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Taking the Regulatory Nature of IP Seriously

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Intellectual property (IP) is a form of market entry and price regulation. The government grants a favored party the legal right to exclude others from entering the market at all (in rare cases in which an IP right is coextensive with an economic market), from entering the market under certain terms and conditions (via injunctions), or from entering the market without paying an entry tax (via a patent damages award). Modern IP is certainly more like regulation than it is like property, at least as people traditionally think of property,¹ though there are certain kinds of property that have regulatory

* © 2014 Mark A. Lemley. William H. Neukom Professor, Stanford Law School; partner, Durie Tangri LLP. Thanks to Tom Cotter, Rose Hagan, and Ted Sichelman for comments on an earlier draft.

1. See, e.g., Shubha Ghosh, *Patents and the Regulatory State: Rethinking the Patent Bargain Metaphor After Eldred*, 19 BERKELEY TECH. L.J. 1315, 1322–25 (2004). In prior work, I have suggested that while regulation is the closest analogy to IP, we might be better off doing without analogies altogether, because all of them, including regulation, carry baggage. Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEXAS L. REV. 1031, 1032 (2005). But scholars on all sides persist in seeking analogies for IP, and the one they repeatedly turn to is real property. See, e.g., Frank H. Easterbrook, *Intellectual Property is Still Property*, 13 HARV. J.L. & PUB. POL'Y 108, 112 (1990) (maintaining that a “right to exclude in intellectual property is no different in principle from the right to exclude in physical property”); see also Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1, 6–7 (2004); Stephen L. Carter, *Does It Matter Whether Intellectual Property is Property?*, 68 CHI.-KENT L. REV. 715, 716 (1993); Kenneth W. Dam, *Some Economic Considerations in the Intellectual Property Protection of Software*, 24 J. LEGAL STUD. 321, 372 (1995); Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 242; F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 717–18 (2001); Edmund W. Kitch, *Elementary and Persistent Errors in the Economic Analysis of Intellectual Property*, 53 VAND. L. REV. 1727, 1729 (2000); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 271–75 (1977) (comparing patent rights to mineral rights); Edmund

characteristics because they are used to define markets or restrict entry.² Even disciples of the “IP is property” faith generally acknowledge that IP is not much like real property.³ Rather, as the Supreme Court put it in the nineteenth century, IP is like the government grant of an exclusive franchise.⁴ Taxi medallions, exclusive concessions at airports or sporting events, and the old East India Company might all be described as property rights.⁵ But they are unlike other property rights in that their character is essentially regulatory: the right conferred by government fiat is the right to control competition.⁶

W. Kitch, *Patents: Monopolies or Property Rights?*, 8 RES. L. & ECON. 31, 32 (1986); Oskar Liivak & Eduardo Peñalver, *The Right Not to Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1440–43 (2013); David McGowan, *Copyright Nonconsequentialism*, 69 MO. L. REV. 1, 36–39 (2004); Adam Mossoff, *Patents as Constitutional Private Property: The Historical Protection of Patents Under the Takings Clause*, 87 B.U. L. REV. 689, 701 (2007). As I and others have explained, IP is fundamentally unlike real property, and the use of the real property analogy leads people to ignore important differences between the two. *See, e.g.*, Lemley, *supra*, at 1032; Mark A. Lemley, *What’s Different About Intellectual Property?*, 83 TEXAS L. REV. 1097, 1097 (2005); Peter S. Menell, *The Property Rights Movement’s Embrace of Intellectual Property: True Love or Doomed Relationship?*, 34 ECOLOGY L.Q. 713, 725–731 (2007). If the perceived need for an analogy is so great, we might as well use an apt one rather than one that is dangerously misleading.

2. *Cf.* Shyamkrishna Balganes, *Quasi-Property: Like, But Not Quite Property*, 160 U. PA. L. REV. 1889, 1916–17 (2012) (arguing that trade secrets are a form of quasi-property).

3. *See, e.g.*, Carrier, *supra* note 1, at 4–5; Mossoff, *supra* note 1, at 720–22; Oskar Liivak, *Maturing Patent Theory from Industrial Policy to Intellectual Property*, 86 TUL. L. REV. 1163, 1170 (2012). *But see* Randolph J. May & Seth L. Cooper, *Reasserting the Property Rights Source of IP*, PERSP. FROM FSF SCHOLARS, June 13, 2013, at 1, 7 (“[A]ttacks on intellectual property are attacks on property itself.”). Maybe the term is so popular because it means so many different things to different people. Some people call IP property because they think of water rights, *see, e.g.*, Jeremy Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 CHI-KENT L. REV. 841, 873 (1993), or because they think of the limits the law sometimes imposes on real property through easements and the like, *see, e.g.*, Richard A. Epstein, *The Disintegration of Intellectual Property? A Classical Liberal Response to a Premature Obituary*, 62 STAN. L. REV. 455, 463, 514 (2010). Those people may think, with Humpty Dumpty, that the word means what they want it to mean. But I do not think we are masters of the language we use. We may mean “IP is property in the sense that it is assignable” (though so are contracts) or “IP is property in the sense that it excludes others from use” (though so do other forms of regulation). But what people hear is more subtle. The analogy makes them think of the most familiar type of property they are aware of—land and chattels. And so, unconsciously, we start to presume that IP really is like other, more familiar, forms of property, when in fact it isn’t. And that can cause great mischief.

