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THE UNEASY CASE FOR PATENT FEDERALISM

ROGER ALLAN FORD*

Nationwide uniformity is often considered an essential feature of the patent system, necessary to fulfill that system's disclosure and incentive purposes. In the last few years, however, more than half the states have enacted laws that seek to disrupt this uniformity by making it harder for patent holders to enforce their patents. There is an easy case to be made against giving states greater authority over the patent system: doing so would threaten to disrupt the system's balance between innovation incentives and a robust public domain and would permit rent seeking by states that disproportionately produce or consume innovation.

There is, nevertheless, an uneasy case that this particular form of patent federalism may be a good thing. The federal patent system has systemic flaws that lead to low-quality patents, nuisance patent litigation, and patent trolls exploiting asymmetric bargaining power. And efforts to address these flaws have faltered, or have had limited effects, due to public-choice dynamics in the patent system, so the scope of patent protections has expanded over time without regard to the system's purpose of encouraging innovation.

States may help address some of these problems not in spite of, but because of, their own flaws. States have their own public-choice dynamics that happen to offset some of the flaws of the federal system. State anti-patent laws have been driven largely by small businesses and local small-business groups, which, unlike most patent holders, have preexisting influence in state government. And the laws they have crafted using this influence are well-targeted to affect only the most troublesome patent cases: nuisance cases, cases asserting low-quality patents, and cases targeting end users. States pushing back with anti-patent laws, then, may represent an effective second-best solution to the problem of harmful patent assertions. Moreover, recognizing the dynamics that led to these laws may provide helpful insights in designing federal patent reforms.

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INTRODUCTION

In 2012, thousands of small businesses began receiving demand letters claiming that if the companies used networked document scanners—scanners that send scanned documents to users via email, or that upload them to servers—they were committing patent infringement.¹ The letters came at first from a company called Project Paperless LLC, and later from an alphabet soup of companies with names like AccNum, LLC; AllLed, LLC; AdzPro, LLC; CalNeb, LLC; and ChaPac, LLC, all of which turned out to be subsidiaries of

1. See, e.g., Mike Masnick, *Patent Troll Shell Companies Shake Down Small Businesses for \$1k Per Employee for Using Network Scanner*, TECHDIRT (Jan. 2, 2013, 1:34 PM), <https://www.techdirt.com/articles/20130102/08174721543/patent-troll-shell-companies-shake-down-small-businesses-1k-per-employee-using-network-scanner.shtml> [https://perma.cc/W58C-T2L5]; Joe Mullin, *Patent Trolls Want \$1,000—for Using Scanners: An Alphabet Soup of Patent Trolls is Threatening End Users with Lawsuits*, ARS TECHNICA (Jan. 2, 2013, 8:30 AM), <http://arstechnica.com/tech-policy/2013/01/patent-trolls-want-1000-for-using-scanners/> [https://perma.cc/XM5F-R9KV].

MPHJ Technology Investments, LLC (MPHJ).² The letters demanded \$1,000 per employee for infringement of four patents with titles like “Distributed computer architecture and process for document management.”³ Notably, even though common scanning systems from companies like Canon and Xerox offer the allegedly patented features as standard features, the demands did not go to those companies, or even to large companies using scanners; they went after 16,465 small businesses instead.⁴

As a matter of patent law, the companies that issued these demand letters probably did nothing wrong.⁵ They really did own the described patents, which had been issued by the Patent and Trademark Office. The patents plausibly appeared to cover the scanning setups described in the letters; certainly courts have accepted less-plausible-sounding patent claims. The patents may have been invalid, either because they did not cover something novel or because the claimed inventions were obvious at the time they were invented, but under federal law, patents

2. Mullin, *supra* note 1.

3. Several representative letters are available at *MPHJ Technologies, TROLLING EFFECTS*, <https://trollingeffects.org/patent-owner/mphj-technologies> [<https://perma.cc/TWY8-EJVR>] (last visited Mar. 28, 2017). The patents are: Process and Architecture for Use on Stand-alone Machine and in Distributed Computer Architecture for Client Server and/or Intranet and/or Internet Operating Environments, U.S. Patent No. 6,185,590 (issued Feb. 6, 2001); Distributed Computer Architecture and Process for Virtual Copying, U.S. Patent No. 6,771,381 (issued Aug. 3, 2004); Distributed Computer Architecture and Process for Virtual Copying, U.S. Patent No. 7,477,410 (issued Jan. 13, 2009); and Distributed Computer Architecture and Process for Document Management, U.S. Patent No. 7,986,426 (issued July 26, 2011).

4. See Alison Griswold, *The FTC Has Settled with America's Most Notorious Patent Troll*, SLATE (Nov. 7, 2014, 9:21 AM), http://www.slate.com/blogs/moneybox/2014/11/07/ftc_patent_troll_settlement_mphj_charged_with_deceptive_sales_claims_and.html [<https://perma.cc/R3QZ-YJNA>]. Since the demand-letter campaign began, three makers of network scanners have obtained *inter partes* review by the Patent and Trademark Office of two MPHJ patents. See *Hewlett-Packard Co. v. MPHJ Tech. Invs.*, No. IPR2013-00309, at 2, 47 (P.T.A.B. Nov. 19, 2014) (finding 14 of 15 claims of U.S. Pat. No. 6,771,381 invalid); *Ricoh Ams. Corp. v. MPHJ Tech. Invs.*, No. IPR2013-00302, at 2, 50–51 (P.T.A.B. Nov. 19, 2014) (finding 10 of 11 claims of U.S. Pat. No. 7,986,426 invalid).

5. MPHJ did run into trouble with the Federal Trade Commission, though, which brought an enforcement action claiming that the demand letters were deceptive. See *FTC Settlement Bars Patent Assertion Entity From Using Deceptive Tactics*, FED. TRADE COMM'N (Nov. 6, 2014), <http://www.ftc.gov/news-events/press-releases/2014/11/ftc-settlement-bars-patent-assertion-entity-using-deceptive> [<https://perma.cc/D5JH-UZ44>]. The claims were brought pursuant to Section 5(a) of the Federal Trade Commission Act, 15 U.S.C. § 45(a). Complaint at 9, *In re MPHJ Tech. Invs.*, No. 142 3003 (F.T.C. 2014), <https://www.ftc.gov/system/files/documents/cases/141106mphjcmpt.pdf> [<https://perma.cc/J83W-TMB4>].

are presumed valid until someone can prove otherwise.⁶ And although going after end users can be more expensive than going after companies that sell infringing systems, it is not improper, since infringement includes making, using, selling, offering for sale, or importing a patented product or process.⁷

And yet, the letters went viral to a degree that most stories about the patent system have not. One recipient started a public campaign against the patent holder, tracking down other recipients and fighting back when the patent holder sued.⁸ Other recipients went separately to the press.⁹ And members of Congress have pointed to the demand letters as a sign that Congress should enact patent reform.¹⁰

The most unusual response came from the States. Although patent law is a matter of federal law, several state attorneys general got involved, targeting the companies under state consumer-protection laws.¹¹ And state legislatures began passing laws that make it more difficult to enforce patent rights. Vermont enacted the first such law in 2013;¹² the law bans “bad faith assertion[s] of patent infringement”¹³

6. See 35 U.S.C. § 282(a) (2012) (“A patent shall be presumed valid. . . . The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.”); *Microsoft Corp. v. i4i Ltd.*, 564 U.S. 91, 91 (2011) (holding that invalidity must be proved by clear and convincing evidence).

7. See 35 U.S.C. § 271(a) (2012) (defining direct patent infringement). For a discussion on patent litigation against end users, see Gaia Bernstein, *The Rise of the End User in Patent Litigation*, 55 B.C. L. REV. 1443 (2014) (arguing that the patent system should give end users greater tools to assert their legal interests).

8. Project Paperless promptly dropped the case. See Mullin, *supra* note 1.

9. See, e.g., Paul Muschick, *Feds Crack Down on Patent Trolling*, MORNING CALL (Dec. 27, 2014, 6:42 PM), <http://mcall.com/news/local/mc-patent-trolls-mpjh-watchdog-20141227-column.html> [<https://perma.cc/Z7GT-4Y3W>].

10. See Joe Mullin, *Troll Hunter: Meet the Oregon Lawmaker Who May Fix the Patent Mess: Rep. Peter DeFazio Took on the Issue After a Local Software Company Got Held Up*, ARS TECHNICA (Feb. 28, 2013, 7:00 AM), <http://arstechnica.com/tech-policy/2013/02/troll-hunter-meet-the-oregon-lawmaker-who-may-fix-the-patent-mess/> [<https://perma.cc/7PTH-V4VK>].

11. See Joe Mullin, *Patent Troll that Wants \$1,000 per Worker Gets Sued by Vermont A-G: Small State’s Action is the First Government Lawsuit Against a Patent Troll*, ARS TECHNICA (May 22, 2013, 1:40 PM), <http://arstechnica.com/tech-policy/2013/05/patent-troll-that-wants-1000-per-worker-gets-sued-by-vermont-a-g/> [<https://perma.cc/68VZ-L8PX>]; Joe Mullin, “Scanner Trolls” Kicked Out of Minnesota: Patent Troll Demanding \$1,000 per Worker for Scanner Patents is in Slow Retreat, ARS TECHNICA (Aug. 21, 2013, 7:15 PM), <http://arstechnica.com/tech-policy/2013/08/scanner-trolls-kicked-out-of-minnesota/> [<https://perma.cc/CVZ5-DGNU>]; Joe Mullin, *Second State Cracks Down on Patent-Wielding “Scanner Trolls”: Trolls Must Back Off Their Plan to Get “Fast Money” from Nebraskans, Says AG*, ARS TECHNICA (July 23, 2013, 3:15 PM), <http://arstechnica.com/tech-policy/2013/07/second-state-cracks-down-on-patent-wielding-scanner-trolls/> [<https://perma.cc/93XS-AYRL>].

12. See generally VT. STAT. ANN. tit. 9, §§ 4195–4199 (2016).

13. § 4197(a).

and gives recipients of demand letters the right to bring claims against the senders.¹⁴ The law does not define bad-faith patent assertions, though it provides courts with a list of eight nonexclusive factors courts can consider.¹⁵ Other states have followed: Between 2013 and August 2016, thirty-one states have enacted laws seeking to reform patent litigation, mostly modeled on the Vermont legislation.¹⁶

These laws are the most prominent recent example of patent federalism—efforts by the states to adopt their own patent policies. Although these examples involve anti-patent laws, patent federalism can take many forms, including laws designed to strengthen federal patent rights; laws designed to provide state complements or substitutes for federal patent rights, like state patent rights or trade-secret protections; and laws designed to provide non-patent innovation incentives, like tax credits or innovation prizes.

There is an easy case to be made against giving states more influence over the patent system. For the patent system to work well, the Supreme Court has repeatedly emphasized, uniform nationwide rules are key.¹⁷ Otherwise, individual states could upset the balance between encouraging innovation and protecting competition and a robust public domain.¹⁸ State laws that specifically target patent-holders and make it harder to exercise their patent rights are especially likely to upset this balance, since they directly undermine the incentives that patent law is designed to promote. State laws are also troublesome because they can represent an attempt by residents of that state to

14. § 4199(b).

15. § 4197(b). The factors include, for instance, whether a demand letter includes “factual allegations concerning the specific areas in which the target’s products, services, and technology infringe the patent or are covered by the claims in the patent,” § 4197(b)(1)(C); whether the sender has conducted “an analysis comparing the claims in the patent to the target’s products, services, and technology,” § 4197(b)(2); and whether “[t]he demand letter demands payment of a license fee or response within an unreasonably short period of time,” § 4197(b)(4).

16. See *infra* note 25 and accompanying text.

17. See, e.g., *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 162 (1989) (“One of the fundamental purposes behind the Patent and Copyright Clauses of the Constitution was to promote national uniformity in the realm of intellectual property. . . . This purpose is frustrated by the Florida scheme, which renders the status of the design and utilitarian ‘ideas’ embodied in the boat hulls it protects [at issue in the case] uncertain.”). But see Camilla A. Hrdy, *State Patents as a Solution to Underinvestment in Innovation*, 62 KAN. L. REV. 487, 488–89, 496–500 (2013); Lisa Larrimore Ouellette, *Patent Experimentalism*, 101 VA. L. REV. 65, 85–87 (2015).

18. See, e.g., *Bonito Boats, Inc.*, 489 U.S. at 152 (“The tension between the desire to freely exploit the full potential of our inventive resources and the need to create an incentive to deploy those resources is constant. Where it is clear how the patent laws strike that balance in a particular circumstance, that is not a judgment the States may second-guess.”).

extract rents from outsiders, whether by strengthening or weakening patent rights.

Still, there are reasons to think that this particular form of patent federalism may have benefits. The federal patent system has well-recognized problems with low-quality patents and abusive assertions of patent rights that, in many cases, give patent holders the power to extract unearned rents. One result of these flaws is the rise of companies like MPHJ—the worst sorts of patent trolls—that contribute nothing to society other than nuisance lawsuits. State lawmakers are well suited to counteract some of these problems because, although states have their own problems, those problems tend to offset the flaws in the federal patent system. The parties that benefit from state anti-patent laws are disproportionately the ones that are harmed by flaws in the patent system, while the parties that are harmed by state anti-patent laws are disproportionately the ones who benefit from flaws in the patent system. Patent trolls benefit from flaws in the patent system, while small businesses and customers are harmed by them; state anti-patent laws have precisely the opposite effect. So, to the extent that the flaws in the federal system are real and cannot be fixed, state laws could help instead.

To be sure, there are strong reasons to be wary of state lawmakers interfering in the patent system. If the particular mix of citizens in a given state would happen to benefit from stronger or weaker patent rights, that state's lawmakers might enact laws designed to strengthen or weaken patent rights regardless of any havoc those laws would wreak on the nationwide patent system. Indeed, this sort of rent seeking by local interests seems inevitable when states start messing around in a national system. So state anti-patent laws may be less an affirmative good and more a least-bad way to reduce the effects of flaws in the patent system.

But there are reasons to think the dangers of unleashing state lawmakers on the patent system might be less acute than they might seem to be. Though these laws could result in small businesses extracting some value that would otherwise flow to patent holders, they should have a minimal effect on the behavior of those businesses. Small businesses are unlikely to locate in specific states in response to these laws, since patent policy is far from the most salient consideration for the vast majority of small businesses. And patent holders have no real choice; a patent holder that wants to assert its patent against a defendant has no control over where that defendant is located. So these laws are unlikely to lead to a race to the bottom; their consequences would likely be limited to deterring the sorts of patent assertions that are troublesome in the first place.

This Article has five parts. Part I surveys the rise of state anti-patent laws and the broader context of federalist conceptions of the

patent system. Part II makes the easy normative case against patent federalism. Parts III and IV make the uneasy case for a limited patent federalism. Part III makes the substantive case, reviewing common critiques of the federal patent system and discussing how state laws can counteract the flaws highlighted by those critiques. Part IV makes the institutional case, explaining how the public-choice economics of the federal and state systems lead to the problems discussed in Part III. The upshot is that even though state laws are an especially inelegant way to target patent-holders, they may nevertheless be an effective second-best remedy for harmful patent assertions. Part V discusses implications for the greater patent system and the debate over patent reform.

