, it must show the appropriate kind of harm—the objectively measurable loss of the *ex ante* incentive to innovate? If the entitlement to recovery is established with sufficient rigor, then the amount of damages is relatively less important. That is precisely what the Supreme Court did for private antitrust cases in *Brunswick*. The Clayton Act’s damages provision is extremely broad, providing treble damages to “any person who shall be injured in his business or property by reason of anything forbidden in the antitrust laws,” while saying nothing at all about the type of injury.³⁷ *Brunswick* did not change the way in which damages are measured, and the historically-used measurements of overcharges for consumers or lost profits for rivals remain common.³⁸ Rather, *Brunswick* created an additional requirement, nowhere mentioned in the statute, that the harm in question must be not merely injury in fact, but injury to competition. Courts in IP cases could continue to measure damages by the statutory formulas, but only after they have determined that the plaintiff suffered the right kind of harm.

In contrast to the damages provisions, the law of injunctions is largely judge-made and rests on traditional equitable principles. The Supreme Court so held for patents in its *eBay* decision, and observed that it was already the case for copyright.³⁹ In its *Cargill* decision, the Supreme

³⁷ 15 U.S.C. § 15(a) (2012).

³⁸ See HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* ch. 17 (4th ed. 2011).

³⁹ *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391–92 (2006) (holding that entitlement to preliminary injunction requires equity plaintiff to prove: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent

Court extended the antitrust injury doctrine to antitrust actions seeking an injunction.⁴⁰ In this area the courts are not constrained by statutory language. The patent statute provides only that the courts “may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable.”⁴¹ This language gives the courts broad discretion to decide when an injunction against infringement is appropriate, and decisions in the wake of *eBay* have done so—for example, generally denying equitable relief to non-practicing entities, even though the statute makes no such distinction.⁴² The courts have done largely the same thing in copyright cases.⁴³

injunction). The Court further noted that this approach was consistent with its approach in copyright cases. *Id.* at 392

⁴⁰ *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104 (1986).

⁴¹ 35 U.S.C. § 283 (2012).

⁴² *See, e.g., Ricoh Co. v. Quanta Computer, Inc.*, No. 06-cv-462-bbc, 2010 WL 1607908, at *1 (W.D. Wis. Apr. 19, 2010) (citing the fact that patentee is a non-practicing entity as reason for denying injunctive relief); *see also Voda v. Cordis Corp.*, 536 F.3d 1311, 1329 (Fed. Cir. 2008) (affirming denial of permanent injunction and district court’s ruling that while the patentee’s non-party exclusive licensee may have suffered irreparable harm from the infringement, the patentee failed to prove that it, personally, suffered irreparable harm); *Foster v. Am. Mach. & Foundry Co.*, 492 F.2d 1317, 1324 (2d Cir. 1974) (affirming denial of a permanent injunction and order of a compulsory license where patentee did not commercially practice the patented invention: “An injunction to protect a patent against infringement, like any other injunction, is an equitable remedy to be determined by the circumstances.”).

⁴³ *See N.Y. Times Co. v. Tasini*, 533 U.S. 483 (2001); *see also Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578 n.10 (1994) (noting that the goals of copyright law are “not always best served by automatically granting injunctive relief.”).

IV. USING ANTITRUST POLICY TO LIMIT THE EFFECTS OF IP OVERREACHING OR AMBIGUITY

A. Antitrust Governance on the IP Commons

Commentators, particularly in patent law, have been involved in important discussions about whether the scope of IP protection should vary with the industry—for example, providing longer periods for durable products such as pharmaceuticals and shorter periods for more ephemeral technologies such as electronics and information systems.⁴⁴ But the regulatory costs of administering a system that truly differentiated IP protection by market structure would be extraordinarily high.

What we largely have developed instead is perhaps a second-best solution of permitting private contracting to yield industry-specific protections. This has occurred through a remarkable array of devices, including patent pooling and cross-licensing, blanket licensing in digital industries, standard-setting and interconnection protocols, and open source provisions. In many cases these devices represent a private mechanism to “contract around” intellectual property rights that have become excessive or inappropriate to the needs at hand. Further, the form of these contractual workarounds varies considerably with the nature of the technology and the structure of the market at issue.

