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Is Patent Enforcement Efficient

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ESSAY

IS PATENT ENFORCEMENT EFFICIENT?

MARK A. LEMLEY* & ROBIN FELDMAN**

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Traditional justifications for patents are all based on direct or indirect contribution to the creation of new products. Patents serve the social interest if they provide not just invention, but innovation the world would not otherwise have. Non-practicing entities (“NPEs”) as well as product-producing companies can sometimes provide such innovation, either directly, through working the patent or transferring technology to others who do, or indirectly, when others copy the patented innovation. The available evidence suggests, however, that patent licensing demands and lawsuits from NPEs are normally not cases that involve any of these activities.

Some scholars have argued that patents can be valuable even without technology transfer because the ability to exclude others from the market may drive commercialization that would not otherwise occur. We demonstrate that even if various commercialization theories can sometimes justify patent protection, they cannot justify most NPE lawsuits or licensing demands.

INTRODUCTION

Of the many governmental activities we undertake in this country, few are as purely and explicitly utilitarian as the patent system.¹ The patent system

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exists to bring about a particular result, rather than out of a sense of an inventor's moral rights or as a matter of equity.² From the many commercial activities that might otherwise be open to anyone, we remove some, for a limited period of time, in the hope that dedicating them to the province of a few will redound to the benefit of us all.³ The benefit—in other words, what the patent system is designed to promote—is commonly referred to as “innovation.”

The traditional utilitarian story supporting the patent system is that the lure of patent rights encourages invention that would not otherwise occur, or at least would occur later but for the patent.⁴ The invention the system is designed to promote is not what is known in science as “basic research,” such as an understanding of how nature works or what forces propel the universe. After all, for more than a century, the courts have reminded us that the proper subject matter of a patent does not include laws of nature, natural phenomena, or abstract ideas—no matter how valuable and essential to the progress of science these may be.⁵ Rather, the patent system is aimed at protecting “applied” inventions—or innovations—that are deployed in the world. Only when broad and basic principles are reduced to a particular practice and applied in a specific endeavor will they be eligible for protection.⁶

The patent system's focus is consistent with economic literature, which distinguishes invention—an idea—from innovation—turning an idea into a viable product. The patent system encourages not just invention in the abstract, but the creation of new products. This is the “[p]rogress” of the “useful [a]rts” mentioned in the Patent Clause of the Constitution.⁷

¹ For a discussion of the version of utilitarianism applied in the patent system, see ROBIN FELDMAN, *RETHINKING PATENT LAW* 76-78 (2012). For debate on this point, compare ROBERT P. MERGES, *JUSTIFYING INTELLECTUAL PROPERTY* 102-36 (2011) (arguing for patent rights on moral basis), with Mark A. Lemley, *Faith-Based Intellectual Property*, 62 *UCLA L. REV.* 1328, 1336-38 (2015) (critiquing those moral claims).

² See generally Lemley, *supra* note 1 (arguing that justifications of intellectual property (“IP”) rights based on moral claims are unpersuasive).

³ Robin Feldman, *Intellectual Property Wrongs*, 18 *STAN. J.L. BUS. & FIN.* 250, 252 (2013).

⁴ WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 294-310 (2003); see also John F. Duffy, *The Marginal Cost Controversy in Intellectual Property*, 71 *U. CHI. L. REV.* 37, 52-53 (2004); Steven Shavell & Tanguy van Ypersele, *Rewards Versus Intellectual Property Rights*, 44 *J.L. & ECON.* 525, 530 (2001).

⁵ *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014).

⁶ *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“[W]hile an abstract idea, law of nature, or mathematical formula [can]not be patented, ‘an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.’” (quoting *Diamond v. Diehr*, 450 U.S. 175, 187 (1981))).

⁷ U.S. CONST. art. I, § 8, cl. 8.

The focus on innovation, not simply invention, is particularly important with the emergence of the modern non-practicing entity (“NPE”) business model. Colloquially known as “patent trolls,” NPEs are those entities whose core activity involves licensing or litigating patents, as opposed to making products.⁸ By all accounts, the modern NPE business model has expanded rapidly over the last two decades, an expansion that is particularly evident in the context of litigation.⁹ Different scholars slice the numbers differently. For example, some exclude NPEs organized as trusts as well as individual inventors and others exclude “failed startups.”¹⁰ When the broader definition is applied, however, the data are remarkably consistent across studies, with all showing that NPEs now account for the majority of patent lawsuits filed in the United States.¹¹

Our goal in this Essay is to assess whether lawsuits filed by NPEs are efficient. By “efficient,” we do not mean “are the lawyers working as quickly and cheaply as they could?” Rather, our goal is to determine under what circumstances the enforcement of patent rights might benefit society. As we

⁸ John R. Allison, Mark A. Lemley & David L. Schwartz, *How Often Do Non-Practicing Entities Win Patent Suits?*, 32 BERKELEY TECH. L.J. 235, 240 (2017); Robin Feldman, *Federalism, First Amendment and Patents: The Fraud Fallacy*, 17 COLUM. SCI. & TECH. L. REV. 30, 32 (2015) (defining patent trolls and NPEs as those whose core business involves licensing and litigating stripped patent rights as opposed to making products with those patents); see also Robin Feldman, *Patent Demands and Startup Companies: The View from the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 244-53 (2014) (describing nuances in use of various terms (including NPE, patent assertion entity, and patent monetization entity), concluding that broad definition of those whose core activity involves licensing and litigating patents rather than making products is best, and suggesting that monetizer might be better term than NPE).

⁹ Allison, Lemley & Schwartz, *supra* note 8, at 237 (noting that NPEs “account for a majority of all defendants sued for patent infringement” and may “win both larger judgments or larger settlements than . . . operating companies”).

¹⁰ *Id.* at 240.