I. PATENT FEDERALISM

Patent law is usually considered the province of the federal government. Although the colonies routinely granted patent-like rights before the Constitution was ratified, and a few states continued to do so into the early years of the United States, the last state patent was granted in 1798.¹⁹ This federal primacy is usually justified on uniformity grounds: only a single nationwide system can correctly balance society's dual interests in promoting both innovation and competition, while minimizing compliance costs.²⁰ Allow states to interfere, the theory goes, and the system tilts too far in favor of patent holders or competitors or becomes too costly.

A necessary premise of this argument is that federal law strikes the right balance between these interests, such that state interference would be socially costly. Yet there are many reasons to think that is not the case; instead, complaints about the patent system have been common for years. The patent office grants too many patents to people who never really invented anything; patent lawsuits cost millions of dollars and take years to decide, allowing patent holders to hold up defendants for nuisance settlements; patent trolls who make nothing target defendants who make real products, raising the cost of those products; and so forth.²¹ And in response to these problems, scholars, patent

19. See generally Camilla A. Hrdy, *State Patent Laws in the Age of Laissez Faire*, 28 BERKELEY TECH. L.J. 45, 47–80 (2013).

20. See *infra* Part II.

21. Citations to scholars criticizing aspects of the patent system could fill several volumes, even setting aside criticism by policymakers and others. For just a very small sampling of this criticism, see JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* (2008); MICHELE BOLDRIN & DAVID K. LEVINE, *AGAINST INTELLECTUAL MONOPOLY* (2010); DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW THE COURTS CAN SOLVE IT* (2009); ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND*

lawyers, and policymakers have proposed numerous reforms, mostly designed to make it harder to obtain and enforce patent rights. Some of these reforms have become law, or are likely to become law soon.²²

Given these issues in the federal patent system, it is not surprising that states have also gotten into the act. This Part first describes the widespread recent adoption of state anti-patent laws and then considers whether federal patent law preempts these state laws.²³

A. *The Rise of State Anti-Patent Laws*

Until recently, state policymakers played a limited role in the patent system. State attorneys general have occasionally targeted patent owners under state competition or consumer-protection laws,²⁴ but otherwise, states have mostly stayed out of patent disputes. That changed in 2013, when states started enacting anti-patent laws. Since then, thirty-one states have enacted anti-patent legislation, with another eleven considering bills.²⁵

ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT (2004).

22. The America Invents Act contained some measures designed to prevent abuses of the patent system, most notably including expanded post-grant opposition procedures and procedures for third parties to submit information for consideration by the Patent Office. *See* Leahy-Smith America Invents Act § 6 (2011) (codified as amended at 35 U.S.C. §§ 311–329 (2015)) (*inter partes* and post-grant review); § 8 (codified as amended at 35 U.S.C. § 122 (2015)) (information submissions by third parties); § 18 (codified as amended at 35 U.S.C. § 321 (2015)) (review of covered business-method patents). The proposed Innovation Act, which passed the House of Representatives in 2013, would go further, requiring plaintiffs to include specific technical details in infringement allegations and imposing fee shifting in patent cases. Innovation Act, H.R. 9, 114th Cong. (2015–16). And there are signs Congress may soon consider a venue-reform provision in lieu of more comprehensive reform. *See, e.g.*, Dennis Crouch, *Law Professors Call for Patent Venue Reform*, PATENTLYO (July 13, 2016), <https://patentlyo.com/patent/2016/07/professors-patent-reform.html> [<https://perma.cc/D26V-QYQ8>].

23. This Article focuses on state efforts to change the substance of the patent system, through both substantive and procedural rules, but states could also try to insert themselves into the patent system by hearing patent cases in state courts. *See, e.g.*, Paul R. Gugliuzza, *Patent Law Federalism*, 2014 WIS. L. REV. 11.

24. *See, e.g., supra* note 11.

25. *Patent Progress's Guide to State Patent Legislation*, PATENT PROGRESS (last updated Feb. 2, 2017), <http://www.patentprogress.org/patent-progress-legislation-guides/patent-progresss-guide-state-patent-legislation/> [<https://perma.cc/QTD4-VCW4>]. The enacted laws are ALA. CODE §§ 8-12A-1 to 8-12A-7 (2015); ARIZ. REV. STAT. ANN. §§ 44-1421 to 44-1424 (2016); COLO. REV. STAT. §§ 6-12-101 to 6-12-104 (2015); FLA. STAT. §§ 501.991 to 501.997 (2016); GA. CODE ANN. §§ 10-1-770 to 10-1-774 (2015); IDAHO CODE ANN. §§ 48-1701 to 48-1708 (2015); 815 ILL. COMP. STAT. 505/2SSS (2015); IND. CODE §§ 24-11-1-1 to 24-11-5-2 (2015); KAN. STAT. ANN. § 50-6,140 (2015); LA. STAT. ANN. § 51:1428 (2015); ME. STAT. tit. 14, §§ 8701–8702 (2015); MD. CODE ANN., COM. LAW §§ 11-1601 to 11-1605 (2015); H.B. 589, 113th

The state laws take three basic forms. The most common pattern is to ban “bad-faith” assertions of patent rights. For instance, Vermont’s law, the model for several of the laws, provides that “[a] person shall not make a bad faith assertion of patent infringement.”²⁶ The law does not define bad-faith patent assertions, but it lists fourteen factors that courts may consider in deciding whether a defendant has made such a bad-faith assertion.²⁷ The listed factors largely go to conduct outside of the courtroom. One factor, for instance, looks to whether the patent holder sent a demand letter that did not contain information like the patent number, the patent owner’s name and address, and specific infringement allegations.²⁸ Another looks to whether the patent holder actually performed an infringement analysis before sending the letter.²⁹ Others go to the merits of the patent case, including whether the patent holder offered to license the patent for an unreasonable amount or whether the patent holder knew or should have known that the claim was meritless.³⁰ And some factors go to the patent holder’s status: it weighs against a bad-faith finding when the patent holder is the original inventor or assignee, is an educational institution, or has made investments in its own products practicing the patented technology.³¹ The law also provides for enforcement by the state attorney general,³² or, in a private cause of action, by a target of a bad-faith patent assertion.³³ Although this description is specific to Vermont law, most of the other state statutes have borrowed the basic approach.

The second model for state laws is to ban false threats to bring a patent lawsuit. For instance, the Illinois statute makes it illegal to send a communication asserting that the recipient infringes a patent if that communication “falsely threatens that administrative or judicial relief

Legis. Sess. (Miss. 2015) (not yet codified); MO. REV. STAT. §§ 416.650 to 416.658 (2015); MONT. CODE ANN. § 30-13-152 (2015); N.H. REV. STAT. ANN. §§ 359-M:1 to 359-M:5 (2015); N.C. GEN. STAT. §§ 75-140 to 75-145 (2015); N.D. CENT. CODE §§ 51-36-01 to 51-36-08 (2015); OKLA. STAT. tit. 23, §§ 111-14 (2015); S.B. 1540, 77th Legis. Assemb. (Or. 2014) (to be codified as amended in OR. REV. STAT. § 646.608); 6 R.I. GEN. LAWS §§ 6-41.1-1 to 6-41.1-6 (2016); S.C. CODE ANN. §§ 39-4-100 to 39-4-150 (2016); S.D. CODIFIED LAWS §§ 37-36-1 to 37-36-9 (2015); TENN. CODE ANN. §§ 29-10-101 to 29-10-104 (2015); TEX. BUS. & COM. CODE ANN. § 17.952 (West 2015); UTAH CODE ANN. §§ 78B-6-1901 to 78B-6-1905 (West 2015); VT. STAT. ANN. tit. 9, §§ 4195-4199 (2016); VA. CODE ANN. §§ 59.1-215.1 to 59.1-215.4 (2015); WASH. REV. CODE §§ 19.350.005 to 19.350.900 (2015); WIS. STAT. § 100.197 (2015-16); WYO. STAT. ANN. §§ 40-1-201 to 40-1-205 (2016).

26. VT. STAT. ANN. tit. 9, § 4197(a) (2016).

27. § 4197(b)-(c).

28. § 4197(b)(1).

29. § 4197(b)(2).

30. § 4197(b)(5)-(6).

31. § 4197(c)(4)-(5).

32. § 4199(a).

33. § 4199(b).

will be sought if compensation is not paid or the infringement issue is not otherwise resolved.”³⁴ This bans a technique used by MPHJ: sending demand letters that asserted that, if the recipient did not agree to a license within two weeks, a lawsuit would be filed. In most cases, no lawsuit came.

The third model is to require demand letters to include specific information. For instance, the Illinois statute requires demand letters “inform an intended recipient or any affiliated person about the patent assertion” by including several specific pieces of information, like the sender’s identity, the patent number, and factual allegations explaining how the recipient allegedly infringes the patent.³⁵ Similarly, the Wisconsin statute requires that demand letters contain several specific types of information, including the number of each asserted patent and specific asserted claims, a copy of each patent, an explanation of the sender’s infringement theory, and a list of every pending or completed court case or administrative proceeding concerning each asserted patent.³⁶

These provisions all follow the same basic strategy of regulating patent holders’ out-of-court behavior, in the form of demand letters and threats to bring infringement suits. The laws take this form for a few reasons. One reason is almost certainly to insulate the state laws, to whatever degree possible, from being preempted by federal patent law.³⁷ But demand letters and litigation threats also give rise to substantive concerns that were particularly troubling to state lawmakers. As the Vermont attorney general testified, abusive demand letters can impose significant costs even when they represent empty threats.³⁸ Because many, perhaps most, letters are never followed by litigation, they can be sent at essentially zero marginal cost. The cost of defending a patent lawsuit, however, can be millions of dollars even for a relatively low-stakes case. So there is little downside to sending many letters, even when the merits of the infringement claim would be weak; the asymmetric stakes and limited legal knowledge of many recipients create strong incentives to pay up. And because demand letters are not public documents, it can be hard to detect new letter-writing campaigns or campaigns relying on false or misleading statements. Finally, though federal courts and lawmakers have made progress toward reform in

34. 815 ILL. COMP. STAT. 505/2SSS(b)(1) (2015).

35. 505/2SSS(b)(4).

36. WIS. STAT. § 100.197(2)(a) (2015–16)

37. See *infra* Part I.A.

38. *Trolling for a Solution: Ending Abusive Patent Demand Letters: Hearing Before the House Comm. on Energy & Commerce Subcomm. on Commerce, Mfg., & Trade*, 113th Cong. (Apr. 8, 2014) (statement of William H. Sorrell, Att’y Gen. of Vt.), <https://www.gpo.gov/fdsys/pkg/CHRG-113hhrg90884/html/CHRG-113hhrg90884.htm> [<https://perma.cc/QPM9-292C>].

many areas of patent practice,³⁹ they have not taken on abusive demand letters, leaving room for a state role.

Given these facts, it is unsurprising that states became involved. And yet, in the short time they have been in force, these laws have had little practical effect. Few cases have been brought under them.⁴⁰ And though it is possible that they deterred patent holders from enforcing patent claims against residents of the enacting states, these laws have not led to any significant decline in patent litigation brought in those states.⁴¹ Still, it may be too early to see results; if the laws ever have the effects they were designed to have, it is worth considering whether those effects are desirable.

B. State Anti-Patent Laws and Federal Preemption

Patent law is usually thought of as an exclusive creature of federal law.⁴² Patent law gets its own title (Title 35) of the United States Code, and federal courts have exclusive jurisdiction to hear cases arising under federal patent law.⁴³ Moreover, as discussed below, the Supreme Court has held that states are prohibited from creating their own patent-like rights because they would upset the balance struck by federal patent law. So there is a strong argument that anti-patent laws are preempted: although they create no new patent-like rights, they would interfere with this balance in the opposite direction, undermining the innovation incentives created by patent law. But the argument is not airtight; notably, the Supreme Court's patent-preemption case law almost

39. For citations on legislative reforms, see *supra* note 22. Judicially, the Supreme Court and the Federal Circuit have decided numerous cases since 2005 in ways that narrow patent scope, make it harder to bring abusive patent claims, or otherwise tighten patent standards. See, e.g., *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015); *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014); *Bilski v. Kappos*, 561 U.S. 593 (2010); *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc); see also Mark A. Lemley, *The Surprising Resilience of the Patent System*, 95 TEX. L. REV. 1 (2016).

40. The State of Vermont sued MPHJ under that state's law, and a North Carolina company asserted a counterclaim under that state's law after getting sued for patent infringement. See *Vermont v. MPHJ Tech. Invs.*, No. 282-5-13 Wncv, 2014 WL 5795264 at *4 (Vt. Super. Aug. 28, 2014) (denying MPHJ's motion to dismiss for lack of personal jurisdiction); Complaint, *Cirrex Systems, LLC v. Sumitomo Electric Lightwave Corp.*, No. 120140924211523, 2014 WL 4999353 (D. Del. Sept. 24, 2014); Jason D. Gardner & Stephen J. E. Dew, *North Carolina Abusive Patent Assertions Act: A Powerful Gun, but Will It Hold Up in a Gunfight?*, 17 N.C.J.L. & TECH. 391, 416 (2016).

41. See, e.g., Lemley, *supra* note 39.

42. E.g., Hrды, *supra* note 19, at 47 ("Today patent law is purely a federal creature.").

43. 28 U.S.C. § 1338(a) (2012).

exclusively addresses laws granting rights on top of those granted by the patent system, not ones cutting back on federal patent rights.⁴⁴

Federal patent law preempts many state efforts to interfere with the patent system because those efforts undermine the goals of the federal scheme.⁴⁵ As the Supreme Court has repeatedly emphasized, the patent system represents a compromise between competing goals. Patents solve a market failure: because it often costs much more to innovate and develop a new invention than it costs to copy that invention once it exists, society will under-invest in inventions absent some outside incentive to make those investments.⁴⁶ Patents provide that incentive by giving an inventor a period of exclusivity, so she can charge monopoly prices and recover that initial investment. But this exclusivity imposes a cost: monopolists charge monopoly prices, so fewer consumers can afford to purchase the seller's good.⁴⁷ So when a patented drug costs

44. Commentators have reached different conclusions on the likelihood that the state laws, or the Vermont law that launched the trend, would survive preemption analysis. See Paul R. Gugliuzza, *Patent Trolls and Preemption*, 101 VA. L. REV. 1579, 1631–35 (2015) (concluding that the Federal Circuit's preemption case law "gives courts a clear path to find some of the new state statutes invalid and to limit the application of others"); David Lee Johnson, Note, *Facing Down the Trolls: States Stumble on the Bridge to Patent-Assertion Regulation*, 71 WASH. & LEE L. REV. 2023, 2028 (2014) (concluding that "much of [Vermont's] law is likely dead letter because it is preempted by federal patent law"); T. Christian Landreth, *The Fight Against "Patent Trolls": Will State Law Come to the Rescue?*, 15 N.C.J.L. & TECH. ON. 100 (2014) (concluding that "Vermont has avoided preemption by tailoring its efforts to conform to federal guidelines"); Camilla A. Hrды, *The Reemergence of State Regulation of Patents*, 89 Colo. L. Rev. (forthcoming 2017) (concluding that under *Allen v. Riley*, 203 U.S. 347 (1906), states retain substantial power to regulate the assertion of federal patent rights).