4. *Seymour v. Osborne*, 78 U.S. 516, 533 (1870) (“Letters patent are not to be regarded as monopolies . . . but as public franchises . . .”).

5. *See, e.g.*, Yochai Benkler, *Some Economics of Wireless Communications*, 16 HARV. J.L. & TECH. 25, 26–27 (2002); Katrina Miriam Wyman, *Problematic Private Property: The Case of New York Taxicab Medallions*, 30 YALE J. ON REG. 125 (2013). Wyman uses the taxi example to argue that all property is really a form of government regulation. *Id.* at 128. Whether or not that is true, it is surely the case that property rights that explicitly limit market entry look more akin to traditional regulation than do, say, estates in land.

6. Even the foremost scholar of the IP as property school, Ed Kitch, called his IP casebook *Legal Regulation of the Competitive Process* into the 1990s. EDMUND W. KITCH & HARVEY S. PERLMAN, *LEGAL REGULATION OF THE COMPETITIVE PROCESS* (rev. 4th ed. 1991). For a

Ted Sichelman's article in the *Texas Law Review* makes an important contribution by encouraging us to take one aspect of that regulatory character seriously: patent remedies.⁷ He argues that public, not private, interest should determine remedies, pointing out that other regulatory regimes rely on government-set penalties rather than common law damages rules.⁸ He extends my work with Carl Shapiro targeting the problem of royalty stacking⁹ while criticizing us as too timorous, arguing that the same model we use to explain patent holdup should apply to practicing entities, not just trolls.¹⁰ I agree in part; Phil Weiser and I have argued for liability rather than property rules in holdup cases regardless of who is doing the holdup,¹¹ and Doug Melamed and I have argued that practicing entities, not just trolls, cause problems in the patent system.¹²

discussion of how property rights can regulate markets when defined at the wrong level of abstraction, see Benkler, *supra* note 5, at 26–27 (giving the example of the British grant of a property right in trade with the Indies to a single company, the East India Company). For a tongue-in-cheek recognition of the regulatory role of IP, see Neil Genzlinger, *A Surplus of Good TV? Try Depression Economics*, N.Y. TIMES, Aug. 19, 2013, http://www.nytimes.com/2013/08/20/arts/television/a-television-adjustment-act-for-viewers-who-cant-keep-up.html?_r=0 (arguing that we have too much good television going unwatched, and that we should pay Hollywood not to produce more, just as we did with food in the Depression). Interestingly, Ted Sichelman has recently argued that the original patents in the Venetian Republic during the fourteenth century served to open rather than restrict markets. Ted Sichelman & Sean O'Connor, *Patents as Promoters of Competition: The Guild Origins of Patent Law in the Venetian Republic*, 49 SAN DIEGO L. REV. 1267, 1268–69 (2012). But that is true only because the market in Venice was so highly regulated that the background norm was not open market entry, but the need for government permission to sell a product. *Id.* at 1269. A patent provided an affirmative right to enter a market, not just the negative right to restrict entry by others it does today. *Id.*

7. Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEXAS L. REV. 517, 528–529 (2014).

8. To similar effect is recent work by Sam Vermont. See generally Samson Vermont, *Let's Judge Patent Rights by Harm to the Public—Not to Inventors*, WIRED (Apr. 2, 2013) [hereinafter Vermont, *Harm to the Public*], <http://www.wired.com/opinion/2013/04/lets-judge-patent-rights-by-harm-to-the-public-not-inventors/>; Samson Vermont, *Basing Patent Remedies on Harm to the World Instead of Harm to the Patentee* 3–5 (2012) (unpublished manuscript) [hereinafter Vermont, *Harm to the World*], available at <https://www.stanford.edu/dept/law/ipsc/Paper%20PDF/Vermont,%20Samson%20-%20Paper.pdf>.

9. Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEXAS L. REV. 1991 (2007).

10. Sichelman, *supra* note 7, at 548–49.

11. Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEXAS L. REV. 783, 783–84 (2007).

12. Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2120–21 (2013), cf. John Golden, *"Patent Trolls" and Patent Remedies*, 85 TEXAS L. REV. 2111, 2148–49 (2007) (arguing that treating trolls differently than practicing entities is "discrimination."). I disagree with Golden that all patent owners must be treated the same regardless of circumstances. See Mark A. Lemley & Carl Shapiro, *Reply: Patent Holdup and Royalty Stacking*, 85 TEXAS L. REV. 2163, 2173 (2007). Sichelman's point is in one sense the opposite of Golden's; Golden argues that everyone must be treated the same, Golden, *supra*, at 2155, while Sichelman (though occasionally appealing to parity) argues for greater case-by-case flexibility in setting remedies, Sichelman, *supra* note 7, at 567. That greater flexibility will lead to more, not less, discrimination among parties in different circumstances.

But Sichelman's theoretical ambitions are broader: he invites us to consider whether we should have private tort and property remedies at all in patent law rather than a calculation designed to calibrate a patentee's remedy according to what would be necessary to encourage optimal innovation.¹³ In some cases, Sichelman argues, that means patentees should collect less than they do now; in other cases they would collect more. Similarly, what was once thought an entitlement to injunctive relief should be contingent on proof that exclusivity is in fact necessary to encourage innovation.¹⁴ Sichelman's idea has echoes of Michael Abramowicz and John Duffy's "inducement" standard, which would grant patents only to those who would not have invented without the patent.¹⁵ Sichelman's argument is directed to remedies, not patentability, but the idea is the same—patent law is government intervention in the free market, and it should give patentees enough to encourage them to innovate, but no more.¹⁶

This is an important article, well worth reading. At a theoretical level Sichelman is surely right. Patents are government interventions in the marketplace designed to achieve social policy ends.¹⁷ Government distortion of the free market is justified only if necessary to achieve those ends—anything beyond that is social waste. If private law remedies, justified in the name of property, give the patentee more than it needs to encourage it to invent, that extra payment interferes with the free market and may actually interfere with innovation.¹⁸

13. Sichelman, *supra* note 7, at 567.

14. Sichelman focuses on innovation, not simply invention, because he believes one major goal of the patent system should be to encourage commercialization. See, e.g. Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 343–45 (2010). My disagreements with that approach are detailed elsewhere, see Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 740–45 (2012), and I will not repeat them here.

15. Michael Abramowicz & John F. Duffy, *The Inducement Standard of Patentability*, 120 YALE L.J. 1590, 1611–16 (2011).

16. The basic principle could be extended to other parts of patent law. Abramowicz and Duffy have argued that it should inform patentability and obviousness law. See *id.* at 1598. But a focus on social welfare might also justify a patent fair use doctrine. See Maureen O'Rourke, *Toward a Doctrine of Fair Use in Patent Law*, 100 COLUM. L. REV. 1177, 1207–08 (2000). And a similar analysis might improve the law of remedies in copyright law, which are often punitive rather than driven by social welfare. See Alan E. Garfield, *Calibrating Copyright Statutory Damages to Promote Speech*, 38 FLA. ST. U. L. REV. 1, 32–33 (2010); Peter S. Menell, *In Search of Copyright's Lost Ark: Interpreting the Right to Distribute in the Internet Age*, 59 J. COPYRIGHT SOC'Y U.S.A. 1, 7, 64–67 (2011).

17. Mark A. Lemley, *The Regulatory Turn in IP*, 36 HARV. J.L. & PUB. POL'Y 109, 110 (2012); cf. Glynn S. Lunney, Jr., *Copyright's Mercantilist Turn: Do We Need More Copyright or Less?* 4 (Tulane Univ. Sch. of Law Pub. Law & Legal Theory Working Paper Series, Paper No. 12-20, 2012), available at <http://ssrn.com/abstract=2158874>.

18. Competition, not monopoly, is a driver of innovation in many markets. 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, 619 (Richard Nelson ed., 1962) ("the incentive to invent is less under monopolistic than under competitive conditions"); Morton I. Kamien & Nancy L. Schwartz, *Market Structure and Innovation: A Survey*, 13 J.

However, that doesn't mean that we must purge all tort remedies from IP law. First, tort remedies may serve public ends. If we decide we want to give market exclusivity to a patentee, an injunction plus lost profits for pre-injunction sales is the logical way to do so. More specifically, when two parties compete, the loss the patentee suffers from infringement is generally larger than the gain the infringer makes (since the infringer drives down the price and reduces the total producer surplus),¹⁹ meaning that, if we believe market exclusivity is the right remedy, an injunction is generally appropriate in direct competitor cases. There are exceptions, as both my prior work with Phil Weiser and Sichelman's article observe.²⁰ For example, if the patented feature is not driving sales of the product, and an injunction would shut down noninfringing as well as infringing components, granting an injunction can do more harm than good.²¹ But the existing rules of equity can and do account for most of those situations, at least since *eBay*.²² We should, as Sichelman suggests, apply the injunction standards with sensitivity to the effect of an injunction (or its denial) on social welfare. But that does not mean that injunctions are altogether inappropriate as a remedy merely