¹¹ Compare Colleen Chien, Assistant Professor, Santa Clara Univ., Patent Assertion Entities, Presentation to the FTC/DOJ Workshop on PAEs (Dec. 10, 2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2187314 [<https://perma.cc/863E-RU2B>] (using data from RPX Corporation and concluding that percentage of litigation by NPEs in 2012 had reached sixty-one percent), and Robin Feldman, Tom Ewing & Sara Jeruss, *The AIA 500 Expanded: The Effects of Patent Monetization Entities*, 17 UCLA J.L. & TECH. (ISSUE 2) 1, 7 (2013) (“[I]n 2012, litigation by patent monetization entities represented a majority of the patent litigation filed in the United States.”), with Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649, 655 (2014) (using narrower definition of NPEs and finding no real increase in NPE litigation when comparing years 2010 and 2012, but also noting that “when we repackage all [NPEs] into a single category, they are responsible for a majority of [patent lawsuits] in 2012”). See also Matthew Sag, *IP Litigation in the U.S. District Courts: 1994-2014*, 101 IOWA L. REV. 1065, 1081 (2016) (finding that patent litigation volume doubled from 2010 to 2012).

demonstrate, while there are various ways patent enforcement might serve utilitarian ends, those approaches all involve some sort of technology transfer from the inventor to implementers or the public at large. Without that technology transfer, patent enforcement represents a pure cost to society and a tax on innovation. Unfortunately, a large fraction of the patent lawsuits filed today fall in the category of pure costs to society.

I. INNOVATION-RELATED JUSTIFICATIONS FOR NPEs

Consistent with the utilitarian goals of the patent system, all of the arguments suggesting NPEs benefit society rest on their contribution, either directly or indirectly, to the creation of products somewhere in the system. NPEs, unlike practicing entities, do not deploy the technology in the world themselves, but that doesn't answer the question of whether they contribute to innovation and the creation of new products. To promote innovation they must not only invent, but that invention must lead to the creation of products by someone, somewhere in the system, at some point. NPEs may be acting as middlemen, transferring technology to those who would implement it, or they could be collecting revenue from those who copied their invention and implemented it. Neither possibility, however, appears broadly supported by the available evidence.

There is substantial literature that calls into question whether the patent system in general encourages innovation that would not otherwise happen. The facts that most significant innovations are simultaneously created by two or more people working independently¹² and that in most industries virtually all patent enforcement is done against independent inventors¹³ cast significant doubt on the claim that the innovations would not have happened but for the lure of a patent. The issue is, however, complicated by the very different characteristics of different industries. There may be industries in which invention is so complex and uncertain that it would not be undertaken without patent protection.¹⁴ But there also appear to be industries—perhaps most of them—in which the patent system does not seem to be driving new invention, and may even be retarding it.¹⁵ That might lead one to question the patent

¹² Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 711 (2012).

¹³ Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1424 (2009).

¹⁴ DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* 80-81 (2009) (arguing that in pharmaceutical industry, investment in research would likely drop substantially without effective patent protection due to high costs of innovation and relative ease of copying inventions).

¹⁵ JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* 21-24 (2008) (arguing that patent system particularly fails with respect to software patents).

system as a whole¹⁶ or at least the traditional innovation-based justification for it.

In addition to doubts about how well patents in general actually drive innovations that would not otherwise have occurred, the evidence casts significant doubt on the efficacy of the patent disclosure as a way of disseminating ideas and leading to the creation of products. While writing down and publishing a description of the invention has long been the *quid pro quo* for a patent, in the modern world there is good reason to think that engineers in many fields rarely read patents in order to learn about a technology.¹⁷ There are many reasons for this. Lawyers at many companies discourage their engineers from reading patents for fear of increasing legal liability.¹⁸ The quality of the disclosure in the patent may be poor, particularly in the information technology (“IT”) industries.¹⁹ There are simply too many patents in many fields to possibly keep up with,²⁰ and six-hundred thousand more applications are filed every year.²¹ And in a fast-moving industry like IT,

¹⁶ See MICHELE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY* 11 (2008) (arguing that “intellectual property is an unnecessary evil”).

¹⁷ Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19, 21-22 (“Companies and lawyers tell engineers not to read patents in starting their research, lest their knowledge of the patent disadvantage the company by making it a willful infringer.”); Lemley, *supra* note 12, at 711 (“[D]isclosure theory, which justifies the grant of patents on the assumption that scientists read and learn from them, fails to grapple with the way learning occurs in the real world.”); Note, *The Disclosure Function of the Patent System (or Lack Thereof)*, 118 HARV. L. REV. 2007, 2025-26 (2005) (“[E]ngineers often find it difficult to extract useful information from the written description [in a patent application], which . . . weakens the disclosure value of patents.”). By contrast, in some fields patents may provide more useful guidance to engineers. Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 547 (2012) (finding that in field of nanotechnology, patents contain “useful, nonduplicative technical information”); Lisa Larrimore Ouellette, *Who Reads Patents?*, 35 NATURE BIOTECH. 421, 422 (2017).

¹⁸ Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 BERKELEY TECH. L.J. 1085, 1100-01 (2003) (“Once a company becomes aware of a patent, it has an obligation to obtain a written opinion of counsel or risk later being held a willful infringer. . . . [L]awyers regularly advise their clients not to read patents if there is any way to avoid it.”); Lemley, *supra* note 17, at 21-22.

¹⁹ BURK & LEMLEY, *supra* note 14, at 158 (citing software patents as likely to “be supported by very little in the way of detailed disclosure” due to the Federal Circuit’s relaxed enablement requirement); ROBIN FELDMAN, *RETHINKING PATENT LAW* 90-123 (2012) (describing how the last fifty years of cases related to computer technology have led to approval of patents containing limited useful information).

²⁰ Lemley, *supra* note 17, at 19 n.1 (noting that more than one-third of all patents issued as of 2008 had been issued in the preceding twenty years).

²¹ David Rogers, *United States Patent Application Filings Exceed 600,000 for the Second Straight Year*, LAW.COM (June 4, 2015), <https://www.law.com/insidecounsel/2015/06/04/united-states-patent-application-filings-exceed-60/?slreturn=20171022144207> [https://perma.cc/A4N5-5X32].

a delay of several years between invention and disclosure may make the technology described obsolete by the time anyone could read the patent.²²

Further, economic literature suggests that effective technology transfer—in other words, transfer that can lead to commercialization—requires more than just reading a patent.²³ Such transfer generally must include not only the information publicly available in the patent, but also the transfer of know-how, complementary assets, and other peripheral disclosures.²⁴ Thus, if patents actually drive innovation by third parties we would expect to see not simply patenting but business transactions that involve the transfer of other types of information assets.²⁵

Alternatively, NPEs could drive innovation if they served as efficient middlemen, connecting those who invent but whose inventions have not been deployed with those who can produce something from that invention. Several people have argued that NPEs serve this role.²⁶ Here, too, an innovation benefit requires technology transfer. The social benefit of the middleman story depends on the middleman providing something of value to the implementer.²⁷

²² Robin Feldman & Mark A. Lemley, *Do Patent Licensing Demands Mean Innovation?*, 101 IOWA L. REV. 137, 159-60 (2015).