45. This form of preemption arises when the state and federal law conflict, directly or indirectly. See generally *Hines v. Davidowitz*, 312 U.S. 52, 67–74 (1941) (asking whether a state immigration law "stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress"); ERWIN CHEMERINSKY, CONSTITUTIONAL LAW: PRINCIPLES AND POLICIES § 5.2 at 392–418 (4th ed. 2011); LAURENCE H. TRIBE, 1 AMERICAN CONSTITUTIONAL LAW § 6-28 at 1172–79 (3d ed. 2000). Two other forms of preemption do not apply in patent law: express preemption, which applies when a statute contains an express preemption clause, and field preemption, which applies when Congress has enacted a comprehensive regulatory scheme designed to occupy fully a particular field, leaving no room for state laws. See generally Gugliuzza, *supra* note 44, at 1601–08.

46. This is the standard utilitarian case for patent rights, and it is embodied in the Constitution itself. See U.S. CONST., art. I, § 8, cl. 8 ("The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries"); Roger Allan Ford, *Patent Invalidity Versus Noninfringement*, 99 CORNELL L. REV. 71, 77 n.18 (2013) (reviewing various economic explanations for the benefits of patent law).

47. This reduced output is the standard explanation of the social cost of monopolies. See, e.g., Edwin G. West, *Monopoly*, in THE NEW PALGRAVE DICTIONARY OF ECONOMICS (Steven N. Durlauf & Lawrence E. Blume eds., 2d ed. 2008).

\$440,000 for a year's supply for one patient, that allows the inventor time to recover some of its development costs, but it also means that fewer patients can benefit from the invention.⁴⁸ As a consequence, then, the patent monopoly must be carefully balanced; too strong a monopoly, and the social costs of the patent system outweigh its benefits. And uniform federal standards promote this balance: as the Supreme Court has explained, "the patent system is one in which uniform federal standards are carefully used to promote invention while at the same time preserving free competition."⁴⁹

State laws can upend this balance in either direction. State laws that try to narrow exclusive rights, compared with the rights created by the federal patent system, reduce the innovation incentives by reducing the benefits created by the patent system. State consumer-protection laws that erect barriers to bringing patent claims, for instance, make it harder for patent holders to assert legitimate patent rights, reducing the value of those rights and, thus, reducing the *ex ante* incentive to invest in new inventions. On the other hand, state laws that try to expand exclusive rights beyond the limits of patent law impinge on the public's right to use ideas from the public domain. But a robust public domain is one of the goals of the patent system, not some sort of loophole that must be closed, so these laws equally upset the patent system's balance.

This latter concern about narrowing the public domain has been key in several Supreme Court cases on the preemptive effect of patent law. For instance, in *Sears, Roebuck & Co. v. Stiffel Co.*, the Court held that a state unfair-competition law could not be used against a company that sold knock-offs of a competitor's lamp design, when the original lamp was unprotected by patent law.⁵⁰ The Court explained that the patent system exists to solve an economic problem: "Patents are not given as favors, . . . but are meant to encourage invention by rewarding the inventor with the right, limited to a term of years fixed by the patent, to exclude others from the use of his invention."⁵¹ But once that exclusivity has expired, the public's interest takes over: "[I]n rewarding useful invention, the rights and welfare of the community must be fairly dealt with and effectually guarded. To that end the prerequisites to obtaining a patent are strictly observed, and when the patent has issued the limitations on its exercise are equally strictly

48. See Matthew Herper, *How a \$440,000 Drug is Turning Alexion Into Biotech's New Innovation Powerhouse*, FORBES (Sept. 24, 2012), <https://www.forbes.com/sites/matthewherper/2012/09/05/how-a-440000-drug-is-turning-alexion-into-biotechs-new-innovation-powerhouse/#4d7b1af525e1> [https://perma.cc/manage/create].

49. *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 230–31 (1964).

50. *Id.* at 232–33; see also *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234, 238 (1964) (companion case).

51. *Sears, Roebuck & Co.*, 376 U.S. at 229.

enforced.”⁵² And since the patent laws exist to promote both new innovations and a robust public domain, states cannot interfere with the balance Congress has struck between these competing objectives. This is true regardless of the specific means employed: “Just as a State cannot encroach upon the federal patent laws directly, it cannot, under some other law, such as that forbidding unfair competition, give protection of a kind that clashes with the objectives of the federal patent laws.”⁵³

Twenty-five years later, the Court expressed many of the same concerns in *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*⁵⁴ In that case, the Court struck down a state law making it illegal to use specific techniques to copy the design of a boat hull, or to knowingly sell a boat made using those techniques.⁵⁵ The Court observed that patent law “embodied a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy.”⁵⁶ And the Court emphasized that both sides of the equation were equally important: while intellectual property provides important incentives to create new things, at the same time “the efficient operation of the federal patent system depends upon substantially free trade in publicly known, unpatented design and utilitarian conceptions.”⁵⁷ State laws that interfered with this robust public domain would be just as great an obstacle to the objectives of patent law as would laws that interfered with patent rights in the first place.⁵⁸

The laws at issue in *Sears, Roebuck & Co.* and *Bonito Boats* created exclusivities that did not exist under federal law; the Court has not dealt with state laws seeking to interfere with exclusivities that are created by federal law. But it is likely that the Court’s reasoning would apply to those laws as well. If patent law is a careful balance between competing interests in encouraging innovation and encouraging a robust public domain, then state laws that diminish the precise tool federal law uses to encourage innovation—the grant of patent rights—are just as

52. *Id.* at 230 (quotations and citations omitted).

53. *Id.* at 231.

54. 489 U.S. 141, 167 (1989).

55. *Id.* at 143–44.

56. *Id.* at 146.

57. *Id.* at 156.

58. *See id.* at 156–57 (“A state law that substantially interferes with the enjoyment of an unpatented utilitarian or design conception which has been freely disclosed by its author to the public at large impermissibly contravenes the ultimate goal of public disclosure and use which is the centerpiece of federal patent policy.”).

harmful to that balance as laws that narrow the public domain.⁵⁹ That alone may be enough to find the state anti-patent laws preempted by federal law. But they also interfere with federal patent in another way: by reducing the nationwide uniformity of that law. The Court has been especially concerned about laws that threaten uniformity, since the “inherently ephemeral nature of property in ideas [and the] great power such property has to cause harm to the competitive policies which underlay the federal patent laws” create a risk of rent seeking by locally important industries.⁶⁰

The best hope for upholding state anti-patent laws likely lies in the Supreme Court’s decision in *Kewanee Oil Co. v. Bicron Corp.*,⁶¹ which upheld state trade-secrecy laws against a preemption challenge.⁶² Trade-secrecy laws extend limited protections to trade secrets—information that derives economic value from its secrecy. Trade-secrecy laws potentially conflict with federal patent law because inventors can often choose whether to protect their inventions with patents, disclosing them to the world in exchange for limited exclusivities, or by choosing not to disclose and instead protecting them as trade secrets.⁶³ The Court upheld the statutes. It reasoned, in part, that trade-secrecy law largely serves different purposes than patent law, working to encourage standards of commercial ethics and encouraging innovation, rather than encouraging the disclosure of new inventions to the public.⁶⁴ But the most significant piece of the opinion analyzed the effect of trade-

59. *But see* Paul Heald, *Federal Intellectual Property Law and the Economics of Preemption*, 76 IOWA L. REV. 959, 969 (1991) (“Preemption occurs when analysis of protection criteria reveals a direct conflict between state and federal patent law. The decisions, however, do not authorize courts to strike down state laws simply because they do not provide for optimally efficient results. . . . A state law which upsets the balance as actually struck by a federal statute (inefficient though it may be) cannot be immunized from attack by a court which purports to find it ‘efficient.’”) (footnotes omitted).

60. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 162–63 (1989) (citing *Ray v. Atlantic Richfield Co.*, 435 U.S. 151, 179 (1978)).

61. 416 U.S. 470 (1974).

62. *Id.* at 493.

63. Since *Kewanee Oil*, both the federal government and nearly all states have adopted trade-secrecy laws. *See* Defend Trade Secrets Act of 2016, Pub. L. No. 114-153, 130 Stat. 376; Uniform Trade Secrets Act § 1.4 (1985) (defining “trade secret”); §§ 2–3 (providing for injunctive relief and damages when someone misappropriates a trade secret).

64. This reasoning has been much criticized. *See, e.g.*, Dan L. Burk, *Protection of Trade Secrets in Outer Space Activity: A Study in Federal Preemption*, 23 SETON HALL L. REV. 560, 623–26 (1993); Sharon K. Sandeen, *Kewanee Revisited: Returning to First Principles of Intellectual Property Law to Determine the Issue of Federal Preemption*, 12 MARQ. INTELL. PROP. L. REV. 299, 312–13, 322 (2008); Andrew A. Schwartz, *The Corporate Preference for Trade Secret*, 74 OHIO ST. L.J. 623, 636 (2013). *But see* Heald, *supra* note 59, at 974–82.

secrecy laws on those incentives to disclose inventions. The Court concluded that the effect was limited, since most trade secrets are either clearly not patentable inventions, in which case there is no tradeoff, or are of dubious patentability, in which case trade secrecy might actually help weed out invalid patents.⁶⁵ The Court acknowledged that clearly patentable inventions present the greatest problem for trade-secrecy law since in those cases the tradeoff between patents and trade secrets is most likely to affect inventors' behavior. The Court concluded, though, that because a patent provides a much greater reward than a trade secret, the effect on the incentives set up by the patent system would be minimal.⁶⁶

The Court's reasoning can be criticized for relying on empirical assumptions without sufficient supporting data,⁶⁷ but if its assumptions are correct, then state anti-patent laws might be safe. Those laws reduce the upside from patent protection, just like trade-secrecy laws do, but they do not upset the fundamental bargain underlying the patent system: an inventor who obtains a patent still gets a limited term of exclusivity in exchange for inventing something new and disclosing that invention to the world. Nor do they create new exclusivities rights or deprive the public of any public-domain knowledge, like the laws at issue in *Sears* and *Bonito Boats*. Instead, they tweak the costs of asserting patent rights, just like state unfair-competition laws or changes in civil procedure.

The Supreme Court's case law, then, can be read to suggest that state anti-patent laws either are or are not preempted by federal patent law. The Federal Circuit has taken a slightly different approach to resolving patent-law preemption issues, one under which the laws are more clearly in trouble. In a series of cases involving state tortious-interference and unfair-competition laws, the Federal Circuit has held that state laws survive if and only if they require bad faith on the part of the patent holder.⁶⁸ So, for instance, in *Zenith Electronics Corp. v.*

65. *Kewanee Oil*, 416 U.S. at 484–89.

66. *Id.* at 489–91.

67. Alternatively, perhaps the Court properly found that the state laws' challengers failed to meet their burden to show that federal patent law was undermined. *E.g.*, Heald, *supra* note 59, at 981.

68. *See, e.g., Zenith Elecs. Corp. v. Exzec, Inc.*, 182 F.3d 1340, 1355 (Fed. Cir. 1999); *Hunter Douglas, Inc. v. Harmonic Design, Inc.*, 153 F.3d 1318, 1322, 1336–37 (Fed. Cir. 1998); *Dow Chem. Co. v. Exxon Corp.*, 139 F.3d 1470, 1476–77 (Fed. Cir. 1998). In an extensive analysis of the Federal Circuit's cases, Paul Gugliuzza concluded that the Federal Circuit's rule is better considered an extension of *Noerr-Pennington* antitrust immunity than as a traditional preemption test. *See* Gugliuzza, *supra* note 44, at 1616–28; *see also United Mine Workers of Am. v. Pennington*, 381 U.S. 657 (1965); *E.R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127 (1961).

Exzec, Inc.,⁶⁹ Exzec brought a counterclaim alleging that Zenith had falsely informed potential Exzec customers that its product infringed Zenith's patents, so that the potential customers would purchase from Zenith instead.⁷⁰ Under the Federal Circuit rule, this counterclaim could only survive if Exzec proved that Zenith's assertions about its patents were made in bad faith, because under federal patent law, patent holders have a right to enforce their patent rights unless they have no good-faith reason to think those assertions could have merit.⁷¹

At first glance, Vermont's law and the state laws modeled on it look well designed to fit within this case law, since they purport to prohibit only patent assertions made in "bad faith."⁷² The "bad faith" of the Federal Circuit's preemption test, however, bears little resemblance to the "bad faith" of Vermont's law. Under the Federal Circuit's test, for a state-law tort to apply when a patent holder seeks to enforce her patent, the patent holder must engage in subjective bad faith and the underlying patent claim must be objectively baseless.⁷³ No amount of bad behavior by a patent holder is, by itself, enough to qualify as unfair competition or tortious interference or any other state-law tort, so long as there is some reasonable basis for the patent claim. The Vermont law's conception of bad faith is not so limited. Most of the factors that determine good faith have little to do with classic conceptions of bad faith, subjective or objective; instead, most go to whether the patent holder has provided the enforcement target with sufficient time and information to provide a reasonable response.⁷⁴ A court might construe the law to require subjective and objective bad faith; indeed, the Federal Circuit's cases suggest that this is required. But on the whole, the Vermont factors are directed to the problem Vermont was trying to solve—patent enforcement against small businesses and other vulnerable targets—rather than the problem bad-faith patent enforcement.

Two major conclusions can be drawn from this analysis. First, since federal courts have almost uniformly struck down state laws seeking to expand patent protections, and since laws seeking to limit them are subject to many of the same attacks, there are strong arguments that state efforts to set patent policy are likely to be

69. 182 F.3d 1340 (Fed. Cir. 1999).

70. *Id.* at 1343.

71. *See Dow Chem.*, 139 F.3d at 1476.

72. *E.g.*, VT. STAT. ANN. tit. 9, § 4197(a) (2016) ("A person shall not make a bad faith assertion of patent infringement."). Of course, not all the state anti-patent laws even purport to require bad faith. *See, e.g.*, 815 ILL. COMP. STAT. 505/2SSS(b)(1) (2015); WIS. STAT. § 100.197 (2015–16).

73. *Globetrotter Software, Inc. v. Elan Comput. Grp.*, 362 F.3d 1367, 1374–77 (Fed. Cir. 2004).

74. *See* tit. 9, § 4197.

preempted. Second, at the same time, there is enough uncertainty in this outcome to give state laws some room to have an effect.

II. THE EASY CASE AGAINST PATENT FEDERALISM

Since the conventional wisdom is that the patent system depends on uniformity, there must be good arguments against state involvement. This Part explains that case. Courts and policymakers have long assumed that uniformity is unusually important in patent law; indeed, this belief drove the creation of the United States Court of Appeals for the Federal Circuit.⁷⁵ Disrupting this uniformity would undermine the careful balance federal law strikes between encouraging innovation and competition. It would do so both by changing that balance directly and by increasing compliance costs. To be sure, these arguments are not airtight; indeed, they rely on several key assumptions that may be questionable. But they are strong enough that they should give state policymakers pause before they enact their own patent policies.

First, as discussed above, and as the Supreme Court has repeatedly emphasized in its preemption decisions, state laws threaten to upset the delicate balance patent law strikes between competing goals: providing innovation incentives while also promoting competition and a robust public domain.⁷⁶ While the Court has embraced this reasoning for doctrinal reasons, to demonstrate how state law can act as an obstacle to achieving patent law's goals, it also demonstrates how state laws can be normatively problematic. If patent law provides the right balance of innovation and competition—and this is a big *if*, to which I will return later⁷⁷—then state patent policies can only make things worse by hindering innovation incentives or competition.⁷⁸

Different state laws would have different effects on this balance. A state law that granted state-specific patent rights, for instance, would have a greater effect than one that imposed a small tax on companies licensing patent rights; both would create marginal innovation incentives, but the scale of those incentives would be quite different. The effect of a Vermont-style law on innovation incentives may be small. Such laws merely make certain specific enforcement actions

75. See Paul R. Gugliuzza, *Rethinking Federal Circuit Jurisdiction*, 100 GEO. L.J. 1437, 1453–58 (2012) (recounting the history of the creation of the Federal Circuit).