Because these systems are private, they are for the most part not authorized or managed by the regulatory provisions that constitute our intellectual property system. The IP laws, after all, are concerned mainly with how innovation is created and protected, not with how it is disseminated.⁴⁵ For example, the patent system is generally characterized by a

⁴⁴ See, e.g., Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1629–30 (2003); BOHANNAN & HOVENKAMP, *supra* note 1, chs. 1, 3–5.

⁴⁵ See Herbert Hovenkamp, *Antitrust and the Movement of Technology*, 19 GEO. MASON. L. REV. 1119 (2012).

considerable degree of control by the United States Patent and Trademark Office (PTO) over the decision to issue a patent, but relatively little control of what is done with patents after they are issued. Post-issuance enforcement practice is left largely to the courts. Further, the incentives for creating and managing these contractual devices are self-serving. As a result, the tools of antitrust are better for addressing both competition restraints and innovation restraints within the context of these arrangements.

One thing that could considerably further innovation policy is more formal legal recognition of private IP regimes. These regimes should include greater protection from outsiders, such as patent infringement suits from non-practicing entities who often are not members of patent pools because they are not practicing anything. The form of this protection should include much more specific notice requirements and limitations on remedies, mainly for damages.

One very important role for antitrust in innovation-intensive markets lies in the vast area called the “innovation commons,” or where the production and dissemination of technology or information involves the joint activities of two or more persons.⁴⁶ IP law has surprisingly little to say about collaborative conduct other than its various declarations that IP rights can be assigned and licensed—that is, that they are to be treated just as any other rights in personal property.⁴⁷ In addition, the Patent Misuse Reform Act has provided, since 1988, that combining two or more patents for licensing purposes is not unlawful unless the seller has market power

⁴⁶ See BOHANNAN & HOVENKAMP, *supra* note 1, ch. 12.

⁴⁷ See, e.g., 17 U.S.C. § 201(d)(1) (2012) (“The ownership of a copyright may be transferred in whole or in part by any means of conveyance or by operation of law, and may be bequeathed by will or pass as personal property by the applicable laws of intestate succession.”); 35 U.S.C. § 261 (2012) (“Applications for patent, patents, or any interest therein, shall be assignable in law by an instrument in writing. The applicant, patentee, or his assigns or legal representatives may in like manner grant and convey an exclusive right under his application for patent, or patents, to the whole or any specified part of the United States.”).

in the patent on which the bundling condition is placed.⁴⁸ Beyond this, patent pools, cross-licensing, standard setting involving IP rights, blanket and package licenses, and related forms of collaborative innovation or dissemination are governed mainly by antitrust and occasionally by the related doctrine of IP “misuse.”

The literature on patent pools tends to accept as given that patents confer valuable property rights and then tries to explain both the benefits and competitive dangers of pooling. Significantly, patents are nonrivalrous, which means that one person’s “consumption” of a patent via licensing does not reduce the amount that is left over for others. This provides a strong rationale for pooling because a product-improving technology can be shared across a large number of producers or even an entire market. Because the costs of research and development are largely fixed, per unit costs decline as the number of units produced increases. This can make sharing both profitable and economically efficient. It also induces sharing at the pre-innovation stage, where firms can share the costs of failure as well as of success. For example, a firm might balk at investing \$1,000,000 in an innovation project with a limited chance of success. However, the investment is more attractive if each of ten firms puts in \$100,000. Losses will be smaller if the project fails, and the firms can share the result if it succeeds.