²³ *Id.* at 155 n.40.

²⁴ JAMES BESSEN, *LEARNING BY DOING: THE REAL CONNECTION BETWEEN INNOVATION, WAGES, AND WEALTH* 3 (2015); Jason Rantanen, *Peripheral Disclosure*, 74 U. PITT. L. REV. 1, 7 (2012) (defining “peripheral disclosure” as disclosure of information that would not occur but for incentives provided by patent system); David J. Teece, *Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy*, 15 RES. POL’Y 285, 293 (1986) (noting that knowledge and competencies necessary to produce even “modestly complex technologies” are quite demanding and difficult for one company to maintain on its own).

²⁵ Acquisition is one means of technology transfer. *See generally* John F. Coyle & Greg D. Polsky, *Acqui-Hiring*, 63 DUKE L.J. 281 (2013).

²⁶ *E.g.*, Daniel A. Crane, *Intellectual Liability*, 88 TEX. L. REV. 253, 286-87 (2009); B. Zorina Khan, *Trolls and Other Patent Inventions: Economic History and the Patent Controversy in the Twenty-First Century*, 21 GEO. MASON L. REV. 825, 832-33 (2014); David F. Spulber, *Intellectual Property and the Theory of the Firm*, in *PERSPECTIVES ON COMMERCIALIZING INNOVATION* 9, 31 (F. Scott Kieff & Troy A. Paredes eds., 2012).

²⁷ Thus, we do not share what some have characterized as skepticism about IP licensing generally. *See generally* Jonathan M. Barnett, *Why Is Everyone Afraid of IP Licensing?*, 30 HARV. J.L. & TECH. 123 (2017). To be honest, we’re not sure that most of the people Barnett points to do either. Barnett correctly articulates ways that IP licensing can improve firm performance. But all those ways involve ex ante technology transfer. *See, e.g.*, Oskar Liivak, *Private Law and the Future of Patents*, 30 HARV. J.L. & TECH. 33, 48-52 (2016) (encouraging focus on ex ante technology transfer as basis for patent law). The skepticism about IP licensing is more properly understood in our view as skepticism about licensing IP rights without any technology transfer.

II. DOES PATENT ENFORCEMENT INVOLVE TECHNOLOGY TRANSFER?

In short, then, the traditional justifications for NPEs contributing to social welfare all involve some form of technology transfer or learning dissemination by which the NPE or the patent it holds teaches the implementer a technology it would not otherwise possess. Practicing entities can benefit social welfare without technology transfer by making and selling the invention directly; NPEs cannot.

The early evidence testing the positive impact of NPEs on commercialization goals is not encouraging. That evidence is largely observational in nature, flowing from small sample studies, with all of the attendant limitations. Nevertheless, the data provide a useful window into the NPE business model and suggest approaches for generalizable analyses.

We provide survey evidence of the direct measure of new product creation as a result of patent assertions by NPEs. We also tested commercialization effects by measuring other markers of potential innovation, such as technology transfer beyond the patent. Including such markers creates a more dynamic picture of the potential for future commercialization, even if that commercialization has yet to occur.

We know that actual technology transfer happens within the patent system in the *ex ante* context.²⁸ Both practicing entities and some NPEs engage in *ex ante* technology transfer. In particular, universities and inventors create alliances with companies that can more easily develop and commercialize their inventions through joint ventures and other types of technology and research sharing agreements.²⁹ These agreements frequently occur before a patent issues or even before any of the parties file for a patent.³⁰ Notably, these agreements involve technology transfer.³¹ Universities and other inventors in these deals provide new technology to those in a position to implement it.³² And that technology often includes trade secrets and know-how beyond the to-be-patented technology itself.³³ Further, technology transfer can occur informally, by the communication of information at scientific conferences, through journal

²⁸ ASHISH ARORA, ANDREA FOSFURI & ALFONSO GAMBARDELLA, *MARKETS FOR TECHNOLOGY: THE ECONOMICS OF INNOVATION AND CORPORATE STRATEGY* 116-17 (2001). *See generally* Colleen V. Chien, *The Market for Software Innovation Through the Lens of Patent Licenses and Sales*, 33 *BERKELEY TECH. L.J.* (forthcoming 2018) (manuscript on file with authors) (documenting technology transfer in many software licenses, but also large number of software patent licenses without technology transfer).

²⁹ Feldman & Lemley, *supra* note 22, at 155-56.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.* at 155 n.40.

articles, and even through commitments to open sharing of patented technologies.³⁴

Patent litigation and licensing demands for existing patents, by contrast, tend to occur after the defendant has already developed and implemented the technology. This is particularly true of NPE patent assertions and licensing demands, which some evidence suggests tend to happen in the last few years of a patent's life, although the picture is complicated.³⁵ NPE licensing demands and litigation against companies that are producing products do not seem to involve technology transfer or other indicia of new innovation. Indeed, evidence suggests NPEs may buy patents with vaguely-worded claims that are optimized for litigation but lacking in technical merit³⁶ and that they may delay licensing of patents in order to increase revenue by targeting successful implementers after the fact.³⁷

While some have argued that NPEs serve as efficient middlemen through this activity—transferring inventions from creators to commercializers—we found no such evidence in our 2015 study.³⁸ We surveyed 191 in-house licensing attorneys at companies that produce products on the theory that these parties have direct knowledge of whether the company implemented new technology and because in-house counsel tend to negotiate licenses both as patent holders and as potential licensees.³⁹ The survey examined the effects of licenses that a company took after receiving a patent demand, which was defined to include calls or letters suggesting areas of mutual interest or joint ventures, offering to license patents, threatening litigation, giving notice of intent to file an infringement lawsuit, or actually filing an infringement lawsuit.⁴⁰ Respondents were asked whether those licenses led to any markers

³⁴ See generally Colleen V. Chien, *Opening the Patent System: Diffusionary Levers in Patent Law*, 89 S. CAL. L. REV. 793 (2016).