76. See *supra* notes 50–58 and accompanying text.

77. See *infra* Part V.

78. Again, it is worth emphasizing that this conclusion depends on the (rather dubious) assumption that the federal patent system strikes the optimal balance between innovation incentives and competition; if, instead, patent law over-weighted one factor or the other, then state laws upsetting the federal-law balance might be welfare-enhancing. See *infra* note 82.

harder, rather than making it harder to enforce patents generally. And regardless, the effect of any one state's law is necessary attenuated in a nation made up of fifty states. But if the law has any effect at all, it will necessarily be felt on the margins, with some investors deciding the benefits of patent protection are no longer great enough to make an investment worthwhile. And when multiple states enact similar laws, this effect is magnified. Given these effects, then, we can expect some inventions that would have been made under the uniform federal patent system—or, at least, some *patents* that would have been obtained under the uniform system—not to happen if the state anti-patent laws have any effect. This is the key social cost of such laws.

Second, the nationwide uniformity of the patent system helps accomplish the patent system's dual goals because it makes it easier for businesses to invest and rely on patent protections without having to navigate fifty different intellectual-property systems. Otherwise, the cost of complying with fifty state intellectual-property regimes, and optimizing business strategy consistent with those laws, would be prohibitive for many businesses. And the marginal cost of a state-dependent patent system is likely to be high, since the cost of complying with multiple state laws will be disproportionately concentrated in precisely the businesses that are most reliant on intellectual property. This is so because businesses that invent new things and rely on patent protections are unlikely to limit their operations to one state; for one thing, such a business would be sacrificing the value of its patent rights attributable to the markets of the other forty-nine states (to say nothing of international markets).

In a uniform federal patent system, even a small business can have a nationwide presence, because there are only a small number of activities required to monetize patent rights, and those activities are the same from state to state. A patent holder enforcing patent rights typically would send demand letters, negotiate license agreements, and file infringement lawsuits when necessary.⁷⁹ But all those activities work the same no matter where the enforcement target is located; even the court system applies the same law, thanks to the Federal Circuit's nationwide appellate jurisdiction.⁸⁰ In contrast, when states impose their

79. A patent holder usually need not provide any pre-suit notice, but doing so can often give the same outcome—money, in the form of payment for a license—at lower cost than filing a preemptive lawsuit. The exception arises when a patent holder sells a product embodying the patented invention but does not mark the product as patented; then, the patent holder must provide pre-suit notice or cannot collect infringement damages. *See* 28 U.S.C. § 287 (2012).

80. *See* § 1295(a)(1) (vesting exclusive appellate jurisdiction in patent-infringement cases in the Federal Circuit); *see also* § 1295(a)(4) (same, for administrative appeals from the Patent and Trademark Office). District courts do have local rules that vary from court to court, of course, but the effect of such variations is

own requirements on patent assertions, a patent holder must consider each state's requirements separately. For instance, several state anti-patent laws impose substantive requirements on the contents of demand letters;⁸¹ a patent holder engaging in a widespread enforcement campaign, then, would have to work to ensure, at considerable expense, that each demand letter complies with the relevant state's laws. And if it is ever unclear which state law applies, or if multiple state laws could apply (for instance, if the state in which the sender is located imposes requirements on letters sent from that state, while the recipient's state imposes different requirements on letters sent to that state), then choice-of-law and conflicts-of-law problems could complicate matters.

Third, and most troubling, is the possibility of rent seeking, with state patent policies representing efforts by state lawmakers to enrich their constituents at the expense of out-of-state companies. This is possible because not all states are alike; some produce a disproportionate share of patentable innovation, while others disproportionately consume those innovations (in the form of licenses or innovative new products). If each state is able to set its own intellectual-property agenda, then states that disproportionately produce innovation should adopt disproportionately strong intellectual-property protections; states that disproportionately consume innovation should, likewise, adopt weaker protections.⁸² Patent holders in innovator states, then, would have less ability to enforce their patents against potential defendants in consumer states, because it would be more costly to do so and could subject them to liability. Likewise, potential defendants in consumer states would have greater ability to use patented technology without agreeing to license terms or risking a lawsuit. The result would be a wealth transfer from out-of-state patent holders to potential defendants in states that disproportionately consume innovation. And

small in the grand scheme of patent litigation, a costly endeavor. *See, e.g.*, REPORT OF THE ECONOMIC SURVEY 2011, AM. INTELLECTUAL PROP. LAW ASS'N at I-153 (2011) (finding, in a survey of patent lawyers, that the median cost of litigating a patent case to final decision was \$2.5 million when \$1 million to \$25 million was at stake and \$5 million when more than \$25 million was at stake).

81. *See supra* notes 35–36 and accompanying text.

82. This does not require assuming that strong intellectual-property protections lead to more innovation. Instead, the causation is the reverse: if innovators believe they would benefit from strong intellectual-property protections, then states with a disproportionately large number of innovators (who would, presumably, have disproportionately large political influence) should adopt stronger protections. Likewise, if consumers of innovation believe they would benefit from weaker protections, then states with more innovation consumers should adopt weaker protections. There could be second-order effects as well, for instance if an innovation-consumer state enacted strong IP protections to encourage more innovations to consume. But these effects are likely to be much smaller than the first-order effects.

while this effect would be on the margins—patent holders would still bring some patent lawsuits in consumer states, and would undertake the effort in some cases to comply with heightened notice requirements—it could have a significant effect on marginal innovation.

Indeed, there are reasons to think this effect could be greater than it seems, because selection effects could magnify the harm to innovation. If a random subset of states enacts anti-patent laws, then patent holders would face greater difficulties enforcing their patents against those customers who happen to be located in those states. This is an added cost, but one limited by the number of states that enact laws and the strength of those laws. However, if states that disproportionately consume patentable inventions are more likely to enact these laws, then the best markets for patent holders become more difficult to access. The effect on patent holders, then, is not merely proportional to the number of states that enact anti-patent laws, or the populations of those states; it is magnified by the degree to which states rent seek.

To be sure, none of these arguments is without flaws. The Supreme Court's preemption decisions are explicitly based on the premise that patent law strikes a careful balance between encouraging innovation and competition.⁸³ But what if federal law has struck the wrong balance, or has done so using the wrong tools?

In that case, state patent policies could have a welfare-enhancing role, because they could help correct the errors in federal patent law. They could do this in different ways. One possibility is direct: if federal law is tilted too far in the direction of innovation incentives at the expense of competition, or vice versa, then state laws limiting the scope or effect of patent rights might help undo this tilt.⁸⁴ If the federal patent system is too protective of patent holders, then, state laws weakening federal patent rights would help move the overall legal system toward the optimal point. Indeed, Part III will argue that this is the case.

Another possibility is indirect: if we are uncertain about patent law's optimal balance, or about the best means of obtaining that optimal balance, then variation between state policies could help scholars and policymakers determine the best policies. Indeed, Lisa Ouellette has proposed that experimentalism in patent policy would help solve several hotly contested issues in patent law, including the basic questions of whether the marginal incentives that patents provide to innovate, commercialize new innovations, and disclose those innovations to the

83. See *supra* notes 50–58 and accompanying text.

84. *E.g.*, Hrdy, *supra* note 17.

world are worth their tradeoffs.⁸⁵ State patent policies would still cause problems: the increased legal costs for firms would be significant. But if they provide marginally valuable incentives, or valuable information about the best approach to those incentives, then those benefits might outweigh the costs.

These points suggest that many of the strongest arguments in support of state patent policies are really arguments about the federal patent system. If the federal patent system is serving its intended purposes, then the arguments against state involvement present strong reasons to think that there would be little benefit to getting states involved. If the federal system has problems, though, or even just specific features that could be improved, then states could play a positive role. And this suggests that arguments in support of patent federalism must be rooted, to a significant degree, in criticisms of the federal patent system and must be tailored to address those criticisms. The next Part makes that case.

III. THE SUBSTANTIVE CASE FOR LIMITED PATENT FEDERALISM

If state patent laws suffer from the flaws described in the last Part, then the burden is high to justify state attempts to meddle in patent policy. This Part provides a substantive case for a limited form of patent federalism: Vermont-style laws that seek to make it harder to bring patent-infringement claims. This is concededly an outcome-driven argument, not one rooted in any principles of federalism. It stems from the premise that the federal patent system has not settled at the best balance between innovation and competition, or the best means of achieving that balance. Instead, it assumes, federal patent law is distorted in favor of patent holders and has chosen means that are too costly for accused infringers. If those premises are correct, then state anti-patent laws could help provide helpful reforms.

There is a near-consensus that the federal patent system has problems. The Patent Office routinely grants invalid patents; patent trolls routinely bring nuisance cases asserting those invalid patents; and juries routinely hand out enormous damage awards to patent holders who never really invented anything, at the expense of companies developing successful products that really do benefit society. Or, at least, that is a common narrative; and while this narrative may be overstated, it contains some truth. States, in turn, can help restore the

85. See Ouellette, *supra* note 17. To be sure, Ouellette concludes that experimentalism should come from centrally controlled randomized trials, not through unconstrained state-centered variation.

balance between innovation and competition by moving the broader system closer to the optimal point.

A. The Flawed Federal Patent System

Most patent scholars agree that the modern patent system does an imperfect job of encouraging innovation. This section highlights four common critiques: that the Patent Office grants low-quality patents; that patent holders bring nuisance lawsuits designed to extract settlements rather than enforce legitimate patent rights; that patent trolls and other nonpracticing entities bring cases against productive companies, extracting royalties for products that owe little or nothing to the patentees' work; and that patent holders bring claims against end users and other defendants with low bargaining power.

The goal of this section is not to show that these critiques are correct; rather, I take it as an assumption that they apply to the patent system, or at least to significant parts of that system. Rather, my aim is to highlight critiques that are especially relevant for state anti-patent laws. These are, of course, not the only criticisms of the patent system,⁸⁶ but they are the ones that state anti-patent laws are designed to target and on which such laws are likely to have the greatest effect.

1. THE PATENT-QUALITY CRITIQUE

The patent system's biggest problem may be patent quality, with examiners granting many problematic patents. These problems fall into various categories. Some patents cover inventions that are not actually new, or are not meaningfully different from what came before.⁸⁷ Others claim inventions broader than what an inventor actually invented, or fail to inform practitioners how to make and use the claimed invention.⁸⁸ Still others are vague about what they claim, or have claims that seem deliberately obfuscated or designed to be difficult to compare

86. Other criticisms include both the broader, *see, e.g.*, BOLDRIN & LEVINE, *supra* note 21 (arguing for the complete elimination of the patent and copyright systems); and the narrower, *see, e.g.*, BURK & LEMLEY, *supra* note 21 (arguing that the patent system should take greater account of differences from industry to industry).

87. Such patents fail patent law's novelty and nonobviousness requirements. *See* 35 U.S.C. §§ 102, 103 (2012) (novelty and nonobviousness, respectively). Whether or not a patent satisfies these requirements is the most basic definition of patent quality. *See generally* Christi J. Guerrini, *Defining Patent Quality*, 82 *FORDHAM L. REV.* 3091 (2014); R. Polk Wagner, *Understanding Patent-Quality Mechanisms*, 157 *U. PA. L. REV.* 2135 (2009).

88. Such patents may fail patent law's written-description and enablement requirements. *See* 35 U.S.C. § 112 (2012); *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 (Fed. Cir. 2010) (en banc).

to real-world products.⁸⁹ These quality problems are surprising at first glance, since patent law is the only major form of intellectual property in which obtaining rights requires a detailed, substantive examination by an expert examiner.⁹⁰ Yet there are several reasons quality problems persist.

One set of factors stems from the examination process itself. Patent examination is an *ex parte* process, so examiners do not have the benefit of adversarial presentation by parties on both sides of a dispute; instead, they see only information and arguments tending to show that an applicant is entitled to a patent. Though examiners are supposed to conduct independent prior-art searches to overcome this limitation, they have limited time to do so. Examiners also have skewed incentives: they are rewarded (in productivity measures and bonuses) for granting patents and penalized (in increased workload) for rejecting patent applications. This stems from one of the stranger quirks of the United States patent system, under which an application can never be conclusively rejected by an examiner; instead, an applicant can always revive an application after rejection. So for examiners, the only certain way to get a file off one's desk is to grant the application.⁹¹

These examination limitations are compounded by applicants' incentives to obtain vague patents claims. Applicants want to obtain patents as quickly and cheaply as possible while also ensuring that those patents will prove valuable; both goals can be furthered by writing vague claims. Vague claims can help an application move quickly through examination, since they can make it harder to find relevant prior art or to know if that prior art would invalidate the claims. And they help an applicant respond when an examiner issues a rejection, since vague claims can be twisted or interpreted flexibly to overcome whatever prior art an examiner does find. Vague claims are most valuable, though, after a patent is granted, since they can be asserted against a broader array of products and services, and since they can be interpreted after the fact to track industry developments. Patent law's

89. *E.g.*, Jeanne C. Fromer, *Claiming Intellectual Property*, 76 U. CHI. L. REV. 719, 757–67, 772–81 (2009); Jeanne C. Fromer, *Patent Disclosure*, 94 IOWA L. REV. 539, 552 (2009); Mark A. Lemley, *The Myth of the Sole Inventor*, 110 MICH. L. REV. 709, 746 (2012).

90. Both copyright and trademark law employ systems of examination and registration, but in neither case is that system a meaningful substantive limitation on rights. In the copyright system, rights arise the moment a work is fixed in a tangible medium of expression; registration is a formality, and examination simply assures that a registered work is among the categories of works eligible for protection. *See* 17 U.S.C. §§ 102(a), 408–411 (2012). And in the trademark system, registration provides benefits, such as constructive nationwide notice of a trademark holder's claim, but a trademark can be protected whether or not it is ever registered. *See* 15 U.S.C. §§ 1052, 1072, 1114(1), 1125(a) (2012).

91. *See generally* Ford, *supra* note 46, at 87–91.

indefiniteness doctrine is designed to prevent applicants from obtaining overly vague claims, but in practice imposes minor obstacles.⁹²

There are also innocuous sources of low patent quality. Because patents by their very nature deal with the cutting edge, it may inherently be harder to precisely describe a new invention than something conventional, since terminology may not yet exist to describe the invention. And even when a patent originates in a longstanding field, words can rarely be stripped of all ambiguity; patent law has long assumed that language has inherent ambiguities that make it impossible to craft perfect patent claims, or at least that patent drafters have incentives to use such ambiguous language.⁹³

These patent-quality problems also feed into the nuisance-litigation and patent-troll critiques, discussed below, because they make it easier to obtain and enforce patent rights, even when those patent rights are undeserved or that enforcement is abusive.

2. THE PATENT-TROLL CRITIQUE

The most common, and most commonly debated, critique of the patent system in recent years is that it is overrun with patent trolls, or nonpracticing entities, or licensing firms—all names for firms that assert patent rights without making anything themselves. These firms are a problem, the critique goes, because they extract judgments or settlements from companies producing products without contributing any value to those products, or to society.