The fact that patents are nonrivalrous also entails, however, that restrictions on output must be scrutinized

⁴⁸ 35 U.S.C. § 271(d) (2012):

(d) No patent owner otherwise entitled to relief for infringement or contributory infringement of a patent shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having done one or more of the following: . . . (5) conditioned the license of any rights to the patent or the sale of the patented product on the acquisition of a license to rights in another patent or purchase of a separate product, unless, in view of the circumstances, the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned.

more carefully than output restrictions for rivalrous commons, such as fisheries or shared grazing rights. Each fish taken from a common pool reduces the number available to other fishermen. As a result, catch limitations are essential to commons management. Thus there is nothing suspicious about a rule in a commons for, say, grazing rights that limits each rancher to 100 heads of cattle.⁴⁹

An output limitation in a patent pool must be examined more closely, because one firm's use of the patent does not limit the number of uses available for other members of the pool. Rather, the problem with patents is on the output side rather than the use side. Each sale of a patented good reduces by one the number of sales that are available to others in the pool.

Antitrust policy generally views output limitations as bad, but patent pools present the problem that the shared assets are, for the most part, fixed costs. As a result, unrestrained competition among pool members in the output market may drive prices so low that members may not be able to recover their investment. This outcome may reduce pool members' incentive to innovate further. To be sure, antitrust has a rule of reason and an ancillary restraints doctrine for addressing this issue, but the rule of reason asks whether a restraint will, on balance, actually increase rather than decrease output. It does not ask whether an output reduction and higher prices are needed to pay off the investment in patenting.⁵⁰ For example, under rule of reason analysis one considers such questions as whether the patents in a pool are fundamentally complements or whether

⁴⁹ On rivalrous versus nonrivalrous commons, see BOHANNAN & HOVENKAMP, *supra* note 1, ch. 12. The seminal work on rivalrous commons is ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* (1990).

⁵⁰ *Cf. Nat'l Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679 (1978) (condemning professional association rule forbidding engineers from bidding for jobs on the basis of price; defendant's rationale was that price bidding would cause prices to fall, inducing engineers to cut corners on projects).

they are substitutes. Complements suggest integration, elimination of double marginalization, and thus higher output. Substitutes suggest the possibility of collusion.

The judicial approaches to this problem have not been particularly helpful. For example, in both the *Bement*⁵¹ and *GE*⁵² cases, the Supreme Court upheld product price fixes in license agreements. The Court did so mainly on the theory that a patent conferred a monopoly that entitled the owner to set its output and to carve out a specific portion of that output for licensing to another. For instance, if a patentee should identify 1000 units as the amount that would maximize its own profits were it to produce everything, then it should be able to license another firm to produce 400 units, reserving the other 600 to itself. Alternatively, the patentee should be able to require the licensee to charge a specific price when it sells the licensed product.

This reasoning is fallacious to the extent that many patents are of dubious validity. It permits product collusion disguised as a patent license. The reasoning is also mistaken, however, if the patents in question are perfectly valid. In this case, the reasoning attributes the entire value of a cartel markup to the value of the patents—something that is almost never the case. To give a simple example, suppose you patent a device that permits the digital display in a wristwatch to show its numbers in pink rather than the usual gray or orange. I patent a watchband that latches with a hook rather than a buckle. We are the only two watchmakers in the market, and we pool our respective patents and fix the output price of watches, raising it from \$10 to \$20. The amount of the cartel markup very likely has little or nothing to do with the value of these patents, which add little to the value of the watch. The patents could be perfectly valid, yet they have little to no value because few customers are willing to pay significantly more for the technology that they offer.

⁵¹ *Bement v. Nat'l Harrow Co.*, 186 U.S. 70, 90–94 (1902).

⁵² *United States v. Gen. Elec. Co.*, 272 U.S. 476, 487–90 (1926).

That leaves the problem of “excessive” competition in patent pools. Should product market restraints on output or price be justified because this is the only way that pool members can avoid competing price down to a level insufficient to cover investments in innovation? While that problem may exist in the rare patent pool for a commodity,⁵³ it is not likely to apply to markets for product differentiated goods. Manufacturers of digital cameras, smartphones, players of digital media and numerous other users of patent pools produce distinctive products that sell at different price points and with different features. This means that each manufacturer faces a somewhat downward-sloping demand curve and that prices will be above short-run marginal cost. For the most part these firms will be able to recover their fixed costs, including investment in patents or copyrights.⁵⁴ To be sure, product differentiation does not guarantee positive returns, but it does suggest that most pools should be able to survive and prosper without restraints on product output.