³⁵ Feldman, Ewing & Jeruss, *supra* note 11, at 8-9 (analyzing patent litigation data and finding that newer patents were asserted more frequently and that NPEs were more willing to assert patents of any age); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1312 (2013) (“NPEs . . . assert[] their patents relatively late in the patent term and frequently continue to litigate their patents to expiration.”).

³⁶ Josh Feng & Xavier Jaravel, *Who Feeds the Trolls? Patent Trolls and the Patent Examination Process* (2016) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2838017 [<https://perma.cc/6656-SS7D>].

³⁷ Erik Hovenkamp, *How Reasonable Royalties Suppress Patent Licensing* (2017) (unpublished manuscript), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2607678 [<https://perma.cc/ABR2-3RVG>]. For thoughts on how to break the “vicious cycle of excessive, socially harmful remedies,” see William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 385 (2016).

³⁸ See generally Feldman & Lemley, *supra* note 22.

³⁹ *Id.* at 144-49 (describing methodology of 2015 study).

⁴⁰ *Id.* at 149-55.

of innovation.⁴¹ Direct markers of innovation included the addition of new products or features.⁴² Indirect markers of innovation included whether the patent holder transferred know-how, other technical knowledge, or personnel (including through a consulting agreement) along with the patent, and whether any joint ventures were created.⁴³ Again, the survey considered only licenses taken in response to unsolicited licensing requests.⁴⁴ It did not look at the practice, particularly among university inventors, of entering into technology transfer agreements before embarking on the development of a new technology.⁴⁵

The responses suggest that licensing requests from NPEs rarely lead to direct or indirect markers of innovation. Ninety-two percent of respondents reported that when they licensed technology from NPEs, they added new products or features as a result of that licensing zero to ten percent of the time.⁴⁶ The results were even stronger when respondents were asked about indirect markers of innovation, with respondents unanimously reporting that they rarely received technical knowledge, transfer of personnel, or joint ventures along with a patent license.⁴⁷ Thus, the results suggest that NPEs do not appear to be playing the role of efficient middlemen. While it is certainly possible that a middleman role could be reflected in markers other than the ones we examined, we did not find such evidence in our preliminary work.

Interestingly, the evidence was also dismal when ex post licensing requests came from those other than traditional NPEs.⁴⁸ When product producing entities and universities made unsolicited approaches and those approaches resulted in a licensing agreement, the agreements were unlikely to lead to direct or indirect markers of innovation.⁴⁹ Three-quarters of respondents reported new products or features from zero to ten percent of the time, ninety-four percent reported transfers of personnel (including through consulting agreements) zero to ten percent of the time, and ninety-one percent reported joint ventures from zero to ten percent of the time.⁵⁰ These observational results suggest that ex post patent licensing demands don't appear to lead to

⁴¹ *Id.* at 155-66.

⁴² *Id.* at 160 fig.9, 161 figs.10 & 11.

⁴³ *Id.* at 162 figs.12 & 13, 163 figs.14 & 15, 164 figs.16 & 17, 165 figs.18 & 19, 166 fig.20.

⁴⁴ *Id.* at 156.

⁴⁵ *Id.*

⁴⁶ *Id.* Zero to ten percent was the lowest category offered. We suspect, though we cannot prove, that for almost all respondents the number was in fact zero.

⁴⁷ *Id.* at 157.

⁴⁸ *Id.* at 160.

⁴⁹ *Id.*

⁵⁰ *Id.* at 160, 163-64.

technology transfer or other markers of innovation, no matter what type of party initiates the unsolicited approach.⁵¹

A middleman who is not making a product and not actually providing the licensee with new technology is operating at most as a tax collector, taking money from innovative companies, perhaps for the benefit of inventors who could not otherwise do battle against large companies who have implemented their ideas.⁵² And perhaps specialists are better at collecting money than some types of inventors, particularly independent inventors.⁵³ But transactions are not desirable for their own sake.⁵⁴ It is socially desirable to impose such a tax on innovators only if the world gains something from it. That might be true if, for instance, the implementer had actually copied the idea from the patentee. If we think copying could reduce incentives to invent, we might reasonably prefer to force copiers into licensing arrangements instead, compensating the inventor whose work is copied.

The available evidence suggests it is unlikely that most patent enforcement targets such copying. For example, Cotropia and Lemley demonstrate that most patent lawsuits are filed against those who have developed a product independently, rather than those who have taken the idea from a patent holder.⁵⁵ And while some have speculated that defendants may copy indirectly, learning about the invention from the patentee's product or from scientific discussions of the idea in conferences or academic journal articles without ever reading the patent itself,⁵⁶ that is far more likely when the patentee actually makes a product than when it produces nothing other than the patent. Nor are individual inventors and for-profit firms likely to disseminate their ideas in other ways, such as by publishing academic papers later read by others who copy them. Universities, by contrast, are more likely to produce this sort of technology transfer. Further, there is evidence that patents asserted by NPEs, tend to be asserted at the end of their lives, while practicing entities assert patents early, casting further doubt on the copying story.⁵⁷ And there is very

⁵¹ This was a pilot survey. We are currently at work on a much larger survey of responses to patent licensing demands.

⁵² Feldman & Lemley, *supra* note 22, at 142.

⁵³ Stephen H. Haber & Seth H. Werfel, Patent Trolls as Financial Intermediaries? Experimental Evidence 1 (Sept. 21, 2016) (unpublished manuscript) (on file with authors).

⁵⁴ Michael J. Burstein, *Patent Markets: A Framework for Evaluation*, 47 ARIZ. ST. L.J. 507, 512-14 (2015) (noting that efficient markets that match buyers and sellers of a particular asset are not usually thought to be ends in themselves; instead they are instrumentally useful when they serve other social goals, such as allocating useful goods and services, or mitigating risk).

⁵⁵ Cotropia & Lemley, *supra* note 13, at 1424.

⁵⁶ Robert P. Merges, *A Few Kind Words for Absolute Infringement Liability in Patent Law*, 31 BERKELEY TECH. L.J. 1, 29 (2016); Rantanen, *supra* note 24, at 7.