To a significant degree, patent trolls may be symptoms of other problems in the patent system rather than a problem in their own right.⁹⁴ For instance, they sometimes extract settlements by bringing nuisance litigation; then there is essentially no difference between the patent-troll critique and the nuisance-litigation critique addressed in the next section.⁹⁵ Other times, trolls bring reasonably strong patent claims,

92. See generally *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014).

93. E.g., BESSEN & MEURER, *supra* note 21, at 57; Dan L. Burk & Mark A. Lemley, *Fence Posts or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PA. L. REV. 1743, 1745–46 (2009); Tun-Jen Chiang, *Forcing Patent Claims*, 113 MICH. L. REV. 513 (2015); Oskar Liivak, *Rescuing the Invention from the Cult of the Claim*, 42 SETON HALL L. REV. 1, 40 (2012).

94. E.g., Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013).

95. See, e.g., Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 477 (2014) (noting “bottom feeder” trolls, which “make demands of many companies at once in order to get nuisance settlements”); David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 370 (2012) (noting that lawyers at the “bottom” of the contingent-fee patent bar often represent non-practicing entities).

and the critique must be rooted elsewhere. One possibility is some sort of asymmetry between trolls and practicing entities, for instance because practicing entities face constraints that trolls do not.⁹⁶ Another possibility is that trolls are more likely to engage in abusive tactics or behave in ways that reveal other flaws in the patent system.⁹⁷ Yet the evidence is weak that trolls behave differently from other patent holders, at least in the aggregate; instead, they appear to get more attention for essentially the same behavior that other patent holders undertake.⁹⁸

Moreover, there are reasons to think that trolls can be socially beneficial. The troll label applies when a patent holder does not practice the claimed invention, but there is no reason to expect those who are good at inventing new technologies to also be good at commercializing those technologies. Just as specialization in the broader economy leads to gains from trade, patent trolls may efficiently separate invention from commercialization. Universities are the classic example: universities are very good at inventing new technologies, but they lack the expertise in operations, manufacturing, sales, and management to build those technologies into viable businesses. So they routinely license their intellectual property to others to commercialize, and they routinely assert those intellectual-property rights against non-licensees.⁹⁹ And the same story can be told about other non-practicing entities. When an inventor develops a new technology but fails to commercialize it, she may nevertheless have created significant potential value—value that may be realized when others succeed in commercializing the invention.¹⁰⁰

96. *E.g.*, Lemley & Melamed, *supra* note 94, at 2129–46 (discussing the argument that trolls are uniquely unconstrained because they cannot be deterred by the threat of competitive responses, and concluding that the argument is unpersuasive).

97. *E.g.*, *id.* at 2146–66.

98. *E.g.*, *id.* at 2166–70.

99. Though if universities are good at inventing new technologies, they may be surprisingly bad at monetizing those inventions. See Brian J. Love, *Do University Patents Pay Off? Evidence from a Survey of University Inventors in Computer Science and Electrical Engineering*, 16 *YALE J.L. & TECH.* 285 (2014).

100. This story is significantly undercut, of course, when the successful commercializer is also an independent inventor; in that case, the unsuccessful first inventor really has contributed little to society. But the basic premise of the patent system is that rewarding the first inventor leads to greater innovation in the long run, both because it encourages earlier invention and because it leads to disclosure of new inventions. If this basic premise is true—and it is a fundamental and hotly contested premise—then the occasional failure is a necessary cost of the enterprise.

3. THE NUISANCE-LITIGATION CRITIQUE

A variant of the patent-troll critique focuses on the most problematic troll behavior: bringing nuisance litigation that is designed to exploit litigation costs and asymmetric bargaining power to extract nuisance settlements.

As I have discussed in previous work, a combination of features of the patent system encourages applicants to seek patents even when their primary value is nuisance value.¹⁰¹ Patent litigation is extraordinarily expensive—defending a case can cost hundreds of thousands or millions of dollars even in relatively simple cases.¹⁰² And because much of this cost comes from discovery, which can include wide-ranging discovery both into the technical details of the defendant's products (for the merits of the patent case) and into the defendant's sales, profitability, and licensing practices (for damages), it usually cannot be avoided through dismissal or summary judgment.¹⁰³ So almost any patent lawsuit—including even a nakedly unmeritorious suit—has a nuisance settlement value in the tens or hundreds of thousands of dollars; even such a settlement would cost far less than litigating the case.¹⁰⁴ At the same time, in general, it can cost \$20,000 to \$30,000 to prosecute a patent application, far less than the nuisance settlement value of a typical patent.¹⁰⁵ So it is worth getting even a low-quality patent, and given the

101. See Roger Allan Ford, *The Patent Spiral*, 164 U. PA. L. REV. 827, 841–54 (2016).

102. REPORT OF THE ECONOMIC SURVEY 2011, AM. INTELLECTUAL PROP. LAW ASS'N at I-153 to I-154 (2011) (reporting median costs of litigating patent cases, through trial, of \$650,000 in cases with less than \$1 million at stake and \$5 million when more than \$25 million was at stake).

103. A notable exception to this arises when a patent fails to claim patentable subject matter under 35 U.S.C. § 101 (2012). Since the Supreme Court's decision in *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014), district courts have granted numerous motions to dismiss patent cases after concluding that the asserted claims were directed to unpatentable abstract ideas. See, e.g., Michael D. Wilburn et al., *Pretrial Dismissals and Judgments in Post-Alice Courts*, ALSTON & BIRD LLP (Apr. 23, 2015), <http://www.alston.com/publications/pretrial-dismissals-and-judgements-in-post-alice-courts/> [<https://perma.cc/FJV5-C54S>]. With software patents and business-method patents, in particular, dismissal under *Alice* may prove to be a significant impediment to nuisance litigation. *Id.* But it is not a universal solution, since the patents that are likely to be vulnerable under the *Alice* test are almost entirely software patents and business-method patents. *Id.*

104. E.g., Schwartz, *supra* note 95, at 369–70 (“Often these lawyers [at the ‘bottom’ of the contingent-fee market] will propose settlement amounts that are lower, often far lower, than the amount that it will cost an accused infringer to defend itself. . . . Sometimes the demands are as low as \$5,000 or \$10,000.”).

105. See, e.g., David Fagundes & Jonathan S. Masur, *Costly Intellectual Property*, 65 VAND. L. REV. 677, 689–90 (2012) (estimating that “an average patentee will spend approximately \$22,000 to successfully prosecute a patent application”); Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495,

quality problems discussed in the last subsection, it is readily possible to do so.¹⁰⁶

Empirical evidence suggests that nuisance litigation plays a role in the patent system, though it is hard to tell how significant that role is. One indicator that nuisance suits may represent a large fraction of patent cases is the number of cases that settle quickly, within 180 days of filing. Between 2000 and 2013, 33.3% of the 43,166 patent lawsuits filed were terminated in PACER within 180 days of filing.¹⁰⁷ This is notable because six months is practically instantaneous in the time scale of high-stakes commercial litigation; patent cases that are resolved on the merits typically take two, three, or more years just to be resolved in the district court. So these quickly resolved cases generally represent settlements, walk-away agreements, or unilateral dismissals by plaintiffs. And the more quickly a case is settled, the more likely it is to be a nuisance settlement, since settlements that occur before significant discovery has taken place are more likely designed to avoid litigation costs and since the parties are less likely before discovery to have enough information to evaluate the merits of the case. The more cases that settle quickly, then, the more we should expect to see nuisance cases.

Another indicator of the role that nuisance suits play in the patent system comes from surveys of frequent patent defendants. For instance, RPX Corp., a firm that buys patents to prevent them from being asserted against corporate clients, has found in surveys of its clients that more than half of lawsuits brought by non-practicing entities were settled within six months.¹⁰⁸ And in another RPX study, this one of patent settlements, the firm found that attorney fees and litigation costs exceeded settlement payments in all but the most expensive category of cases.¹⁰⁹

1498 & n.13 (2001) (estimating that “the general range of costs for prosecuting a patent from start to finish . . . appears to be \$10,000 to \$30,000 per patent”). The total will vary from patent to patent depending on the invention’s complexity and other factors.

106. I develop this point in greater detail in Ford, *supra* note 101.

107. These numbers are calculated from a dataset provided by Lex Machina, which compiles information about intellectual-property litigation in federal courts. See LEX MACHINA, <http://www.lexmachina.com/> [<https://perma.cc/PE9V-GK2P>] (last visited Mar. 30, 2017). I discuss this method at Ford, *supra* note 101, at 861–62. For information on the advantages of relying on Lex Machina, compared to other sources like LexisNexis, Westlaw, and PACER, see John R. Allison et al., *Understanding the Realities of Modern Patent Litigation*, 92 TEX. L. REV. 1769, 1772–73 (2014).

108. 2013 NPE LITIGATION REPORT, RPX CORP. at 37 (2014), <http://www.rpxcorp.com/wp-content/uploads/2014/01/RPX-2013-NPE-Litigation-Report.pdf> [<https://perma.cc/72RQ-2MA8>].

109. 2012 NPE COST STUDY: HIGH-LEVEL FINDINGS, RPX CORP. at 9 (2013), <http://www.rpxcorp.com/wp-content/uploads/2013/07/RPX's-NPE-Cost-Study-results.pdf> [<https://perma.cc/M7U7-QZXG>].

4. THE END-USER-LITIGATION CRITIQUE

A related critique that has recently been made of the patent system is that it is too easy for patent holders to sue end users of a product rather than the company that makes and sells the product. Under American patent law, a patent holder has the choice of whom to sue, since making, using, selling, offering to sell, and importing a patent invention all constitute infringement.¹¹⁰ In the scanner-troll cases, for instance, the patent holders could have targeted the companies that made the scanners, or the stores that sold them; instead, they targeted the small businesses that used them to scan documents.¹¹¹ As a matter of doctrine, there is nothing wrong with this; if the scanners embodied a patented invention, then using them is just as infringing as making and selling them would be.¹¹²

Even though it is perfectly legal, we should still be wary of end-user patent litigation because it should be less efficient than pursuing upstream manufacturers and sellers. If a patent holder has to sue thousands of small businesses that use networked scanners, for instance, that requires wasteful duplication of demand letters, complaint drafting, filing fees, and so forth. When a patent holder nevertheless elects to sue end users, we should ask why it is voluntarily taking on higher costs. And the likely answer is not good: suing end users suggests that the patent holder relies less on the underlying merits of the claim and more on asymmetric bargaining power to extract settlements. If the legal merits of the claim were strong, then a patent holder should be able to get the same damages suing the manufacturer as suing end users, since the usual measures of patent damages, lost profits and a reasonable royalty, generally scale linearly with the number of units sold.¹¹³ But if the goal is to use the threat of attorney fees to extract an early settlement, then measures that drive up those

110. 35 U.S.C. § 271(a) (2012).

111. This assumes that the scanner itself was alleged to infringe the applicable patent claims, since in that case the scanner would be the “patented invention” contemplated by the statute. *Id.* But the point is generally true even when the patent claim only covers the use of the machine, since in that case the manufacturer would commit contributory infringement or induced infringement. *See id.* §§ 271(b)–(c).

112. And there are good reasons for this, since otherwise patent law would be rife with loopholes. Companies buying specialized equipment to use in manufacturing could escape liability by buying overseas; farmers replanting patented seeds would be immune from liability, *see Bowman v. Monsanto Co.*, 133 S. Ct. 1761 (2013); and end users would lack standing to challenge patent rights in court, *see Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013). These examples are discussed in Bernstein, *supra* note 7, at 1445–46.

113. On patent damages, see generally 35 U.S.C. § 284 (2012); *Grain Processing Corp. v. Am. Maize-Products Co.*, 185 F.3d 1341 (Fed. Cir. 1999); *Panduit Corp. v. Stahl Bros. Fibre Works, Inc.*, 575 F.2d 1152 (6th Cir. 1978).

fees—like suing end users—work to a patent holder’s advantage. So does targeting defendants, like small businesses, who are more sensitive to those fees.¹¹⁴ And end-user defendants are likely to be easier targets for weak claims because they are often one-time players in the patent game and have less technical knowledge of the accused products or the asserted patents, and so are less equipped to defend suits on the merits.¹¹⁵

B. The Corresponding Benefits of State Anti-Patent Laws

Several of the state anti-patent laws that have been enacted are well tailored to address some of these critiques of the federal patent system. In particular, the laws may address portions of the patent-quality critique and are quite well suited to addressing the nuisance-litigation and end-user-litigation critiques. They are more poorly suited, however, to addressing the patent-troll critique, to the extent patent trolls are a problem independent of the other critiques.

First, the state laws help respond to the patent-quality critique by making it harder to enforce low-quality patents. They do this in several ways. Some state laws specifically consider the quality of the patent. The Vermont law, for instance, asks whether “[t]he claim or assertion of patent infringement is meritless, and the person knew, or should have known, that the claim or assertion is meritless”¹¹⁶ and whether the patent holder “offers to license the patent for an amount that is not based on a reasonable estimate of the value of the license.”¹¹⁷ If so, that weighs in favor of a bad-faith finding. State laws can also impose due-diligence requirements that are hard to satisfy with a low-quality patent. Vermont again, for instance, asks whether the patent holder “fails to conduct an analysis comparing the claims in the patent to the target’s products, services, and technology,” or when such an analysis was done, whether it “does not identify specific areas in which the products, services, and technology are covered by the claims in the patent.”¹¹⁸ It is difficult to provide a good-faith analysis of conduct infringing a low-quality patent. And state laws can ban false threats to sue, as Illinois has done; this has a disproportionate impact on low-quality patents, since patent holders who realize that their patents are vulnerable are much less likely to follow through on litigation threats.¹¹⁹

114. Bernstein, *supra* note 7, at 1450.

115. *Id.* at 1446–47.

116. VT. STAT. ANN. tit. 9, § 4197(b)(6) (2016).

117. § 4197(b)(5).

118. § 4197(b)(2).

119. *See, e.g.*, 815 ILL. COMP. STAT. 505/2SSS(b)(1) (2015).

State laws are not, however, a perfect response to the patent-quality critique, since instead of focusing on invalid patents, they focus on a patent holder's investigation into a target's allegedly infringing conduct. This is a key disconnect in the state laws: no state has gone after low-quality patents directly, such as by forcing patent holders to undertake validity analyses or to justify their patents' validity in demand letters. Such laws would almost certainly be preempted, since federal law is clear that patents are entitled to a presumption of validity.¹²⁰ And although the overlap between low-quality patents and the pre-suit behavior targeted by the state laws is high, it is not perfect; in particular, state laws do more to affect patent holders with weak infringement cases than with weak invalidity cases, due to that presumption of validity.

Second, states can respond to nuisance litigation and end-user litigation by increasing the cost of these mass-litigation strategies enough to make them uneconomical. MPHJ, the scanner troll, sent more than 16,000 demand letters to small businesses,¹²¹ and just like senders of spam email, MPHJ's entire business model depended on the low cost of sending letters. If even a small percentage of recipients agreed to license the asserted patents, then that small upfront cost would be more than covered by licensing revenue. But if state law increases the cost of sending demand letters, then a company cannot adopt the spammer strategy. And other provisions have similar effects; for instance, provisions that ban false threats to sue, or inflated royalty demands, reduce the effectiveness of the strategy because they limit the patent holder's ability to extract settlements.