One deficiency in the literature on patent pools is that it tends to accept as given that patents are valuable property

⁵³ A possible example is memory chips, which have become close to a commodity.

⁵⁴ Both monopolistically competitive markets, which are characterized by low barriers to entry, and oligopolistic product-differentiated markets can have equilibria that accommodate significant fixed costs. See Michael Spence, *Product Selection, Fixed Costs, and Monopolistic Competition*, 43 REV. ECON. STUD. 217, 220 (1976). In general, higher fixed costs are associated with a greater degree of differentiation and a smaller number of firms that the market is able to support. See also Avinash K. Dixit, *Some Reflections on Theories and Applications of Monopolistic Competition*, in THE MONOPOLISTIC COMPETITION REVOLUTION IN RETROSPECT 123, 128 (Steven Brakman & Ben J. Heijdra eds. 2004); JEFFREY PERLOFF, MICROECONOMICS THEORY AND APPLICATIONS 485 (2008). In the pure Chamberlin model with easy entry, price is at average total cost, which includes fixed as well as variable costs. For a graphic illustration, see Craig Marcott, *Cost and Revenue for Monopoly and Monopolistic Competition*, WOLFRAM DEMONSTRATIONS PROJECT, <http://demonstrations.wolfram.com/CostAndRevenueForMonopolyAndMonopolisticCompetition/> (last visited Dec. 19, 2012).

rights, and then devises explanations for why they are pooled. There is another important explanation, however, which is that patents in heavily pooled industries have little value or in many cases even negative value. For example, Bessen and Meurer conclude that in most industries other than pharmaceuticals and chemicals, the private value of patents is less than the cost of obtaining them, keeping them up to date, and defending them in litigation.⁵⁵ In these industries—which involve information technologies where a great deal of pooling occurs—pooling is simply a way of “contracting out” of a system that does the participants more harm than good. By pooling, participants can produce their products free of the costs of infringement litigation. If the pool covers future as well as already-granted patents, it may reduce the incentive within the industry for *patenting*, but it will not reduce the incentive to innovate. This is particularly true if the innovations can be protected by trade secrets or first-mover advantages that are not shared.⁵⁶

Where patents are very low in value in relation to litigation costs, a phenomenon called “tacit pooling” may occur among patent owners who are actually producing a product.⁵⁷ The very existence of tacit pooling reflects very poorly on the state of patent law. If two firms each hold a significant pool then the risk and expected cost of litigation in both directions may be larger than the expected return.

The biggest problem facing pool members is patenting by firms that are outside the pool or, worse yet, non-practicing entities (“NPEs”) who are not in the pool because they are not producing anything. This makes it critical that the

⁵⁵ BESSEN & MEURER, *supra* note 4, at 141.

⁵⁶ Cf. Adam Mossoff, *The Rise and Fall of the First American Patent Thicket: The Sewing Machine War of the 1850s*, 53 ARIZ. L. REV. 165, 170 (2011); Ryan Lampe & Petra Moser, *Do Patent Pools Encourage Innovation? Evidence from the 19th-Century Sewing Machine Industry* (June 8, 2010) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1308997.

⁵⁷ See Erik Hovenkamp, *Tacit Pooling* (2012) (unpublished manuscript) (on file with author).

patent rights of non-practicing entities be appropriately restricted. One helpful signal is the increasing tendency under *eBay* to limit NPEs to damages.⁵⁸ A better solution, but one which might require a statutory amendment, would be to place stronger obligation upon NPEs to give more precise and effective notice to likely infringers and to make patents enforceable only subsequent to the time that such notice is given.⁵⁹

In any event, pooling in order to neutralize the harmful effects of negative-value patents represents extreme social costs. One is the administrative cost of creating such patents and accumulating them in the first place. Another is the cost of forming and operating pools, and defending members against threats from outside. But no matter how costly, antitrust law is not a roving mandate to repair deficiencies in the patent system. Accepting the existing patent regime as given, however, antitrust can facilitate the kind of pooling arrangements that restore incentives to innovate and compete that the patent system has taken away.