⁵⁷ Love, *supra* note 35, at 1312 ("Product-producing companies predominantly enforce their patents soon after they issue. . . . NPEs . . . assert[] their patents relatively late in the

little evidence that patentees have used a remedy created in 1999 to protect against copying of published patent applications.⁵⁸

Nor does the tax collection via patent licensing demands seem a particularly good way to fund future research by inventors. Although it is true that patent litigation can generate revenue that inventors might put back into research on new inventions, it is a singularly inefficient way of generating that revenue.⁵⁹ Bessen, Ford and Meurer find that only a small fraction of damages awarded to NPEs actually gets returned to inventors.⁶⁰ Most of it is lost to legal fees and to the intermediaries who make money asserting the patents.⁶¹ Those inventors may or may not invest what return they do receive in further R&D, and that further R&D may or may not generate new inventions.⁶² But because the overwhelming majority of defendants in NPE suits are themselves independent inventors, not copiers, the system is taxing one inventor to pay another, and losing most of the money in the process. It would seem far more efficient to fund inventor research directly through general tax revenue.⁶³ And indeed, we do fund the class of NPEs most likely to engage in tech transfer—universities—in ways that mostly have nothing to do with patent litigation.

patent term and frequently continue to litigate their patents to expiration.”). We (and Love) acknowledge that the interpretation of his data is complicated by the change in the number of NPE suits during the time of his study. Feldman, Ewing & Jeruss, *supra* note 11, at 74 (“Thus, some of the increase in litigation activity by monetizers that Love observed during the final nine years of the patent term may relate to the general increase in patent litigation attributable to NPEs that has occurred during those years, a possibility that Love identifies in the article.”).

⁵⁸ 35 U.S.C. § 154(d) (2012) (providing provisional rights to reasonable royalty from copier of published patent application).

⁵⁹ James Bessen, Jennifer Ford & Michael J. Meurer, *The Private and Social Costs of Patent Trolls*, REG., Winter 2011-12, at 26, 32-33; David Olson, *On NPEs, Holdups, and Underlying Faults in the Patent System*, 99 CORNELL L. REV. ONLINE 140, 143 (2014) (describing payments to independent inventors in absence of commercialization as “wasteful for society”).

⁶⁰ Bessen et al., *supra* note 59, at 32-33 (arguing that inventors receive possibly less than two percent of awards NPEs receive after their pursuit of infringement suits).

⁶¹ Fiona M. Scott Morton & Carl Shapiro, *Strategic Patent Acquisitions*, 79 ANTITRUST L.J. 463, 481-83 (2014) (“[A] relatively small share of the costs imposed by [NPEs] on targets is returned to the original patentees. In other words, the transfer of funds from allegedly infringing downstream firms to patentees is done using a very ‘leaky bucket.’”).

⁶² Alberto Galasso & Mark Schankerman, *Patents Rights and Innovation by Small and Large Firms* 2-5 (Nov. 20, 2015) (unpublished manuscript) (on file with authors).

⁶³ See Camilla A. Hrdy, *Commercialization Awards*, 2015 WIS. L. REV. 13, 52-64 (describing federal and state funded commercialization awards and their efficacy). See generally Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents-Prizes Debate*, 92 TEX. L. REV. 303 (2013) (arguing that innovation can be encouraged by incentives other than patent system, including R&D-related tax incentives).

Some have suggested a different theory of tax collection—that NPE patent suits provide an alternative way for venture capitalists to recover some of their investment in a failed invention. We are skeptical that venture capitalists are motivated by the prospect of this sort of consolation prize. They tell us that they aren't. In survey responses they indicate that it is the prospect of a big win, not the possibility of recovering some money from a failed investment, that motivates them.⁶⁴ But even if there were some marginal incentive related to additional investment from NPE taxation, that has to be weighed against the costs imposed on successful, product-implementing businesses, as well as on startups themselves.⁶⁵ In particular, venture capitalists unanimously agree that if a startup company has a patent assertion against it, that would be a significant deterrent for any funding request.⁶⁶ Finally, it is worth noting that a majority of defendants targeted in NPE suits are small companies such as venture-funded startups, not large companies.⁶⁷ Thus, at best, many of these NPE suits would be taxing some venture-backed startups for the benefit of subsidizing others. That seems a dubious policy idea.

III. IS OWNERSHIP A GOOD IN AND OF ITSELF?

Responding to some of the concerns with traditional justifications for patent protection and licensing, a number of scholars have articulated what we call “commercialization-plus” justifications for patent protection. These justifications differ from the traditional innovation-based justifications because they focus on the alleged need for early or additional protections to encourage post-invention investment in commercialization.⁶⁸ The most famous of these,

⁶⁴ Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 16 YALE J.L. & TECH. 236, 243, 276-81 (2014) (reporting results of survey in which sixty-four percent of venture capitalists responded that when deciding whether to invest in startup, they did not consider the potential for selling patents to NPEs if the company they invested in failed). Indeed, venture capitalists report that they view the technology itself as less important than the management team. Paul Gompers et al., *How Do Venture Capitalists Make Decisions?* 3 (NBER Working Paper No. 22587, Sept. 2016), <http://www.nber.org/papers/w22587> [<https://perma.cc/HM4K-EGVS>].

⁶⁵ Bessen, Ford & Meurer, *supra* note 59, at 33 (arguing that even if NPE litigation has small positive effect on inventors, it may still decrease overall innovation in society by imposing losses on defendant firms, discouraging innovation in other firms for fear of inadvertent infringement, and affecting research agendas of small companies toward areas where patents could be asserted against larger companies).

⁶⁶ Feldman, *supra* note 64, at 280.

⁶⁷ Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 464 (2014).