ECON. LITERATURE 1, 19–24 (1982) (discussing various theories of the effects of economic structures on the rate and form of innovation); F.M. SCHERER & DAVID ROSS, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 660 (3d ed. 1990) (criticizing Schumpeter's "less cautious followers" for advocating monopoly to promote innovation). In the specific context of IP rights, the canonical argument from both theory and empirical evidence is made by Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990). See *id.* at 843–44 ("Our basic conclusion is this: Without extensively reducing the pioneer's incentives, the law should attempt at the margin to favor a competitive environment for improvements, rather than an environment dominated by the pioneer firm."); see also Kenneth W. Dam, *The Economic Underpinnings of Patent Law*, 23 J. LEGAL STUD. 247, 252 (1994) (noting that in the computer industry, for example, companies coordinate improvements by broad cross-licensing because of "the pace of research and development and the market interdependencies between inventions"). For discussions of particular industries in which competition appears to spur innovation, see, for example, Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. REV. 925, 960–62 (2001) (the internet); Mark A. Lemley, *Industry-Specific Antitrust Policy for Innovation*, 2011 COLUM. BUS. L. REV. 637, 646–47 (software); Arti Kaur Rai, *Evolving Scientific Norms and Intellectual Property Rights: A Reply to Kieff*, 95 NW. U. L. REV. 707, 708–10 (2001) (biotechnology); Howard A. Shelanski, *Competition and Deployment of New Technology in U.S. Telecommunications*, 2000 U. CHI. LEGAL F. 85, 85 (telecommunications).

19. See Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1, 10 (2001) (noting that competition from an infringer can reduce price).

20. Lemley & Weiser, *supra* note 11, at 796–809.

21. *Id.* at 797–98; Sichelman, *supra* note 7, at 522–23.

22. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006). There is currently a split in Federal Circuit jurisprudence on whether patentees should have to show a nexus between the patent and sales in order to obtain an injunction against competitors. *Compare* *Apple Inc. v. Samsung Elecs. Co.*, 678 F.3d 1314, 1324 (Fed. Cir. 2012) (yes), with *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1337–38 (Fed. Cir. 2013) (distinguishing *Apple* and suggesting it applies only to preliminary injunctions). Whether or not a nexus requirement is appropriate, it is surely appropriate under current law to consider the effect of an injunction on noninfringing as well as infringing components of a product.

because they come from tort rather than regulatory law. Nor does it mean that we must always treat trolls and practicing entities the same. To the contrary, practicing entities will sometimes need an injunction to achieve market exclusivity; trolls never will.²³

Alternatively, if we decide exclusivity is not appropriate, but that infringement has the potential to undermine incentives to invent, we want to pay the patentee some amount of money as compensation for the use of their invention in order to maintain those incentives. That is precisely what the reasonable royalty remedy does. Understood properly, the reasonable royalty should be calculated based on the incremental contribution of the patent to the world.²⁴ And while courts have certainly struggled to get the royalty right,²⁵ they have been improving the sophistication of reasonable royalty calculations in recent years.²⁶ Sichelman is right that a reasonable royalty will sometimes overcompensate patentees and sometimes undercompensate them. But it might strike the appropriate balance as a general matter.

The question is whether “appropriate as a general matter” is good enough. That in turn depends on whether we can do better. And here I am skeptical that Sichelman’s theoretical model could ever be implemented in practice.²⁷ Like Abramowicz and Duffy, it is a perfectly correct statement of aspirations, but nothing that could ever be operationalized without perfect knowledge. How are we to know how much incentive a patentee would require to invent? We could ask them, I suppose, but that doesn’t seem calculated to produce an accurate number. Sichelman offers some factors to consider, including R&D and opportunity costs,²⁸ but they are more likely to give general guidance in a particular direction than actually produce a usable payment to a particular patentee. More to the point, because the goal is to

23. Lemley & Shapiro, *supra* note 12, at 2171–73.

24. Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 637–38 (2010).

25. For criticism of the way courts have traditionally calculated reasonable royalties, see Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307 (2006); Brian J. Love, *Patentee Overcompensation and the Entire Market Value Rule*, 60 STAN. L. REV. 263 (2007); Brian J. Love, *The Misuse of Reasonable Royalty Damages as a Patent Infringement Deterrent*, 74 MO. L. REV. 909 (2009).