B. Patent Aggregators, Transaction Costs, and Notice

It is difficult to be as sanguine about patent aggregators, which are usually non-practicing entities that buy up large portfolios of patents by assignment. The largest of these, Intellectual Ventures, may own some 30,000–60,000 patents.⁶⁰ Aggregators engage in a number of activities that defy simple characterization. They may be valuable for those creating defensive portfolios to be used against patent infringement suits by others with very large portfolios. But

⁵⁸ See discussion *supra* note 41.

⁵⁹ See BOHANNAN & HOVENKAMP, *supra* note 1, at 348–50.

⁶⁰ See Tom Ewing & Robin Feldman, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 1–2 (2012) (estimating 30,000–60,000); FED. TRADE COMM'N, EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 65 (2011), available at www.ftc.gov/os/2011/03/110307patentreport.pdf (estimating that Intellectual Ventures owns more than 30,000 patents).

clearly one of their most significant activities is bringing infringement lawsuits against producers of existing products who may have unwittingly infringed upon one or more patents in the aggregators' portfolio.

One problem that aggregators' activities expose is that the largest private value of patents in certain technologies results not from their ability to incentivize innovation but rather from the high transaction costs that they impose—mainly on independent innovators. Simply construing dozens of patents, not to mention defending against them in infringement suits, can be extremely costly. To the extent that infringement suits are launched against independent innovators, the result is almost certainly to increase rather than reduce incentives for innovation.⁶¹

The patent system and the courts should place greater pressure on patent holders to provide adequate and timely notice of their rights. For example, today, a developer of a product involving information technologies may receive a letter offering a license from an aggregator or pool with no specific mention of the patents that the holder claims will be or are being infringed.⁶² This asymmetry of information effectively puts on the producer the task of identifying which of many hundreds or thousands of patents it might be infringing—typically at a cost of hundreds of thousands of dollars—or else of paying a much smaller license fee.⁶³

⁶¹ See BOHANNAN & HOVENKAMP, *supra* note 1, at 128–31.

⁶² Cf. *Nero AG v. MPEG LA, L.L.C.*, No. 10-cv-3672-MRP-RZ, 2010 WL 4878835, at *2 (C.D. Cal. Nov. 24, 2010) (discussing potential licensee's complaints that due to expense and impracticality, it is unable to identify which patents in pool are essential to its own technology).

⁶³ Cf. *Eon-Net LP v. Flagstar Bancorp.*, 653 F.3d 1314, 1327–28 (Fed. Cir. 2011) (awarding sanctions against a financial services patent holding company that filed frivolous patent infringement suits against numerous defendants, accompanied by offers to settle that were considerably lower than the cost of reviewing the patents in order to determine infringement). The court noted that Eon-Net's offers to settle were in the range of \$25,000–\$75,000, while the costs of discovery related to claim construction alone in the present case exceeded \$600,000. See *id.* at 1327. "Here, the district court did not clearly err when it found that Eon-Net filed an

Another problem is the eighteen-month gap during which patent applications are held in secret.⁶⁴ Under current law the application is kept in confidence during this eighteen-month period, or right up to the date of patent issuance if the applicant is not seeking foreign patent protection. This effectively means that technology developed by others during this period is protected by the patent even though nothing was disclosed to the public.

A better rule would be to give the patent applicant a choice. If the applicant publishes the application immediately then it will have protection with respect to all patent claims that survive to patent issuance. If it refuses to publish, then it loses protection for technology developed during the period prior to disclosure. One objection, of course, is that the patent may never issue, and then the applicant has disclosed without obtaining patent protection. This point, however, only serves as an incentive for applicants to draft patent claims more narrowly and make sure that they have met all of the patent law's requirements—including novel and non-obvious subject matter—before applying. Further, the applicant that chooses not to disclose loses patent protection during the interval between application and issuance, but it retains any trade secret protection against misappropriation. Mainly, until the patent issues and disclosure is made, it loses protection against independent discovery.