⁶⁸ Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 CORNELL L. REV. 1065, 1073 (2007) (noting that patent underdevelopment occurs when patentee decides not to commercialize product because patent term is not long enough); Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 340 (2008) (arguing that just as patents encourage risky but ultimately beneficial technological experimentation, some additional form of intellectual property

known as “prospect theory,” recommends granting strong patents early in the life cycle of an idea so that a single party can control development of the idea much the same way that a mineral prospector manages a mineral claim site.⁶⁹ Other scholars have suggested that we should grant patents to old technologies in areas like pharmaceuticals in order to encourage the patent owner to engage in clinical trials and bring the product to market.⁷⁰ Still others have suggested granting normal patents at the outset, and then, if no one commercializes the idea, granting extra rights to the person who does.⁷¹ The Bayh-Dole Act, passed in 1980, was premised on the worry that university inventions would languish unless one party was given the right to turn those inventions into commercial products.⁷²

Commercialization-plus theories are controversial. One of us has criticized Kitch’s prospect theory as “fundamentally anti-market” because it presumes that central control is superior to market allocation of existing resources,⁷³ and the other has argued that patents are entirely unlike the more clearly defined rights in Kitch’s mineral analogy.⁷⁴ Others have suggested that commercialization theory is poorly fitted to industries in which invention proceeds by stages and improvements rather than by discrete advances.⁷⁵

protection could result in socially beneficial increase in market experimentation and entrepreneurial activity); F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 703 (2001) (arguing that patent rights must be treated as property rights to facilitate investment in commercialization of inventions); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 275-80 (1977); Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 345 (2010) (arguing for implementing “commercialization patent” which would only be granted if patentee committed to commercializing invention).

⁶⁹ Kitch, *supra* note 68, at 275-80.

⁷⁰ Benjamin N. Roin, *Unpatentable Drugs and the Standards of Patentability*, 87 TEX. L. REV. 503, 507 (2009).

⁷¹ Sichelman, *supra* note 68, at 345-46.

⁷² COUNCIL ON GOVERNMENTAL RELATIONS, *THE BAYH-DOLE ACT: A GUIDE TO THE LAW AND IMPLEMENTING REGULATIONS 2* (1999), http://otd.harvard.edu/upload/files/The_Bayh-Dole_Act_-_A_Guide_to_the_Law_and_Implementing_Regulations.pdf [<https://perma.cc/3P7D-P8UB>] (describing the shift from non-exclusive to exclusive licensing in the wake of Bayh-Dole).

⁷³ Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 1044-72 (1997) (describing prospect theory and critiquing theory in detail); Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 139-40 (2004) (same); Lemley, *supra* note 12, at 739-40 (same).

⁷⁴ FELDMAN, *supra* note 1, 29-34 (introducing bargain theory of patents—which suggests that patent provides no more than opportunity to bargain over definition of rights—by criticizing Kitch’s analogy to mineral rights and arguing that better analogy is to hunting license).

⁷⁵ Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 908 (1990).

Kitch's theory may justify patent protection in certain industries. Burk and Lemley suggest that the theory maps best to the pharmaceutical industry, where government regulatory barriers significantly raise the cost of entry and may require exclusivity, though not necessarily exclusivity provided by the patent system.⁷⁶ And it may justify patent protection for some kinds of NPEs, like universities, that are ill-suited to commercialize inventions on their own but wish to transfer the patent to someone who is in a better position to do so.⁷⁷

Notably, though, any form of commercialization theory is self-limiting in certain important respects that have not previously been discussed in the literature. First, if exclusivity is necessary to induce a firm to commercialize a technology, we should rarely, if ever, see multiple companies independently develop the same technology. The very concept of commercialization theory is that no one would invest in developing and commercializing the technology unless they were first confident they would have exclusive rights over that technology.⁷⁸ There may be exceptions in which companies engage in patent racing, each hoping to be the first to reach an important invention and therefore obtain those rights.⁷⁹ But the historical examples of patent races have tended to

⁷⁶ BURK & LEMLEY, *supra* note 14, at 143 (noting that development of products in pharmaceutical sector is characterized by long development times and high costs, due to constraints placed on development by significant regulatory oversight). Even there, though, the claim may be overstated. The pharmaceutical industry has several forms of regulatory exclusivity in addition to patents. *See generally* Robin Feldman, *Regulatory Property: The New IP*, 40 COLUM. J.L. & ARTS 53 (2016) (describing history of thirteen non-patent exclusivities that can be obtained through Food & Drug Administration). And we see commercialization of biotechnology inventions like CRISPR even in the absence of patent protection. *See generally* Robin Feldman, *The CRISPR Revolution: What Editing Human DNA Reveals About the Patent System's DNA*, 64 UCLA L. REV. DISC. 392 (2016).

⁷⁷ *See supra* note 73. *But see* Feldman & Lemley, *supra* note 22, at 160-66 (presenting data showing *ex post*, as opposed to *ex ante*, university licensing of patents does not lead to much future innovation).

⁷⁸ *See* Kieff, *supra* note 68, at 703 (arguing in favor of commercialization theory by noting that “the power to *restrict use* that is conferred by a patentee’s property right and the strict enforcement of this right with a property rule . . . are paradoxically essential to *avoiding underuse*” of an invention).

⁷⁹ JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 394-99 (1988) (providing introduction to phenomenon of patent racing); Yoram Barzel, *Optimal Timing of Innovations*, 50 REV. ECON. & STAT. 348, 352 n.11 (1968) (describing option of granting or auctioning monopoly or patent rights on inventions before resources are committed to avoid duplicative use of resources); Partha Dasgupta & Joseph Stiglitz, *Uncertainty, Industrial Structure, and the Speed of R&D*, 11 BELL J. ECON. 1, 27 (1980) (analyzing effect of competition on R&D and arguing that patents are needed to get firms to engage in R&D and that competition may also stimulate R&D in less efficient manner); Mark F. Grady & Jay I. Alexander, *Patent Law and Rent Dissipation*, 78 VA. L. REV. 305, 306 (1992) (“[Patents] encourage hopeful inventors to squander valuable social resources in the race to win the patent.”); Jennifer F. Reinganum, *The Timing of Innovation: Research, Development, and Diffusion*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 849, 853-68 (Richard

be races to invent, not races to commercialize.⁸⁰ If commercialization theory is correct, even independent inventors won't commercialize the technology unless and until they are confident they will have exclusive rights over that technology. And racing to commercialize (rather than to invent) is presumably something mostly engaged in by practicing entities, not NPEs. For the same reason, under commercialization theory we shouldn't see companies rely on open source or public domain technologies.⁸¹ If we do, that is reasonable evidence that exclusivity is not necessary to induce commercialization in that industry.⁸²

Further, if any form of commercialization theory is correct, and certainly if enhanced commercialization theory is, infringement should be rare. Independent later inventors shouldn't commercialize because they won't have exclusive rights to the invention, which, by hypothesis, are necessary to develop it. Nor should we see much copying of the patentee's invention because if commercialization requires market exclusivity the copier won't generally be any better off than an independent inventor who doesn't have exclusivity. That doesn't mean we would never see patent litigation. But it does mean that if commercialization theory is correct, it should implicate particular circumstances such as a lower regulatory burden on second entrants (which is true of generic pharmaceutical companies) or some reason to think that simply knowing that a market exists dramatically reduces the costs of commercialization (which encourages others to enter despite the lack of exclusivity that was theoretically necessary to spur such entry).⁸³ There may be such cases—*Samsung Electronics Co. v. Apple Inc.* is arguably one⁸⁴—but those cases would generally involve copying existing market participants, not independent development.