26. *See, e.g.*, *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1370–74 (Fed. Cir. 2013) (rejecting lost foreign profits resulting from extraterritorial infringement and rejecting expert damages testimony for not establishing a sufficient link between infringing component and sales); *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1312–18 (Fed. Cir. 2011) (rejecting the “25 percent rule” version of the hypothetical negotiation approach and instead requiring evidence supporting a specific rate); *Lucent Techs, Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1325–1335 (Fed. Cir. 2009) (using several factors to decide what Microsoft would have paid Lucent in a hypothetical negotiation).

27. To be fair, Sichelman is himself skeptical about how this theoretical model could be implemented, viewing it more as a goal to aim towards than a guide to action. Sichelman, *supra* note 7, at 528–29.

28. *Id.* at 567.

incent further innovation, we arguably shouldn't care what the patentee before the courts now wants or would have required—that's water under the bridge—but how a payment will encourage or discourage future inventors. So setting the right social remedy requires us to predict not just what would have motivated the patentee in question but what will motivate unidentified future inventors.

The problems don't end there. The value sufficient to incent a patentee must be measured across all suits, not just one. Suppose that a court could, with perfect knowledge, decide that \$3 million was sufficient reward to encourage a particular type or quality of invention. Should the court simply award \$3 million in the case before it? Presumably not, because the patentee can sue many different defendants, not just one.²⁹ The court would want the total reward to the patentee to be \$3 million, but that should include past suits, currently pending suits, any potential future suits, and whatever confidential licensing agreements were signed outside of litigation. The only ways to do that would be (1) to consolidate all the suits into one, subtract any licensing revenue, and order a single award, or (2) allocate all the damages against the first person to be sued and lose, and let everyone else off the hook. The former probably wouldn't be enough; companies may well wait in the wings until a suit is over and they know they can infringe with impunity. The latter creates its own incentive distortions by making innovation cheaper for some companies than others in a haphazard way. Sichelman doesn't like either idea, so he falls back on a tort-based remedy—how much harm the infringer caused.³⁰

Perhaps a damages calculation based on social value shouldn't care about inequitable results to particular defendants any more than Sichelman cares about equity to particular plaintiffs.³¹ But defendants in patent suits are rarely passive consumers. Empirical evidence suggests that they are themselves innovators in the vast majority of cases.³² So we need to worry not only about making sure the patentee gets paid the socially optimal

29. Indeed, Sichelman rejects this option in favor of a disgorgement-based cap on an individual infringer's liability, *id.* at 559, though elsewhere he rejects the idea of disgorgement, *see id.* at 569, 571 (stating that private law notions of making the patentee whole are not "fundamental" or "essential" in determining optimal remedies in patent law).

30. *See id.* at 569 (stating that a patent grants the patentee status as a "private attorney general" to collect damages based on the harm done to society).

31. *Cf.* Anup Malani & Jonathan S. Masur, *Raising the Stakes in Patent Cases*, 101 *GEO. L.J.* 637, 640–41 (2013) (arguing for supracompensatory payments to prevailing patentees and challengers to encourage litigation).

32. *See* Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 *N.C. L. REV.* 1421, 1424 (2009) (finding that close to 90% of patent complaints, and 97% or more of complaints in computer and software cases, do not allege copying).

amount of damages, but also that infringers are not paying a superoptimal penalty that could discourage their own innovation.³³

Market replication remedies have the benefit that they don't require us to prejudice social value in all cases.³⁴ In effect, they are a presumption that the market sets the right value. That is not necessarily true; indeed, as Carl Shapiro and I have noted, any reasonable royalty award is necessarily circular because it is keyed off a licensing market that is in turn measured based on the expected reasonable royalty award.³⁵ But it might serve as a reasonable proxy for the intrinsic value of the innovation. Indeed, if inventors have come to expect market exclusivity or the prospect of a market-based reward, that expectation may anchor the incentive effect, so that "market return" is what properly encourages inventors because that's what they expect, even if its relationship to real social contribution is somewhat arbitrary.³⁶ That doesn't mean that we can never change patent rules or patent remedies; far from it. But it does mean that, to the extent money is what motivates inventors at all, it is the prospect of a market reward that currently does so. We could try to change what motivates inventors, but that is a trickier business than just changing the damages rules; we must actually change inventor attitudes in order for it to work.³⁷

33. See Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 273–74 (2007) (explaining why consumer surplus matters to efficiency when the consumers are themselves innovators); cf. ROBERT COOTER & AARON EDLIN, *THE FALCON'S GYRE: LEGAL FOUNDATIONS OF ECONOMIC INNOVATION AND GROWTH* (2013), available at <http://scholarship.law.berkeley.edu/books/1/>; Sichelman, *supra* note 7, at 559.

34. See Lemley & Shapiro, *supra* note 9, at 2018–19 (explaining that courts determine reasonable royalties based on expert testimony as to the value of the patent, the rates people have paid for this or similar inventions in the industry, and the significance of the patent to the product and to market demand).