By and large the patent system has not taken the social value of notice seriously. In general, the more intangible a property right is, and the more ambiguous its boundaries, the more important it is that notice be provided. Further, the cost of providing notice of a particular property right is almost always less than the cost of searching among many.

objectively baseless infringement action against Flagstar and brought that action in bad faith, specifically to extract a nuisance value settlement by exploiting the high cost imposed on Flagstar to defend against Eon-Net's baseless claims." *Id.* at 1328. The court also approved the lower court's award of Rule 11 sanctions. *Id.* at 1329.

⁶⁴ 35 U.S.C. § 122 (2012).

The real property system recognizes this and, even though real property rights are far more tangible, has created a highly effective notice system. We don't have an industry of "real property trolls" who have placed non-development covenants in land and lie in wait for some unsuspecting developer. The reason is simple: Notice is clear, the landowner must supply it, and the penalty for not supplying it is loss of the right.⁶⁵

C. Patent Exclusions and Inequitable Conduct

Exclusionary practices involving intellectual property rights generally provide a smaller role for antitrust than do collaborative practices because so much exclusion is controlled in the first instance by the intellectual property laws themselves. Under the decisions of the Federal Circuit, the role of antitrust in policing patent exclusion is narrowing even further. For example, under the Supreme Court's *Walker Process* doctrine, a patentee can violate Section 2 of the Sherman Act by filing an infringement suit on a patent that was procured by "fraud," which generally means inequitable conduct, or the making of false or misleading statements to the PTO during the examination process.⁶⁶ Under the decisions of the Federal Circuit, however, inequitable conduct has become extremely difficult to prove. Its 2011 *Therasense* decision required specific intent to deceive the PTO on a material issue.⁶⁷ Even when inequitable conduct is found, the Federal Circuit has raised an extremely high bar for antitrust counterclaims. In its

⁶⁵ See BOHANNAN & HOVENKAMP, *supra* note 1, at 130–32; Herbert Hovenkamp, *Notice and Patent Remedies*, 88 TEX. L. REV. 221, 224 (2011); see also Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities* (Boston Univ. Sch. of Law, Law and Econ. Research Paper No. 11-58, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1973171 (providing many examples).

⁶⁶ *Walker Process Equip., Inc. v. Food Mach. & Chem. Corp.*, 382 U.S. 172, 174 (1965).

⁶⁷ *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1290 (Fed. Cir. 2011).

Dippin' Dots decision, for example, the patentee lied to the PTO about numerous sales that had occurred more than one year prior to the filing of its patent application, thus making the technology unpatentable under patent law's on-sale bar.⁶⁸ The court found clear evidence of intent to deceive the PTO, and that the patent was unenforceable. Some thirteen years later the patentee filed an infringement suit, at a time when evidence of prior sales would be extremely difficult to locate and discoverable only by happenstance. Nevertheless, the Federal Circuit denied antitrust liability, holding that while a declaration of inequitable conduct required only a single improper act, the antitrust laws required something more. In this case there was only the lying about the prior sales.

What the court overlooked is that even under its odd two-act requirement, there were in fact two acts. The fact of the prior sales was enough to make the patent unenforceable, but in this case the patentee had not only lied about them, it also filed an infringement suit long after. That infringement suit, not the act of lying about prior sales, was the gist of the antitrust violation.

The principal distinction between inequitable conduct and *Walker Process* style antitrust cases is temporal. In general, inequitable conduct refers to actions and states of mind that occur during the patent prosecution process. By contrast, *Walker Process* refers to actions and states of mind at the time a patent infringement action is filed, which can be many years after issuance (roughly thirteen years, for example, in *Dippin' Dots*). This has several important implications.