A third implication of commercialization-plus theories is that non-practicing patent owners should generally not grant nonexclusive licenses. If market exclusivity is required for commercialization, universities should be granting

Schmalensee & Robert D. Willig eds., 1989) (analyzing symmetric models of innovation in which several firms are seeking invention simultaneously).

⁸⁰ Lemley, *supra* note 12, at 711-12. Winners of races to invent are more likely to perform follow-on innovation. Neil C. Thompson & Jeffrey M. Kuhn, *Does Winning a Patent Race Lead to More Follow-on Innovation?* (working paper 2017), <https://pdfs.semanticscholar.org/34e3/20fb51f8c23c6ee48dd4f6b1f884df5f4cf4.pdf> [https://perma.cc/KN6N-Y3UJ] (yes).

⁸¹ See Clark D. Asay, *Enabling Patentless Innovation*, 74 MD. L. REV. 431, 434 (2015) (noting that open innovation has been viewed as “non-commercial” means of development).

⁸² *Id.* (“Numerous firms have found ways to successfully commercialize open innovation, even making it the heart of a firm’s commercial activities in some cases.”).

⁸³ Abramowicz & Duffy, *supra* note 68, at 340, 383 n.129 (noting that “second-movers” can have distinct advantage in that they do not have to bear cost of investing in creation or development of market and can copy first mover’s successes).

⁸⁴ See generally *Samsung Elecs. Co. v. Apple Inc.*, 137 S. Ct. 429 (2016).

exclusive licenses to practicing entities in any given market, because the licensee needs that exclusivity to commercialize the invention. Nonexclusive licenses should be rare and tightly controlled because the nonexclusive licensees would have to coordinate their production and pricing decisions under commercialization theory. And nonexclusive licenses to multiple parties should be nonexistent because allowing open entry into a market is inimical to the theory of commercialization.⁸⁵ In fact, however, the evidence suggests that not only are most university licenses now nonexclusive,⁸⁶ but the lack of exclusivity is an important driver of subsequent improvement for core enabling technologies.⁸⁷

Even if commercialization theory justifies patent protection in some industries, it cannot justify most modern patent litigation. Nor can it justify ex post licensing demands by NPEs. Outside the pharmaceutical industry, NPE licensing doesn't look much like commercialization theory would predict. There is evidence that NPE patents are asserted later in life⁸⁸—almost always against independent inventors.⁸⁹ Ex post NPE patent licenses don't transfer the technology to a party that can later make use of it.⁹⁰ And NPE patent licensing demands essentially always seek nonexclusive licenses from multiple parties rather than an exclusive license from a single party. Indeed, NPEs commonly sue twenty or more defendants in the same industry at the same time, settling with each of them in exchange for a nonexclusive license.⁹¹

The evidence also suggests that NPEs are targeting already successful commercializers, not facilitating new commercialization. Feldman and Frondorf studied fifty product companies that had initial public offerings

⁸⁵ Ian Ayers & Lisa Larrimore Ouellette, *A Market Test for Bayh-Dole Patents*, 102 CORNELL L. REV. 271, 276 (2017) (“[I]f conventional wisdom is correct that Bayh-Dole patents are justified only by their commercialization incentive, then a nonexclusive license is prima facie evidence that the invention ought not to be patented at all.”). Ayres and Ouellette suggest a market test for university patents, requiring them to offer a free nonexclusive license, and allowing them to grant an exclusive license only if no one takes them up on that offer. *Id.* at 279-80. That should smoke out any university patent cases that do in fact require exclusivity for commercialization. *Id.* at 280.

⁸⁶ See generally Jacob H. Rooksby, *Innovation and Litigation: Tensions Between Universities and Patents and How to Fix Them*, 15 YALE J.L. & TECH. 312 (2013).

⁸⁷ Mark A. Lemley, *Patenting Nanotechnology*, 58 STAN. L. REV. 601, 627 (2005) (“Ideally, universities will realize that enabling technologies are more valuable not just to society but even to their owners when many firms compete to exploit and improve them.”).

⁸⁸ Love, *supra* note 35, at 1312.

⁸⁹ Cotropia & Lemley, *supra* note 13, at 1423-24.

⁹⁰ Feldman & Lemley, *supra* note 22, at 155-60.

⁹¹ Allison, Lemley & Schwartz, *supra* note 8, at 236 (noting that there is some evidence that NPEs assert low quality patents for nuisance-value settlements); Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2125-26 & n.41, 2128 (2013) (noting that certain models of NPEs usually want to enforce their patents against multiple defendants and others seek to enforce patents for licensing fees).

between 2007 to 2012,⁹² finding that forty percent of respondents received patent demands during the periods around the time of the IPOs, with those demands coming largely from NPEs.⁹³ The effects were even more pronounced for IT companies, with almost sixty percent of respondents reporting patent demands around the time of their IPOs.⁹⁴ Similarly, Cohen, Gurun and Kominers found that companies are more likely to be sued by an NPE following a large, positive, cash shock, such as a funding event or an IPO, and that a cash shock was a significant predictor of the number of times a company was sued by NPEs.⁹⁵ Cohen, Gurun and Kominers also found that no other form of litigation has the same type of cash targeting behavior—not torts, contracts, securities, environmental, or labor law.⁹⁶ Nothing but patent law. The results suggest that NPE demand behavior may be driven by the lure of deep pockets and the leverage opportunities afforded by an IPO period, rather than the meritorious representation of claims that a wronged inventor could not bring on its own. These studies also provide a reminder that any benefits of NPE activity should, at a minimum, be evaluated against the costs to innovation and society.⁹⁷

All forms of commercialization and product-based theories have a final, surprising implication for NPE suits. If the reason we need a patent is not to induce invention but to induce commercialization of that invention, the law should prefer those who actually commercialize the invention over those who merely invent it but do nothing further. Thus, the owners of those patents have failed in their purpose if they have neither commercialized the invention themselves nor exclusively licensed the patent to someone who does. Such an approach, therefore, may justify a working requirement, something that is generally considered anathema to patent advocates.⁹⁸ Further, as between the NPE inventor who does not engage in technology transfer and the independent inventor defendant, commercialization and product-based theories should

⁹² Robin Feldman & Evan Frondorf, *Patent Demands and Initial Public Offerings*, 19 STAN. TECH. L. REV. 52, 53 (2015); see also Chien, *supra* note 67, at 463-66; Feldman, *supra* note 64, at 237.