35. *Id.* at 2021.

36. Several scholars have identified a "lottery effect" in IP, in which the uncertain prospect of a high reward is a greater incentive to invent than a more certain payment. Dennis D. Crouch, *The Patent Lottery: Exploiting Behavioral Economics for the Common Good*, 16 GEO. MASON L. REV. 141, 142–43 (2008); F.M. Scherer, *The Innovation Lottery*, in EXPANDING THE BOUNDARIES OF INTELLECTUAL PROPERTY INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY 3, 3 (Rochelle Cooper Dreyfuss et al. eds., 2001). A similar effect may make prizes more effective than grants or subsidies in encouraging research investment. For discussion of the literature on non-patent alternatives to encourage innovation, see, for example, Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 AM. ECON. REV. 691, 696–700 (1983); Steven Shavell & Tanguy van Ypersele, *Rewards Versus Intellectual Property Rights*, 44 J.L. & ECON. 525, 526–27 (2001); Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When Is It the Best Incentive System?*, in 2 INNOVATION POLICY AND THE ECONOMY 51, 53–56 (Adam B. Jaffe, Josh Lerner & Scott Stern eds., 2002); Joseph E. Stiglitz, *Economic Foundations of Intellectual Property Rights*, 57 DUKE L.J. 1693, 1696–97 (2008); Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents–Prizes Debate*, 92 TEXAS L. REV. 303, 310–12 (2013). But cf. Benjamin N. Roin, *Intellectual Property versus Prizes: Reframing the Debate*, 81 U. CHI. L. REV. (forthcoming 2014) (arguing that IP may be superior to prizes even with perfect information).

37. True, corporate patent owners might simply internalize whatever the new norm is, though not all inventors will be so rational. But things people view as entitlements are notoriously sticky,

Putting private remedies to public use is particularly desirable because the law is not rich in alternatives to tort remedies in private litigation. While regulatory agencies sometimes impose penalties or disgorgement remedies, those remedies are generally intended to punish or deter a wrongdoer, not to compensate a patent owner. And indeed Sichelman himself falls back on a disgorgement remedy as he moves from his theoretical story to a more practical analysis, though he stops short of endorsing it altogether.³⁸

A move from compensation for losses to disgorgement of gains would be a major step backwards in the calculation of patent remedies. Disgorgement remedies should have no place in modern patent law, in which the overwhelming majority of suits are filed not against wrongdoers but against independent inventors who did not copy from the patentee.³⁹ Depriving one set of innovators—those who actually put products on the market—of the entire profit from their enterprise in order to give extra reward to a different innovator who might or might not have marketed a product seems unwise as a matter of social policy. A market-based reward prevents us from having to pick a social welfare number out of whole cloth and avoids the temptation to deprive productive infringers of their profit altogether.

Further, it is possible in theory to deter copying by setting an optimal penalty for that copying. It is much, much harder to optimally deter independent invention. When the law tells an inventor that they may well be penalized for inventing based on a patent they cannot yet see or avoid, it deters productive investment, not patent infringement *per se*. Current law does this most of the time in industries like software, and it is one of the biggest problems with the patent system.⁴⁰ We certainly don't want to make it worse by imposing a supra-market penalty on an independent inventor.⁴¹

That does not mean that market-based remedies are always appropriate, or that Sichelman's valuable theoretical framework has nothing to teach us.

and the idea of a patent offering a market reward rather than a government-set prize may be hard to dislodge.

38. Sichelman, *supra* note 7, at 559–60.

39. Cotropia & Lemley, *supra* note 32. Patent law originally allowed disgorgement of defendant's profits as a remedy, subject to a principle of apportionment, *see* *Garretson v. Clark*, 111 U.S. 120, 120–121 (1884), but Congress abolished the remedy in 1946, *see* *Water Techs. Corp. v. Calco, Ltd.*, 850 F.2d 660, 673 (Fed. Cir. 1988).

40. Christina Mulligan & Timothy B. Lee, *Scaling the Patent System*, 68 N.Y.U. ANN. SURV. AM. L. 289, 289, 298 (2012).

41. In theory, one could design a disgorgement remedy that accounted only for the incremental value of the patented invention, discounting both the contribution of other patents and the infringer's own contribution in developing and commercializing the technology. Copyright law has made efforts toward apportionment. *See, e.g.*, *Sheldon v. Metro-Goldwyn Pictures Corp.*, 309 U.S. 390, 402 (1940). But even if we could do that well—and I'm skeptical—the disgorgement remedy would simply end up mimicking the current reasonable royalty remedy, since the royalty is supposed to capture the incremental value contributed by the patentee.