State anti-patent laws are well suited to combatting these end-user and nuisance-litigation strategies. The scanner-troll cases that inspired states to get involved were classic end-user cases, for instance, brought against small businesses that had no role in designing or producing the allegedly infringing products. The state laws would make it significantly harder to bring such cases, since they would disproportionately raise the cost of bringing end-user cases. This is so because the pre-suit requirements imposed by the state laws impose costs—of investigating the defendant's infringing activity, preparing infringement allegations, and so forth—that are essentially fixed per case. But end-user cases are likely to be smaller in scale, so these costs reflect a greater portion of the overall burden of bringing a patent case. If the scanner trolls had to satisfy the pre-suit requirements for each of

120. See generally 35 U.S.C. § 282(a) (2012); *Microsoft Corp. v. i4i Ltd.*, 564 U.S. 91, 91–92 (2011); Ford, *supra* note 46, at 103–04; Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity*, 60 STAN. L. REV. 45, 47 (2007).

121. Johnson, *supra* note 44, at 2024.

their 16,000 end-user lawsuits, that would impose a much greater burden than if they sued a half dozen scanner manufacturers. So the state laws would make end-user litigation harder without formally targeting those cases. At the same time, state anti-patent laws only do so much to combat end-user litigation; they cannot ban it outright, or impose additional requirements on it, without clearly conflicting with federal law.

Nuisance litigation is similarly targeted. Because the settlement pressure of a nuisance suit is driven by litigation costs, a nuisance case can be brought without regard to the underlying merits, so long as the complaint can pass muster under Rule 11. So a nuisance plaintiff has no need to carefully analyze the defendant's products, develop claim charts, or perform other extensive pre-litigation investigation. But failure to perform such an investigation is precisely the conduct targeted by most states. Vermont's law, for instance, considers whether a patent holder identifies "factual allegations concerning the specific areas in which the target's products, services, and technology infringe the patent or are covered by the claims in the patent,"¹²² or has "conduct[ed] an analysis comparing the claims in the patent to the target's products, services, and technology."¹²³ Other laws target failure to inform a defendant of specific infringement allegations—which is only possible with a pre-suit investigation. So to the extent state anti-patent laws have any effect on litigants' behavior, they should affect the behavior of plaintiffs bringing nuisance cases. State anti-patent laws, then, are well suited to targeting the two most troubling kinds of patent litigation—the ones designed to extract undeserved settlements, not to enforce legitimate patent rights.

Third, to the extent that patent trolls are themselves a problem, apart from their use of nuisance and end-user litigation, state laws can also target them by considering a patent holder's status. In Vermont, for instance, the law considers as a factor weighing against a finding of bad-faith patent assertions whether the patent holder "makes a substantial investment in the use of the patent or in the production or sale of a product or item covered by the patent" or is the original inventor.¹²⁴ The idea is that a practicing entity enforcing patent rights that cover its own product is likely acting in good faith, since it is generating social value by selling its own products and since it is well positioned to know which competitors' products are similar enough to infringe. But these provisions are likely on even shakier preemption

122. tit. 9, § 4197(b)(1)(C).

123. § 4197(b)(2).

124. §§ 4197(c)(4), (5).

ground than other state laws, since federal law expressly contemplates that patents are alienable property.¹²⁵

These provisions are also normatively questionable, since there are legitimate arguments that patent trolls or nonpracticing entities can be useful to the patent system. Despite these benefits, though, patent trolls are core targets of the state anti-patent laws. The laws have been widely identified as anti-troll measures, by both academics and the media, and trolls were cited by state legislators and witnesses testifying in support of the laws.¹²⁶ If patent trolls really are a problem, though, the state laws are only weakly tailored to solving that problem. The laws largely address pre-litigation conduct, but a patent troll is not defined by its conduct before filing suit; if the real problem with patent trolls is that they do not make products, then the state laws may have little effect.

IV. THE INSTITUTIONAL CASE FOR LIMITED PATENT FEDERALISM

The last Part detailed the substantive case for limited patent federalism by highlighting flaws in the federal patent system and ways in which state anti-patent laws can help counter those flaws. The natural follow-up is to wonder if the flaws in the federal system are inevitable, or if there are federal reforms that could eliminate the need for states to get involved in the first place.

This Part makes the institutional case for limited patent federalism. It first highlights ways in which the public-choice economics of the federal patent system has rendered its institutions resistant to reform. While courts have embraced substantial reforms—largely at the insistence of the Supreme Court, in the face of resistance by lower federal courts—Congress has been reluctant to act. It then examines the corresponding institutions in the states, which have stepped into the void left by Congress. States have their own public-choice problems, but in this context those problems happen to offset those in the federal government. The result is institutional dynamics that target the most

125. See 35 U.S.C. § 261 (2012) (governing ownership and assignment of patent rights).

126. E.g., Eric Goldman, *Vermont Enacts the Nation's First Anti-Patent Trolling Law*, FORBES (May 22, 2013, 2:22 PM), <http://www.forbes.com/sites/ericgoldman/2013/05/22/vermont-enacts-the-nations-first-anti-patent-trolling-law/> [https://perma.cc/ZU68-3HVJ]; Parija Kavilanz, *Vermont Fights Back Against 'Patent Trolls'*, CNN MONEY (May 24, 2013, 10:09 AM), <http://money.cnn.com/2013/05/24/smallbusiness/patent-trolls/> [https://perma.cc/N6NJ-B7FG]; Timothy B. Lee, *How Vermont Could Save the Nation from Patent Trolls*, WASH. POST (Aug. 1, 2013), <http://www.washingtonpost.com/blogs/the-switch/wp/2013/08/01/how-vermont-could-save-the-nation-from-patent-trolls/> [https://perma.cc/58CH-EEHQ].

problematic patent assertions while having surprisingly few effects on socially desirable patent assertions.

A. The Flawed Institutions of the Federal Patent System

The federal patent system is complex, with institutions in all three branches of the federal government playing roles. The design of these institutions has played a significant role in many of the patent system's failures discussed in the last Part. Some of these failures are likely inherent in the institutional design; others could in theory be reformed, but reform is made more difficult by the institutional design. This section surveys the three branches of the federal government and discusses how they have contributed to the status quo.

1. THE EXECUTIVE BRANCH: THE PATENT AND TRADEMARK OFFICE

The Patent and Trademark Office is the part of the executive branch that administers most of the patent system.¹²⁷ The principal job of the Office is to review patent applications and determine when patents should issue, though it also handles administrative litigation over patent issuance and administers various procedures for reviewing patents after they have been granted.¹²⁸ And although it does much of this job well, the structure of the Office contributes to the patent-quality critique highlighted above.¹²⁹ In other work, I have explained how the structure of the examination process may lead to a continuous cycle of lower-quality patents.¹³⁰ Several other structural features of the Office also reduce average patent quality.

The Office has been tasked with what is, in some respects, an impossible job: figure out when an invention really is new, based largely on the inventor's (or her attorney's) description of that invention. And the institutional context of that decision makes it

127. There are other scattered pieces of the executive branch that play roles in the patent system, largely arising out of its intersection with trade policy. Examples include the International Trade Commission, which handles administrative patent litigation arising under the federal ban on unfair trade practices, *see* 19 U.S.C. § 1337(b) (2012); Customs and Border Protection, the component of the Department of Homeland Security that blocks importation of infringing goods upon issuance of an exclusion order by the ITC (along with counterfeit goods and goods infringing copyrights), *see* § 1337(d); and the Office of the United States Trade Representative, which negotiates intellectual-property-related trade agreements, *see* §§ 2112, 2114a(c)(7), 2171.

128. *See generally* 35 U.S.C. §§ 1–42 (2012).

129. *See supra* Part III.A.1. The Office plays a minimal role in patent litigation, and has no say in who applies for patents, so contributes far less to the other critiques highlighted above.

130. *See* Ford, *supra* note 101.

especially difficult to make correctly, since examiners are overwhelmed with work, lack complete information about patent applications and the prior art, and are rewarded for the wrong behavior.¹³¹ Patent examiners spend about eighteen hours on an average patent application, often spread out over multiple years; this time includes time spent reviewing the application, conducting a prior-art search, reviewing both the prior art uncovered by that search and the prior art submitted by the applicant, determining if the invention is patentable in light of that prior art, preparing office actions (often several), reviewing and responding to applicant, and so forth.¹³² A key step in this process is the prior-art review, but examiners often remain ignorant of key prior art because searches are often incomplete, applicants are under no obligation to conduct a search before filing for a patent, and competitors with an incentive to do so are marginalized in the process.¹³³ And examiners are judged by their productivity. Though both grants and denials count toward this measure, the structure of the patent statute means that only a patent grant conclusively closes a file; an applicant can always try again, no matter how many times her application has been rejected.¹³⁴ Examiners also must justify rejections, but not allowances.¹³⁵ The result is a system that encourages examiners to conduct reviews that are cursory rather than searching, and to issue low-quality patents that are nevertheless accorded a legal presumption of validity.¹³⁶

131. See Ford, *supra* note 46, at 88–89 (explaining how the structure of the Patent and Trademark Office leads to low-quality patents).

132. *Id.* at 89.

133. See Lichtman & Lemley, *supra* note 120, at 54–56; Victor Wong, *Going from Inquisitorial to Adversarial—By “Victor W.”* YALE L. TECH. (Apr. 22, 2011), <http://www.yalelawtech.org/ip-in-the-digital-age/going-from-inquisitorial-to-adversarial/> [<https://perma.cc/924W-8NXC>].

134. Michael D. Frakes & Melissa F. Wasserman, *Does the U.S. Patent and Trademark Office Grant Too Many Bad Patents?: Evidence from a Quasi-Experiment*, 67 STAN. L. REV. 613, 625–31 (2015); Ford, *supra* note 46, at 88; Lemley, *supra* note 105, at 1496 n.3; Sean Tu, *Luck/Unluck of the Draw: An Empirical Study of Examiner Allowance Rates*, 2012 STAN. TECH. L. REV. 1, at 7–8.

135. See 35 U.S.C. § 131 (2012) (“[I]f on . . . examination it appears that the applicant is entitled to a patent under the law, the Director shall issue a patent therefor.”); *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992), *abrogated on other grounds by KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (holding that § 131 imposes a burden upon examiners to justify rejections); Corinne Langinier & Philippe Marcoul, *Monetary and Implicit Incentives of Patent Examiners* (Univ. of Alta. Dep’t of Econ., Working Paper No. 2009-22, 2009), <http://www.economics.ualberta.ca/~media/economics/FacultyAndStaff/WPs/WP2009-22-Langinier.pdf> [<https://perma.cc/QK7P-XK96>] (proposing to reward examiners for rejections instead of allowances).

136. See also 35 U.S.C. § 282(a) (2012) (creating a presumption that patents are valid); Ford, *supra* note 46, at 88; *supra* Part III.A.1.

Empirical evidence demonstrates that examiners respond to these incentives; examiners, like everybody else, act to maximize their own utility rather than to further the best interests of the patent system.¹³⁷ For instance, one study found that when examiners are promoted, leaving less time to spend on examination, they cite less prior art, become less likely to make time-consuming obviousness rejections, and become more likely to grant patent applications.¹³⁸ That study concluded that time constraints on examiners inflate the Office's patent-grant rate by approximately fourteen percentage points.¹³⁹ Another study found that more-senior patent examiners systematically cite less prior art and are more likely to grant patents than more-junior examiners.¹⁴⁰ Examiners are also subject to the same cognitive biases as everybody else. For instance, one study found that examiners systematically disregard prior art submitted by patent applicants at the expense of art the examiners find themselves.¹⁴¹ This finding held up regardless of how many citations a patent applicant submitted and regardless of the relevance of the art, suggesting that examiners see greater value in prior art they find themselves, regardless of actual value.¹⁴²

137. With apologies to Richard Posner. See Richard A. Posner, *What Do Judges and Justices Maximize? (The Same Thing Everybody Else Does)*, 3 SUP. CT. ECON. REV. 1 (1993).

138. Michael D. Frakes & Melissa F. Wasserman, *Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents?: Evidence from Micro-Level Application Data*, REV. ECON. & STAT. (forthcoming 2017), http://www.mitpressjournals.org/doi/pdf/10.1162/REST_a_00605 [<https://perma.cc/DYV9-ZQUL>].

139. *Id.* at 28 (“[O]ur analysis implies that if all examiners were allocated as many hours as are extended to GS-7 examiners, the Patent Office’s overall grant rate would fall by roughly 14 percentage points, or nearly 20 percent. Based on 2013 filing numbers this would amount to approximately 114,000 fewer issued patents for that year.”).

140. Mark A. Lemley & Bhaven Sampat, *Examiner Characteristics and Patent Office Outcomes*, 94 REV. ECON. & STAT. 817, 822 (2012). Another study concluded that this represented rational movement between two local optima: a “when in doubt, reject” strategy that is optimal when one’s work is being closely supervised, and a “when in doubt, grant” strategy that becomes preferable when one’s work is no longer subject to close scrutiny. See Tu, *supra* note 134, 20–21.

141. Christopher A. Cotropia et al., *Do Applicant Patent Citations Matter?*, 42 RES. POL’Y 844, 847, 853 (2013).

142. *Id.* at 851. There are several possible explanations for why examiners would prefer to rely on prior art they find to prior art submitted by applicants. One possibility is that doing so might be easier for examiners, since the processes of finding and analyzing art overlap. Another possibility is that examiners are more likely to trust or see value in information they have a hand in producing. See, e.g., Christopher Buccafusco & Christopher Sprigman, *Valuing Intellectual Property: An Experiment*, 96 CORNELL L. REV. 1 (2010); Cotropia et al., *supra* note 41, at 851; Michael I. Norton et al., *The IKEA Effect: When Labor Leads to Love*, 22 J. CONSUMER PSYCH. 453, 457–58 (2012).

These factors lead to quality problems when measured against a baseline of “correct” application of prevailing patent doctrine,¹⁴³ but there is also the possibility that the Office is administering a normatively problematic version of patent law. And the Office has played a role there as well, in ways that may have led to an undesirable expansion of patent rights.¹⁴⁴

To be sure, there are structural features that help reduce quality problems at the Office. The Office administers several mechanisms to review patents and revoke them when they prove invalid.¹⁴⁵ Those procedures employ a broader standard for claim construction than is employed in district-court litigation, asking what the broadest reasonable interpretation is of a patent claim; this makes it easier to invalidate a marginal claim.¹⁴⁶ And the Office has instituted an Enhanced Patent Quality Initiative and appointed a Deputy Commissioner for Patent Quality to find ways to combat quality problems in the patent system.¹⁴⁷ The Initiative is overseeing several programs to improve patent quality, including a pilot program to gauge the use of glossaries in patent specifications,¹⁴⁸ a program to conduct early interviews between applicants and examiners,¹⁴⁹ and a pioneering

143. See generally R. Polk Wagner, *Understanding Patent-Quality Mechanisms*, 157 U. PA. L. REV. 2135, 2138 (2009) (defining patent quality by reference to the rules of patentability). But see Christi J. Guerrini, *Defining Patent Quality*, 82 FORDHAM L. REV. 3091 (2014).