⁹³ Feldman & Frondorf, *supra* note 92, at 77.

⁹⁴ *Id.* at 84.

⁹⁵ Lauren Cohen, Umit D. Gurun & Scott Duke Kominers, *Patent Trolls: Evidence from Targeted Firms* 17-19 (NBER, Working Paper No. 20322, 2016).

⁹⁶ *Id.* at 20-21.

⁹⁷ See Morton & Shapiro, *supra* note 61, at 482-83. See generally BESSEN & MEURER, *supra* note 15.

⁹⁸ Sichelman, *supra* note 68, at 345 (noting that patent scholars have typically opposed new forms of patent rights such as commercialization patents because they impose losses and are costly, difficult to implement, and needlessly complex); Michael B. Abramowicz, *The Problem of Patent Underdevelopment* (GW Law Faculty Publication & Other Works, Working Paper No. 231, 2005), http://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=1215&context=faculty_publications [<https://perma.cc/GN3U-N2SP>].

prefer the defendant, because it is the defendant, not the patentee, who has achieved the goal of the patent system.

IV. POLICY IMPLICATIONS: INDEPENDENT INVENTION AND PRIOR USER RIGHTS

Most other IP regimes, including copyright and trade secrets, exempt independent development from legal liability.⁹⁹ Patent law, by contrast, punishes anyone who practices the claimed invention, even independent inventors.¹⁰⁰ A number of scholars have suggested that patent law should adopt some form of independent invention or prior user rights defense.¹⁰¹ Others have worried that an independent invention defense might interfere with patent races or incentives to commercialize.¹⁰²

Our analysis suggests that the patent system might sensibly require that a patentee show *either* that it practices in the market *or* that it has engaged in technology transfer (direct or indirect) to those who then put the technology into practice.¹⁰³ A patentee who cannot show either would still be able to enforce its patent, but only against those it could show copied the invention from it, directly or indirectly. This hybrid approach tracks the legal justifications that have been offered for patents. An inventor who develops an idea others copy would be able to enforce the patent against those copiers given that copying is a form of technology transfer (and one we view as socially inferior to a license agreement). An inventor who ends up disseminating technology to the world, either by practicing the invention or by transferring technology to others who do, would be able to enforce the patent against both copiers and independent infringers. And a practicing entity would similarly be able to enforce patents against both copiers and independent infringers on a commercialization theory.

Introducing even such a limited independent invention defense would require courts to evaluate disputed claims of copying in some cases. Some have worried that much independent invention is really copying in disguise,¹⁰⁴

⁹⁹ Cotropia & Lemley, *supra* note 13, at 1423.

¹⁰⁰ *Id.*

¹⁰¹ *E.g.*, Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92, 95 (2006) (arguing in favor of prior use rights for nearly simultaneous independent inventors); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475, 479-80 (2006) (arguing in favor of defense for independent inventors to infringement).

¹⁰² Mark A. Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 MICH. L. REV. 1525, 1527-32 (2007).

¹⁰³ While in an ideal world a court might want to determine whether there was transfer of non-patent know-how along with the patent, any legal rule requiring such a transfer would lead to sham transactions in which NPEs attach useless “know-how” to a nonexclusive patent license in order to obtain more favorable treatment.

¹⁰⁴ *See* Merges, *supra* note 56, at 8.

though others are skeptical.¹⁰⁵ As Sam Vermont has observed, though, courts are quite good at resolving factual disputes of this sort.¹⁰⁶ Independent development will tend to leave a paper trail. And the parties will have an incentive to collect and present evidence on the question. While unscrupulous parties may try to manufacture evidence, that is true in any sort of case, and courts tend to be good at ferreting it out.¹⁰⁷ Further, we think courts can properly include indirect copying from an idea once it has been publicized by the patentee within the concept of copying.¹⁰⁸

We might worry in the opposite direction, that if we require proof either of commercialization or of technology transfer to avoid independent invention, NPEs will engage in “token use” (offering to make a few customer products) or token technology transfer, insisting on making a licensee take know-how whether they want it or not. That is indeed a potential problem. Courts will have to resolve what is real, good-faith commercialization or technology transfer in borderline cases. But we think they will generally be able to distinguish good-faith commercialization from token use, just as they do in trademark priority cases.

A requirement that patentees who don’t engage in any form of commercialization or technology transfer prove that the defendant copied from them should be paired with stricter penalties against those deemed to have copied the invention. It would be reasonable to require, not merely permit, treble damage awards and attorneys’ fees against those found to have copied. Increasing the penalties for those who opt to take technology from a patentee without paying, while eliminating the penalty imposed on innovators who do not benefit from patentee technology transfer, properly aligns the patent system’s incentives with the evidence and the array of theoretical justifications for patents.

Focusing patent enforcement on cases in which the patentee has actually contributed something to society would return patent law to its utilitarian roots as a promoter of innovation. It would also mean that a large percentage of current patent lawsuits, and most (though not all) suits filed by NPEs, would disappear. Because those suits impose a pure cost on society without any corresponding benefit, eliminating them offers the promise of making patent enforcement efficient.

¹⁰⁵ Lemley, *supra* note 12, at 711 (“[S]urveys of hundreds of significant new technologies show that almost all of them are invented simultaneously or nearly simultaneously by two or more teams working independently of each other.”).

¹⁰⁶ See generally Vermont, *supra* note 101.

¹⁰⁷ See *id.* at 502-03 (arguing that risk of fraudulent claims of independent invention exists but is unconvincing, and that courts could place higher evidentiary burden on independent inventors to provide corroborated evidence of invention in such cases).

¹⁰⁸ Merges, *supra* note 56, at 29.