First, understanding that market-based remedies are an imperfect proxy for social value means that we can think more carefully about when to apply them. We might reasonably start with a norm of market exclusivity, and thus an expectation that a successful plaintiff will win an injunction, but we can depart from that presumption when we need to (as we do with trolls and with small patents in multi-component industries)⁴² without having to pick an entirely new way of determining remedies. Similarly, we begin our damages analysis with a presumption that the proper incentive for an inventor is a function of the market value of that invention. But we need not end there. There will be circumstances in which it seems clear that the normal rules for damages overcompensate patent owners. When that is true, the law might reasonably modify the market-based calculation to take account of the disparity between our traditional measures of damages and social value.⁴³

Several scholars have suggested, for instance, that evidence of simultaneous invention is an indication that market value may exceed the social value of the patentee's contribution, because other inventors got to the same result in short order, and so the patentee's only contribution was a slight acceleration in the date of invention and disclosure.⁴⁴ Since most significant inventions are developed independently by others,⁴⁵ that argument suggests we are overrewarding pioneering patent owners in a wide range of cases. I think the issue is somewhat more complicated, because the promise of that excessive reward may actually be the thing that lures multiple parties to race to invent.⁴⁶ The evidence to support racing as socially valuable is by no means airtight, but it does give me some pause in concluding that simultaneous invention should always incline us to reduce patentee compensation.

A more significant implication of a focus on inducement value rather than market value is that zero will often be the right damages number, for

42. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006), made the award of injunctions discretionary. Since that time, practicing entities are far more likely to get injunctions than trolls. Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 9–10 (2012). The Federal Circuit has recently split over whether a patent on a small component of a larger product can justify an injunction against the whole product. *See* cases cited *supra* note 22.

43. Sichelman, *supra* note 7, at 554.

44. Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475, 478–79 (2006); *see also* Abramowicz & Duffy, *supra* note 15, at 1602, 1677–78. To be sure, that acceleration can be valuable, both because it may accelerate subsequent improvements and because it means that the patent will expire earlier than it otherwise would. John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 445–46, 467 (2004). But the benefit of small improvements in the invention date are likely to be overwhelmed by the social cost of restricting access to the invention for twenty years.

45. *See* Lemley, *supra* note 14, at 712–33 (showing that most significant inventions are developed by multiple parties at around the same time).

46. *Id.* at 750–52; Mark A. Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 MICH. L. REV. 1525, 1528–30 (2007).

two reasons. First, many patentees would unquestionably have invented even absent patent protection.⁴⁷ That is likely true of many university inventions, but it may also be true of commercial enterprises, who often innovate for market-related reasons rather than for the hope of winning and then enforcing a patent years down the road. Awarding those inventors (or, more likely, the patent troll who bought the patent from them) any damages at all would overcompensate them from a social welfare perspective. And while we should properly focus on future rather than past inventors, there are likely entire classes of inventors (such as university professors and software programmers) who don't need the incentive of a patent to invent.

Second, even inventors who may be motivated by the prospect of a patent often end up owning patents that are valuable for accidental reasons rather than because of the intrinsic benefits their technology confers. They may simply have been lucky enough to pick from several equally good alternatives the one that is actually implemented in a major product. Worse, they may have invented one particular approach but claimed more broadly, so that their patent covers alternatives they did not invent.⁴⁸ In either case, the social value of the patent is arguably zero, at least as asserted against an independent inventor who developed their own alternative. Judge Posner has concluded in a high-profile case that zero can be the appropriate reasonable royalty,⁴⁹ though it is doubtful the Federal Circuit will agree. But if we focus on the social value of patented inventions, zero will often be the right damages number.⁵⁰ Courts in the nineteenth century understood that not every act of patent infringement required compensation;⁵¹ a return to the understanding of the patent as a public franchise might bring with it a willingness to let some infringement go unremedied in the interest of social welfare.

By contrast, it is unlikely that socially optimal patent damages will often exceed the market measure used in current law. Similarly, it seems unlikely that social welfare will demand an injunction that the current law would not

47. For a discussion of the noneconomic reasons why people invent, see, for example, Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745 (2012).

48. For an argument that this is a particular problem with software patents today, see Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 WIS. L. REV. 905 (2013).

49. *Apple, Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901, 910 (N.D. Ill. 2012).

50. See Vermont, *Harm to the Public*, *supra* note 8 (arguing for denial of money damages in many circumstances to achieve social welfare goals); Vermont, *Harm to the World*, *supra* note 8, at 1 (same).