144. See, e.g., Jonathan Masur, *Patent Inflation*, 121 YALE L.J. 470 (2011) (positing that the interplay of Patent and Trademark Office granting decisions and administrative appeals to the Federal Circuit leads to a gradual expansion in patentability over time); Melissa F. Wasserman, *The PTO's Asymmetric Incentives: Pressure to Expand Substantive Patent Law*, 72 OHIO ST. L.J. 379 (2011) (positing that internal incentives in the Patent and Trademark Office and interactions with the Federal Circuit lead to a gradual expansion in patentability over time). But see Lisa Larrimore Ouellette, *What Are the Sources of Patent Inflation? An Analysis of Federal Circuit Patentability Rulings*, 121 YALE L.J. ONLINE 347 (2011).

145. These procedures include ex parte reexamination, see 35 U.S.C. §§ 301–307 (2012); inter partes review, see §§ 311–318; post-grant review, see §§ 321–329; and “covered business method” review, see *id.*; Leahy-Smith America Invents Act, Pub. L. No. 112–29, § 18, 125 Stat. 284, 329 (2011).

146. See *In re Cuozzo Speed Techs.*, 793 F.3d 1297, 1298 (Fed. Cir. 2015) (denying rehearing en banc).

147. See Request for Comments on Enhancing Patent Quality, 80 Fed. Reg. 6475 (Feb. 5, 2015) (to be codified at 37 C.F.R. pt. 1); Michelle K. Lee, *USPTO Launches Enhanced Patent Quality Initiative*, UNITED STATES PATENT & TRADEMARK OFF. (Feb. 4, 2015), https://www.uspto.gov/blog/director/entry/uspto_launches_enhanced_patent_quality [<https://perma.cc/8EMN-CZ9H>].

148. Press Release, USPTO, USPTO Launches New Glossary Pilot Program to Promote Patent Claim Clarity (Mar. 26, 2014), <http://www.uspto.gov/about-us/news-updates/uspto-launches-new-glossary-pilot-program-promote-patent-claim-clarity> [<https://perma.cc/2CCF-M9Q9>].

149. US Patent & Trademark Office, *Full First Action Interview Pilot Program*, 1367 OFFICIAL GAZETTE PATENT & TRADEMARK OFF. 42 (2011),

program to crowd-source prior art.¹⁵⁰ It is too early to tell, however, how large an effect these efforts will have.

2. THE JUDICIAL BRANCH: THE FEDERAL CIRCUIT AND THE DISTRICT COURTS

Once a patent has been issued by the Patent Office, enforcement is left largely to civil litigation brought by the patent holder.¹⁵¹ Two components of the judiciary that hear many patent cases, the Federal Circuit and certain district courts, have contributed significantly to the flaws in the patent system discussed above.

The Federal Circuit was created in 1982 with the goal of bringing greater uniformity to patent law, a field that in the preceding decades had been characterized by great disuniformity between the regional circuits, forum shopping by patent holders and potential defendants, and general disinterest from the Supreme Court.¹⁵² And the court succeeded in creating greater uniformity; gone are the days when the choice of circuit would have a greater-than-fifty-percent effect on the chances that the patent would be found valid.¹⁵³ But the Federal Circuit has brought its own problems. It has developed a reputation as a patent-friendly court, shaping doctrine in ways that benefit patent holders at the expense of accused infringers.¹⁵⁴ It seems to have a frosty

<https://www.uspto.gov/web/offices/com/sol/og/2011/week23/TOC.htm#ref11>
[<https://perma.cc/PP7J-TV3N>].

150. Request for Comments and Notice of Roundtable on USPTO Use of Crowdsourcing to Identify Relevant Prior Art, 79 Fed. Reg. 67159 (Nov. 12, 2014).

151. With, again, minor trade-related exceptions. *See supra* note 127.

152. *See generally* Paul R. Gugliuzza, *Rethinking Federal Circuit Jurisdiction*, 100 GEO. L.J. 1437, 1454–64 (2012).

153. Scott E. Atkinson et al., *The Economics of a Centralized Judiciary: Uniformity, Forum Shopping, and the Federal Circuit*, 52 J.L. & ECON. 411, 433 (2009) (“[A]ll else constant, a switch from the Third Circuit to the Tenth Circuit in the pre-CAFC era results in an increased likelihood of patent validity of .52.”); *see also* J. Jonas Anderson, *Court Competition for Patent Cases*, 163 U. PA. L. REV. 631, 646–49 (2015); Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 8–11 (1989). The Federal Circuit has not eliminated variability and uncertainty on appeal; the court has seen a great deal of internal disagreement. *E.g.*, Christopher A. Cotropia, *Determining Uniformity within the Federal Circuit by Measuring Dissent and En Banc Review*, 43 LOY. L.A. L. REV. 801, 818 (2010); R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1111–12 (2004).

154. *E.g.*, Ian Ayres & Paul Klemperer, *Limiting Patentees’ Market Power Without Reducing Innovation Incentives: The Perverse Benefits of Uncertainty and Non-Injunctive Remedies*, 97 MICH. L. REV. 985, 1024 (1999); William M. Landes & Richard A. Posner, *An Empirical Analysis of the Patent Court*, 71 U. CHI. L. REV. 111, 112 (2004); Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 NW. U. L. REV. 77, 94–95 (1999).

relationship with the Supreme Court, resisting attempts from above to change patent doctrine.¹⁵⁵ It is overly reliant on rules that enhance its own power over standards that might give more power to the Patent and Trademark Office or the district courts.¹⁵⁶ And it is internally slow to move when patent doctrine needs changing or correction.¹⁵⁷

These characteristics of the Federal Circuit have contributed to the critiques of patent law described above. The Federal Circuit has shifted substantive patent law in ways that exacerbate the patent-quality problem, for instance, by essentially gutting the definiteness requirement,¹⁵⁸ or by interpreting few claims as means-plus-function

155. After the Supreme Court's decision in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), holding that method claims covering a medical diagnostic test were not patentable, patent lawyer Gene Quinn expressed the pro-Federal Circuit view:

How long will it take the Federal Circuit to overrule this inexplicable nonsense? The novice reader may find that question to be ignorant, since the Supreme Court is the highest court of the United States. Those well acquainted with the industry know that the Supreme Court is not the final word on patentability, and while the claims at issue in this particular case are unfortunately lost, the Federal Circuit will work to moderate (and eventually overturn) this embarrassing display by the Supreme Court. This will eventually be accomplished the same as it was after the Supreme Court definitively ruled software is not patentable in *Gottschalk v. Benson*, [409 U.S. 63 (1972),] and the same as the ruling in *KSR [Int'l Co.] v. Teleflex [Inc.]*, 550 U.S. 398 (2007) will be overruled.

Gene Quinn, *Killing Industry: The Supreme Court Blows Mayo v. Prometheus*, IPWATCHDOG (Mar. 20, 2012), <http://www.ipwatchdog.com/2012/03/20/supreme-court-mayo-v-prometheus/id=22920/> [<https://perma.cc/SF4Q-YXCB>].

156. Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275, 276–77; David Olson & Stefania Fusco, *Rules Versus Standards: Competing Notions of Inconsistency Robustness in Patent Law*, 64 ALA. L. REV. 647 (2013).

157. Jeremy W. Bock, *Restructuring the Federal Circuit*, 3 N.Y.U. J. INTELL. PROP. & ENT. L. 197, 201–04 (2014) (arguing that the Federal Circuit is especially sensitive to delays in correcting erroneous precedent, both because patent law is sensitive to advances in technology and because the court lacks the percolation mechanism by which regional circuits identify issues requiring additional scrutiny).

158. See 35 U.S.C. § 112(b) (2012). Under the Federal Circuit's forgiving standard, a claim was immune to an indefiniteness challenge unless it was "not amenable to construction" or "insolubly ambiguous." See *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2130 (2014) (rejecting the Federal Circuit's test). Under the Federal Circuit's test, few cases turned on indefiniteness challenges: fewer than ten percent of patentability cases, according to one study. See Ouellette, *supra* note 144, at 355–56 (finding that 28 of 324 patentability cases in selected years turned on indefiniteness, compared to 119 on anticipation and 167 on obviousness). And another study found that patentees became increasingly likely to prevail in indefiniteness challenges, especially in district courts, from 1998 to 2008. Christa J. Laser, *A Definite Claim on Claim Indefiniteness: An Empirical Study of Definiteness Cases of the Past*

claims governed by 35 U.S.C. § 112(f) (2012).¹⁵⁹ Both of these rules had the effect of making it easier for a patent holder to obtain and enforce broad, vague patent claims.¹⁶⁰ And once a patent holder has obtained a low-quality patent, the Federal Circuit has made it easier to bring nuisance suits, patent-troll suits, and end-user suits. The court has refused, for instance, to entertain appeals of claim-construction rulings before cases have made it to final judgment, which makes it almost impossible to avoid expansive discovery over infringement, validity, and damages issues except by settling.¹⁶¹ Yet at the same time, the court reviews almost all claim-construction decisions *de novo* and reverses district courts' constructions in a large percentage of cases; this renders cases more uncertain and increases litigation costs and plaintiffs' ability to apply settlement pressure.¹⁶²

Certain district courts have followed the Federal Circuit's lead and have made life easier for patent plaintiffs—most notoriously the Eastern District of Texas, but including others as well.¹⁶³ There are various

Decade with a Focus on the Federal Circuit and the Insolubly Ambiguous Standard, 10 CHI.-KENT J. INTELL. PROP. 25, 30–34 (2010).

159. From 2004 to 2015, the Federal Circuit enforced a “strong” presumption that claim language not using the word “means” should not be construed as means-plus-function claim governed by § 112(f). See *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347–49 (Fed. Cir. 2015) (en banc) (holding that the test for whether a claim term is interpreted as a means-plus-function term is “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure”).

160. These are far from the only Federal Circuit doctrines that have affected patent quality; they are just two especially clear examples. See also Masur, *supra* note 144; Wasserman, *supra* note 144.

161. See *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448 (Fed. Cir. 1998) (en banc); Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARV. J.L. & TECH. 1, 33–38 (2001); Edward Reines & Nathan Greenblatt, *Interlocutory Appeals of Claim Construction in the Patent Reform Act of 2009*, 2009 PATENTLY-O PAT. L.J. 1.

162. Before *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831 (2015), the Federal Circuit reviewed claim constructions *de novo*. *Cybor Corp.*, 138 F.3d at 1454 (en banc). Since *Teva*, claim constructions that depend on factual findings about extrinsic evidence are reviewed deferentially, but since most claim constructions are based only on intrinsic evidence, most reviews remain *de novo*.

163. See, e.g., J. Jonas Anderson, *Court Competition for Patent Cases*, 163 U. PA. L. REV. 631, 632–34 (2015); Daniel M. Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241, 241–45 (2016); Mark A. Lemley, *Where to File Your Patent Case*, 38 AIPLA Q. J. 1, 4–5, 11 (2010); 441: *When Patents Attack!*, THIS AM. LIFE (July 22, 2011), <https://www.thisamericanlife.org/radio-archives/episode/441/when-patents-attack> [<https://perma.cc/4M57-X4BW>] (“Why would a company rent an office in a tiny town in East Texas, put a nameplate on the door, and leave it completely empty for a year? The answer involves a controversial billionaire physicist in Seattle, a 40 pound cookbook, and a war waging right now, all across the software and tech industries.”); 496: *When Patents Attack . . . Part Two*, THIS AM. LIFE (May 31, 2013), <https://www.thisamericanlife.org/radio-archives/episode/496/when-patents-attack-part>

reasons a patent holder might prefer one district to another: convenience, speed, low cost, ability to exercise personal jurisdiction over the defendant, willingness to allow cases to go to trial, or friendly juries, for instance. Most of these reasons are benign, but two potential reasons are especially problematic, one substantive and one procedural.

The substantive problem is that plaintiff-friendly districts might be more inclined to rule in favor of patent holders—that is, those districts might be biased in favor of patent holders—at least compared to the baseline of other district courts. This can happen in several ways: favorable claim constructions, grants or denials of summary judgment, discovery rulings, and rulings on motions to admit or exclude evidence. If one court is more favorable to plaintiffs than another, of course, it does not follow that the first court is the one that’s wrong. But if the substantive critiques of the patent system are correct, and patent quality is a significant problem, then we should be more skeptical of courts that are predisposed to rule in favor of patent holders. There is, however, little evidence that district courts preferred by patent holders are substantively biased in their favor.¹⁶⁴

The procedural problem is that even if a plaintiff-friendly district does nothing troubling on the merits, it can adopt rules and make procedural rulings that enhance the plaintiff’s merits position or ability to extract settlements. Again, this can happen in innumerable ways: a court can order aggressive timetables for discovery or mandatory disclosures (e.g., of a defendant’s invalidity arguments); it can sequence litigation steps to drive up costs; it can decline to certify questions for interlocutory review; it can send more cases to trial or allow for longer trials. Many of these decisions are the sort of procedural decision over which district judges have nearly unbounded discretion, and individually they have relatively little importance. But in the aggregate they can have a significant effect.

And though there is little evidence of substantive bias, there are numerous examples of district courts adopting procedural rules that give plaintiffs advantages. For instance, one of the Eastern District of Texas’s key procedural innovations in attracting patent cases was a local rule, applicable only to patent cases, that required defendants to

two [<https://perma.cc/9985-UD5G>] (“Two years ago, we did a program about a mysterious business in Texas that threatens companies with lawsuits for violating its patents. But the world of patent lawsuits is so secretive, there were basic questions we could not answer. Now we can. And we get a glimpse why people say our patent system may be discouraging, not encouraging, innovation.”).

164. Two coauthors and I will explore this question further in future work, tentatively titled *Does Venue Shopping Work? Some Evidence from Patent Appeals*.

serve invalidity contentions far earlier than in other district courts.¹⁶⁵ This made it harder for defendants to defend against infringement claims without investing substantial expert and attorney work into developing invalidity arguments early in the case, increasing the incentive to settle early, and thus the sums plaintiffs could demand in settlement. Another key innovation in the district was a model order, adopted by two judges of the court, that dispenses with the general procedure for serving document requests and instead requires parties to “produce or permit the inspection of all documents, electronically stored information, and tangible things in the possession, custody, or control of the party that are relevant to the pleaded claims or defenses involved in this action.”¹⁶⁶ This imposes an enormous discovery burden on defendants, but often requires nonpracticing plaintiffs to do little. Not all plaintiff-friendly procedures are inherently troubling, even if one thinks the patent system is otherwise flawed in favor of patent holders; speed and low costs have inherent virtues of their own. But procedures that effectively reduce costs for patent holders, and increase them for defendants, are another story.

To be sure, the Supreme Court has taken an increased interest in patent cases in the last decade, which has effectively countered some of the Federal Circuit’s more pro-patent holdings.¹⁶⁷ Likewise, the Federal Circuit has responded to some of the Eastern District of Texas’s abuses, most notably by reigning in its refusal to transfer cases to other districts.¹⁶⁸ But both courts have chafed under supervision. The Federal Circuit is notorious for resisting Supreme Court guidance.¹⁶⁹ And in

165. See Anderson, *supra* note 153, at 652 & n.11; Alisha Kay Taylor, *What Does Forum Shopping in the Eastern District of Texas Mean for Patent Reform?*, 6 J. MARSHALL REV. INTELL. PROP. L. 570, 572–73 (2007).

166. *Sample Discovery Order for Patent Cases Assigned to Judge Rodney Gilstrap & Judge Roy Payne*, U.S. DIST. CT.: E. DIST. TEX., <http://www.txed.uscourts.gov/page1.shtml?location=info:judge&judge=12> [<https://perma.cc/8KGS-EAKW>] (last visited Mar. 31, 2017).