First, there could be inequitable conduct under *Therasense* but relative innocence at the time of an infringement suit if (a) the patent has been assigned to an innocent recipient; or (b) the persons within the firm who were guilty of the inequitable conduct are no longer

⁶⁸ *Dippin' Dots, Inc. v. Mosey*, 476 F.3d 1337, 1340–41, 1346–47 (Fed. Cir. 2007).

available, and the persons who file the infringement suit are unsuspecting. This is highly likely to be true for firms with thousands of patents, because the kinds of things that would yield inequitable conduct are often not disclosed on the record, given that they tend to be omissions. One conceptual difficulty of *Therasense* is that state of mind refers to persons, but large firms have many persons. That is why objective standards are generally superior for assessing corporate behavior. Further, those filing an infringement suit on a ten-year-old patent have little incentive to dig too deeply in order to find out whether now-departed patent prosecutors engaged in inequitable conduct.

Second, a patent might have been obtained without inequitable conduct, but subsequent evidence of prior art or barring sales or use might emerge, and the person filing the infringement action might have knowledge of these things. In that case a *Walker Process* action should be permitted even though the person prosecuting the patent was innocent of inequitable conduct as *Therasense* defines it.

To state this differently, the doctrine of inequitable conduct governs the patent prosecution and issuance process, largely during the pre-grant stage when PTO supervision is intense and there is little room for antitrust intervention. By contrast, antitrust liability under the *Walker Process* doctrine is intended to refer to *enforcement* activities during the post-grant stage when there is little to no PTO supervision. As a result, the *Dippin' Dots* rule needs to be revisited.

D. Refusal to License

Going all the way back to the *Colgate* decision in 1919, US antitrust law has permitted dominant firms acting unilaterally to refuse to deal, with very few exceptions.⁶⁹ One exception that the Supreme Court recognized in its 1985 *Aspen* decision is that a firm that has voluntarily established a course of dealing with a rival may not withdraw from that

⁶⁹ United States v. Colgate & Co., 250 U.S. 300, 306 (1919).

venture without a good explanation.⁷⁰ More recently, however, in its *Trinko* and *LinkLine* decisions, the Supreme Court has reverted to formulations that leave very little space for dealing obligations, provided that the firm in question is acting unilaterally.⁷¹

In patent law, the hostility toward compulsory licensing, which is the equivalent of duty to deal, is at least as great because it is also statutory. The Patent Misuse Reform Act of 1988 provides that it cannot be “misuse” or “unlawful extension” of a patent to refuse to license it to someone else.⁷² The phrase “unlawful extension” very likely forecloses antitrust liability as well as liability for patent misuse.⁷³

But there is one very important difference between refusals to license patents and refusals to deal generally. In the ordinary refusal to deal case, the rival who has been turned down must either build the refused asset for itself or else seek it from another source. For example, if I refuse to share my gas pipeline with you, you must either build your own pipeline or else seek transportation space on someone

⁷⁰ *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. 585, 604–05 (1985).

⁷¹ *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 409 (2004); *accord Pac. Bell Tel. Co. v. LinkLine Commc'ns, Inc.*, 555 U.S. 438, 439 (2009); *see Intergraph Corp. v. Intel Corp.*, 195 F.3d 1346, 1362 (Fed. Cir. 1999) (explaining that U.S. patent law does not provide for a duty to deal). *Cf.* Case T-201/04, *Microsoft Corp. v. Comm'n of the European Cmty.*, 2007 E.C.R. II-3601, ¶¶ 220, 307 (finding that Microsoft had an obligation under EU competition law to share server protocols with rivals because it had previously offered such support voluntarily but limited it after entering the server market itself).