51. See, e.g., *Brown v. Duchesne*, 60 U.S. 183, 196–97 (1856) (rejecting the argument that “although no real damage was sustained by the plaintiff, and no profit or advantage gained by the defendant, the law presumes a damage” and stating that “such a construction would be inconsistent with the principles that lie at the foundation of [the patent] laws; and instead of conferring legal rights on the inventor, in order to do equal justice between him and those who profit by his invention, they would confer a power to exact damages where no real damage had been sustained...”).

grant. No one invents because they expect benign providence to give them some extra-market reward; if they are thinking about money at all while inventing, they expect a patent, and thus a market reward. The effect of focusing on the socially rather than privately optimal remedy may therefore be asymmetric. IP owners will generally be satisfied with exclusivity and their market reward; that's what they have been conditioned to expect. So if what we care about is what will encourage them to invent, while we will sometimes want to give patentees less than a market-set award it is rare indeed that we will want to give them more.⁵²

Sichelman finds two circumstances that he thinks warrant an increase in awards—hard-to-detect infringement and insufficient market incentives for things like orphan drugs or vaccines. But infringement of consequence is rarely hard to detect. Many inventions have their functionality apparent on their face, and most of the rest can be ascertained through reverse engineering. Many patent applications, especially in software, don't depend on the inner workings of an invention, but claim its effects, so that it often doesn't matter how something works.⁵³ Even if infringement does depend on something working in the bowels of a machine or factory that can't be observed from outside, current law makes it pretty easy to file or threaten a lawsuit on speculation and learn in discovery whether or not the defendant's process is actually the same as the patented one.⁵⁴ And because we already enhance damages in cases of willful infringement in order to deter it,⁵⁵ the only case in which undercompensation is likely involves an internal manufacturing process that the defendant developed independently for its own use rather than learning from the patentee. Given the dubious social benefit of suing independent infringers to begin with, that possibility is an awfully thin reed on which to base an entirely new remedies system.

As for inventions the market under-provides, that is certainly a social problem.⁵⁶ But we have non-market mechanisms to give incentives for other

52. See also Thomas F. Cotter, *Make No Little Plans: Response to Ted Sichelman*, Purging Patent Law of "Private Law" Remedies, 92 TEXAS L. REV. SEE ALSO 25, 25–26 (2014) (making a similar point).

53. See Mark A. Lemley, *supra* note 48, at 907.

54. See, e.g., FED. R. CIV. P. FORM 18 (allowing bare-bones pleading of patent infringement). The Federal Circuit has repeatedly read that form to allow pleading of patent infringement without any detailed analysis of the accused product, or even identification of the patent claims alleged to be infringed. See, e.g., *K-Tech Telecomms., Inc. v. Time Warner Cable, Inc.*, 714 F.3d 1277, 1283–84 (Fed. Cir. 2013); *In re Bill of Lading Transmission and Processing Sys. Patent Litig.*, 681 F.3d 1323, 1333–34 (Fed. Cir. 2012). For efforts to change that, see the Innovation Act, H.R. 3309, 113th Cong. § 3 (2013), pending in Congress at this writing. But even that bill would allow a plaintiff to plead infringement when it couldn't see the product and therefore couldn't determine whether it was infringing. *Id.* § 3(b).

55. *King Instruments Corp. v. Perego*, 65 F.3d 941, 947 (Fed. Cir. 1995); Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law's Willfulness Game*, 18 BERKELEY TECH. L.J. 1085 (2003).

56. Amy Kapczynski, *The Cost of Price: Why and How to Get Beyond Intellectual Property Internalism*, 59 UCLA L. REV. 970, 989–90 (2012).

kinds of inventions, including grants and prizes.⁵⁷ More to the point, if the problem is that the market demand isn't there for a product, increasing damages awards is unlikely to help, because the defendants presumably aren't making a socially optimal profit either. In other words, if, say, antimalarials aren't sufficiently incented by market control, forcing infringers to pay more than they make in that market seems unlikely to help, and may even hurt by driving distributors out of the market. That doesn't mean we shouldn't direct more social resources toward innovation that benefits the poor. But the money will have to come from somewhere other than an infringement suit. Sichelman acknowledges this.⁵⁸ Instead, he suggests that government could step in to provide prizes or other incentives. I agree. But that's not an argument to change IP remedies; it is an argument to add other forms of innovation incentive to IP.

A focus on social value, then, is more likely to reduce than to enhance patent remedies. And at least in some cases, a "reasonable royalty" calculated with social welfare in mind is likely to be zero. These are important lessons from Sichelman's article and from his valuable effort to take the regulatory character of IP seriously, even if—as Sichelman would ultimately concede—we ought not "purge" private remedies from patent law altogether.

57. Hemel & Ouellette, *supra* note 36, at 315–23 (discussing the various alternatives to IP).

58. See Sichelman, *supra* note 7, at 559 ("Presumably, other than the possibility of disgorgement of profits, infringers should not pay these additional amounts because assessing such liability would lead to allocative distortions in which potential infringers take excessive caution.").