⁷² *See* 35 U.S.C. § 271(d)(4) (2012):

No patent owner otherwise entitled to relief for infringement or contributory infringement of a patent shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having done one or more of the following: . . . (4) refused to license or use any rights to the patent

⁷³ *See Ill. Tool Works, Inc. v. Indep. Ink, Inc.*, 547 U.S. 28, 42 (2006) (interpreting this phrase to apply to antitrust as well as misuse).

else's pipeline. Indeed, one of the objections to antitrust's "essential facility" doctrine is that it forces firms to share assets in public utility fashion rather than giving rivals a competitive incentive to build assets of their own.⁷⁴

In the case of patents, however, a firm that has been denied a patent license from another does not have the option of building any technology that infringes the other's patent. Indeed, it will not be able to build infringing technology even if it does not know about the other's patent, as is apparently the case for most patent infringers.⁷⁵ To be sure, it might be able to invent around the dominant firm's patents, but inventing around can be a very risky proposition if it requires a large upfront investment. Finally, the no-duty-to-license rule applies even when the dominant firm's patent is not being used, and indeed, even if the dominant firm acquired it from another for no other purpose than to shut down and deny to rivals the technology that it offered. That was the holding in the Supreme Court's *Paper Bag* case in 1908.⁷⁶

Here, one partial solution that avoids the constraints of the Patent Misuse Reform Act is to permit firms with significant market shares in the product market to acquire only nonexclusive licenses in patents developed by outsiders. That would be an antitrust solution, not a Patent Act solution, but it is not inconsistent with the Patent Act either. To be sure, the Patent Act permits both the assignment of patents and the granting of exclusive licenses.⁷⁷ But that grant does no more than provide that patents should be treated just as other forms of personal property, which means that they can be freely transferred *provided* that the

⁷⁴ See 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 771 (3d ed. 2008).

⁷⁵ See Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1422, 1450–51 (2009) (stating that proof of copying in patent law is uncommon).

⁷⁶ *Cont'l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 429 (1908). See BOHANNAN & HOVENKAMP, *supra* note 1, at 295–98.

⁷⁷ 35 U.S.C. § 261 (2012).

transfer is not unlawful on other grounds. For example, patents are clearly “assets” covered by the antimerger provision, Section 7 of the Clayton Act.⁷⁸ Guidelines on merger remedies issued by the Antitrust Division in 2011 also contemplate that antitrust management of patent acquisitions is justified.⁷⁹

V. CONCLUSION

The field of “IP/Antitrust” has blossomed in the last two decades, and has become a significant component of antitrust practice today, producing a treatise literature⁸⁰ as well as law school classes and casebooks.⁸¹ The fact is that managing competition for innovation is a complex task, made more complex and difficult by deficient intellectual property policies. Although courts are not perfect institutions either, there is a lesson to be learned here. We would probably have a better and more defensible intellectual property system if we left somewhat more to the courts and less to the statutes. To be sure, antitrust policy has also veered all over the place, for large parts of its history, protecting competitors more than consumers. But this was less a function of special interest capture than of lack of economic sophistication and serious ambiguity about antitrust’s underlying goals. In the last thirty years, just as antitrust has become more responsive to concerns for

⁷⁸ See, e.g., *Great Lakes Chem. Corp.*, 103 F.T.C. 467, 471 (1984) (antitrust consent decree applying merger law to patent acquisitions and requiring nonexclusive license as remedy).

⁷⁹ ANTITRUST DIV., U.S. DEPT OF JUSTICE, POLICY GUIDE TO MERGER REMEDIES (2011), available at www.justice.gov/atr/public/guidelines/272350.pdf.

⁸⁰ See generally HERBERT HOVENKAMP ET. AL., *IP AND ANTITRUST: AN ANALYSIS OF ANTITRUST PRINCIPLES APPLIED TO INTELLECTUAL PROPERTY LAW* (2d ed. 2010).

⁸¹ See generally CHRISTOPHER R. LESLIE, *ANTITRUST LAW & INTELLECTUAL PROPERTY RIGHTS: CASES AND MATERIALS* (2011); HERBERT HOVENKAMP, *INNOVATION AND COMPETITION POLICY: CASES AND MATERIALS* (2011), available at www.uiowa.edu/~ibl/InnovationCompetitionPolicyCasebook.shtml.

preserving economic competition and consumer welfare, the IP laws have unfortunately gone in the opposite direction, protecting rights holders at the expense the “Progress of Science and useful Arts”⁸² that would benefit consumers.

⁸² U.S. CONST. art. I, § 8, cl. 8.