167. Since 2005, the Supreme Court has decided more than thirty patent cases, usually reversing or vacating the Federal Circuit. See, e.g., *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1931 (2016); *Teva Pharm. USA, Inc.*, 135 S. Ct. at 843; *Limelight Networks v. Akamai Techs.*, 134 S. Ct. 2111, 2120 (2014); *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2131 (2014); *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2114, 2120 (2013); *Mayo Collaborative Servs. v. Prometheus Labs, Inc.*, 566 U.S. 66, 92 (2012); *Bilski v. Kappos*, 561 U.S. 593, 612–13 (2010); *Quanta Comput., Inc. v. LG Elec., Inc.*, 553 U.S. 617, 638 (2008); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 427–28 (2007); *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 458–59 (2007); *eBay Inc. v. Mercexchange, LLC*, 547 U.S. 388, 394 (2006).

168. E.g., *In re Nintendo of Am., Inc.*, 756 F.3d 1363 (Fed. Cir. 2014); *In re Toyota Motor Corp.*, 747 F.3d 1338 (Fed. Cir. 2014); *In re Google Inc.*, 588 F. App’x 988 (Fed. Cir. 2014); *In re TOA Techs., Inc.*, 543 F. App’x 1006 (Fed. Cir. 2013).

169. See *supra* note 155.

one of the most striking moves yet by the Eastern District of Texas, two judges of that court published sample docket-control orders¹⁷⁰ for use in patent cases that require defendants to seek permission, or wait until after claim construction, to file a motion to dismiss under *Alice Corp. v. CLS Bank Int'l.*¹⁷¹ That case tightened the rules governing patentable subject matter under 35 U.S.C. § 101 (2012), casting doubt on most software and business-method patents. And since *Alice*, courts have invalidated many such patents on motions to dismiss,¹⁷² this made it far harder to rely on those patents to bring nuisance, patent-troll, or end-user cases, since the threat of expensive discovery is reduced. The Eastern District of Texas eventually backed off its approach in the face of public criticism.¹⁷³ But the approach indicates the efforts to which courts may be willing to go to resist patent reforms.

3. THE LEGISLATIVE BRANCH: CONGRESS AND PATENT REFORM

Many of the problems discussed above could be addressed by Congress; indeed, several patent reform bills have been introduced in recent years, and one of them, the America Invents Act, was enacted in 2011.¹⁷⁴ The interest-group dynamics of patent reform, however, has combined with Congress's institutional inertia to kill most reform proposals and to water down the one bill that was enacted.

All of the critiques highlighted above are amenable to statutory reform, to greater or lesser extents. Numerous statutory means have been proposed to improve the quality of patent examination, though it is

170. *Sample Docket Control Order for Patent Cases Assigned to Judge Rodney Gilstrap & Judge Roy Payne*, U.S. DIST. CT.: E. DIST. TEX., <http://www.txed.uscourts.gov/page1.shtml?location=info:judge&judge=12> [https://perma.cc/8KGS-EAKW] (last visited Mar. 31, 2017); see also Joe Mullin, *East Texas Judge's Invention: A Method for Hampering Patent Defendants*, ARS TECHNICA (June 11, 2015, 3:57 PM) <https://arstechnica.com/tech-policy/2015/06/east-texas-judges-invention-a-method-for-hampering-patent-defendants/> [https://perma.cc/E6T4-ASQV]; Vera Ranieri, *Judges in Texas Unfairly Impose New Requirements on Patent Defendants*, ELEC. FRONTIER FOUND. (June 10, 2015), <https://www.eff.org/deeplinks/2015/06/judges-texas-unfairly-impose-new-requirements-patent-defendants> [https://perma.cc/J2MD-S4CR]; Vera Ranieri, *With Kafkaesque Flourish, the Eastern District of Texas Penalizes Parties for Following the Rules*, ELECTRONIC FRONTIER FOUND. (Aug. 26, 2015), <https://www.eff.org/deeplinks/2015/08/kafkaesque-flourish-eastern-district-texas-penalizes-parties-following-rules> [https://perma.cc/5LDC-ZV36].

171. 134 S. Ct. 2347 (2014).

172. See Wilburn et al., *supra* note 103.

173. Kevin Penton, *Judge Gilstrap Rewrites Rules for Alice Motions in Texas*, LAW360 (Nov. 12, 2015, 4:31 PM), <http://www.law360.com/articles/726270/judge-gilstrap-rewrites-rules-for-alice-motions-in-texas> [https://perma.cc/745J-PCV6].

174. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

likely that these proposals could only do so much.¹⁷⁵ Litigation reforms are more promising, since Congress has several policy levers that could be manipulated, including the rules of evidence and procedure and the fee-shifting rules.¹⁷⁶ Indeed, one simple reform, awarding attorney fees to prevailing parties in patent cases, would almost singlehandedly gut the implicit threat of expensive litigation costs that drives nuisance settlements. (Though it would concededly have other effects, some difficult to predict.)

The America Invents Act shows just how difficult it is to enact these sorts of reforms. The law was enacted in 2011¹⁷⁷ after many years of complaints about the patent system, but wound up doing very little about those complaints. Of the law's two most important changes, only one had anything to do with patent quality or litigation abuse. That set of provisions provided new ways for the Patent and Trademark Office to revoke patents when it concludes that they were erroneously granted, but did nothing *ex ante* to change the Office's error rate, or to address litigation abuse. And the other important change, a rewrite of patent law's priority rules and switch from a first-to-invent system to a first-inventor-to-file system, brings United States patent law into agreement with foreign patent systems, but does nothing to address flaws with patent quality or litigation abuses.¹⁷⁸

The Act's reforms were far narrower than many that Congress considered in the years prior to the law's enactment, thanks in large part to lobbying against those proposals. The debate over patent reform has largely turned into a battle between the technology and pharmaceutical industries. Companies that make computer hardware, telecommunications products, and especially software and online services have mostly supported patent-reform efforts, both because they are common targets of infringement suits and because their businesses

175. Patent examination may just be inherently difficult, so that error rates will always be significant: patent applications by their nature deal in the cutting edge, applicants will necessarily know more about their inventions than will examiners, and the universe of potentially relevant prior art is so vast that examiners may reasonably not be expected to uncover everything relevant. Moreover, even if errors could be eliminated, it would likely be cost-inefficient to do so. *See* Lemley, *supra* note 105. Indeed, the patent system has shown a surprising resilience to change. *See* Mark A. Lemley, *The Surprising Resilience of the Patent System* (Stanford Pub. Law, Working Paper No. 2784456), <http://ssrn.com/abstract=2784456> [<https://perma.cc/5KNL-BC9J>].

176. *See generally* Ford, *supra* note 101 (arguing that, because of a vicious cycle in the patent system, litigation reforms could have a beneficial effect on patent quality).

177. Leahy-Smith America Invents Act § 18.

178. *See* 35 U.S.C. § 102 (2012).

often do not depend on patent rights.¹⁷⁹ (Many of the exceptions come from a set of companies, like Kodak, Texas Instruments, and Micron Technology, that have monetized their patent portfolios as other revenue streams have declined.) The pharmaceutical industry, on the other hand, both is heavily dependent on patent rights and is relatively immune to patent trolls and nuisance suits. It has thus fought several reform bills, arguing that they would impose new burdens on all patent holders instead of targeting the most problematic lawsuits.¹⁸⁰ For instance, the pharmaceutical industry has pointed to unexpected uses of the new *inter partes* review procedure as showing the risks of broad patent reform. Using that procedure, hedge funds have challenged pharmaceutical patents and shorted stocks of their owners, hoping to profit when share prices fall.¹⁸¹ Pharmaceutical lobbyists have insisted that their patents be exempt from *inter partes* review or that the system be significantly weakened.¹⁸²

The wild card for patent-reform efforts is that other interest and industry groups have started getting involved, including groups that have little to do with technology or traditional patent matters. For instance, the National Association of Realtors—the nation’s second-most-active lobbying group, but one that normally sticks to housing and financial issues—has supported patent-reform bills after seeing members become ensnared in the scanner cases.¹⁸³ Similarly, the National Retail Federation has taken up the issue after seeing member retailers targeted by patent trolls; one lobbyist for the group said that

179. They’ve also been joined by low-tech companies that use commodity technology products. *See, e.g.*, Mario Trujillo, *Tech Companies Join Retailers in Patent Push*, HILL (Jan. 15, 2015, 9:57 AM), <http://thehill.com/policy/technology/229596-tech-companies-team-with-retailers-on-patent-reform> [https://perma.cc/L9FF-UJZZ].

180. *E.g.*, Robert Zirkelbach, *What They Are Saying: Stakeholders Raise Concerns about Patent Reform*, PHARMA: PHARM. RES. & MFRS. AM. (Apr. 24, 2015), <http://catalyst.phrma.org/what-they-are-saying-stakeholders-raise-concerns-about-patent-litigation-reform> [https://perma.cc/7M66-C7FA].

181. Joseph Walker & Rob Copeland, *New Hedge Fund Strategy: Dispute the Patent, Short the Stock*, WALL ST. J. (Apr. 7, 2015, 7:24 PM), <https://www.wsj.com/articles/hedge-fund-manager-kyle-bass-challenges-jazz-pharmaceuticals-patent-1428417408> [https://perma.cc/7ZFN-49BR].

182. *E.g.*, Press Release, Biotechnology Innovation Org., BIO Opposes H.R. 9, the Innovation Act (June 11, 2015), <https://www.bio.org/media/press-release/bio-opposes-hr-9-innovation-act> [https://perma.cc/6VJB-2KPG].

183. *E.g.*, Kate Ackley, *K Street Files: Realtors Rack Up Record Lobby Tab*, ROLL CALL (Jan. 27, 2015, 1:02 PM), <http://blogs.rollcall.com/beltway-insiders/k-street-files-national-association-of-realtors/> [https://perma.cc/DMH8-3JS6]; Press Release, Nat’l Ass’n of Realtors, Senate Patent Reform Bill a Good First Step, Say Realtors (Apr. 29, 2015), <http://www.realtor.org/news-releases/2015/04/senate-patent-reform-bill-a-good-first-step-say-realtors> [https://perma.cc/D6ZB-A44L].

patent lawsuits have “gone from a nuisance to a real issue.”¹⁸⁴ As more interest groups are adversely affected by the problems in the patent system discussed above, and are affected enough to focus lobbying efforts on the problem, the coalition that supports strong reforms should get larger and the likelihood of some reform bill passing should increase.

B. State Institutions and Patent Federalism

State anti-patent laws would serve no purpose if they were as difficult to enact as meaningful federal reforms. But thanks to a veritable perfect storm of factors, led by favorable legislative environments in many states, state efforts to change the patent system have expanded rapidly. Public-choice theory helps explain the rapid expansion of state anti-patent laws.¹⁸⁵ Two of public-choice theory’s basic observations have been especially important to the rise of patent federalism: the importance of interest groups and of agenda-setting institutions to the legislative process. Moreover, the laws have been structured in a way to limit opposition from opposing interest groups, leading to legislative debates that have been strikingly one-sided.

1. INTEREST-GROUP SUPPORT

Interest groups and the structure of interest-group influence in statehouses have played important roles in getting state anti-patent laws passed. Legislatures are more likely to enact policies that provide benefits to concentrated interest groups than to enact policies with more broadly dispersed benefits.¹⁸⁶ This is so because it is easier for smaller

184. Andria Cheng, *Why Retailers Became a Top Target of Patent Trolls*, MARKETWATCH (July 25, 2014, 11:23 AM), <http://blogs.marketwatch.com/behindthestorefront/2014/07/25/why-retailers-became-a-top-target-of-patent-trolls/> [https://perma.cc/PED6-2MG8] (observing that in the first half of 2014, 136 retailers were sued in 264 patent cases brought by nonpracticing entities); *see also* Press Release, Nat’l Retail Fed’n, Nat’l Retail Fed’n Forms Patent Reform Coalition (Jan. 15, 2015), <https://nrf.com/media/press-releases/national-retail-federation-forms-patent-reform-coalition> [https://perma.cc/VWP8-Q7L3].

185. *See, e.g.*, DANIEL A. FARBER & PHILIP P. FRICKEY, *LAW AND PUBLIC CHOICE: A CRITICAL INTRODUCTION* 1 (1991) (“Public choice theory is a hybrid: the application of the economist’s methods to the political scientist’s subject.”); Tom Ginsburg, *Ways of Criticizing Public Choice: The Uses of Empiricism and Theory in Legal Scholarship*, 2002 U. ILL. L. REV. 1139, 1140–41 (observing that public choice is less a theory than a collection of related observations).

186. *See generally, e.g.*, DENNIS C. MUELLER, *PUBLIC CHOICE* III 472–500 (2003); Farber & Frickey, *supra* note 185, at 12–37. This is sometimes regarded as the Chicago School branch of public-choice theory. *E.g.*, Daniel A. Farber & Philip P. Frickey, *Public Choice Revisited*, 96 MICH. L. REV. 1715, 1717 (1998). This is not to say, of course, that interest groups are the only things that matter, or that legislators do

groups to organize and influence legislators than it is for the general public, and because groups are more likely to organize in support of policies that provide them the greatest benefits.¹⁸⁷ This dynamic has played out in the states: legislatures have been receptive to anti-patent laws in significant part because groups that would benefit from those laws are (relatively) small and concentrated, and have preexisting channels of influence in statehouses, while groups that would suffer from them are (relatively) dispersed and have little preexisting influence over state legislators.

The main interest groups driving the adoption of state anti-patent laws have been trade associations representing local businesses and nonprofits targeted by patent trolls sending demand letters.¹⁸⁸ The importance of these interest groups is shown in the legislative history of these laws, at least in the (few) states that make detailed legislative history easily available.¹⁸⁹ For instance, in Wisconsin, five local business groups and two local companies lobbied in support of the anti-patent bill that eventually became law.¹⁹⁰ Those groups are longtime players in Wisconsin politics and include the state's most influential business and banking groups.¹⁹¹ Similarly, representatives of the

not respond to constituent needs or vote in favor of their own policy preferences; rather, all else being equal, the support of an influential interest group matters. See FARBER & FRICKEY, *supra* note 185, at 21–33 (summarizing the empirical evidence).

187. E.g., William M. Landes & Richard A. Posner, *The Independent Judiciary in an Interest-Group Perspective*, 18 J.L. & ECON. 875, 877 (1975) (“The price that the winning [interest] group bids [for favorable legislation] is determined both by the value of legislative protection to the group’s members and the group’s ability to overcome the free-rider problems that plague coalitions.”).

188. Gugliuzza, *supra* note 44, at 1590–91 (“Vermont’s statute seems, by all accounts, to have been the product of a grassroots effort by businesses and nonprofits in the state who had received demand letters from bottom feeders such as MPHJ.”).

189. I am indebted to Paul Gugliuzza and Dan Risica for sharing their research on the legislative histories of state anti-patent laws.

190. The business groups were the Alliance of Wisconsin Retailers, the Wisconsin Bankers Association, the Wisconsin Grocers Association, the Wisconsin Hotel and Lodging Association, and Wisconsin Manufacturers and Commerce. The companies were Northeast Communications of Wisconsin, Inc. and Quad/Graphics, Inc., a large public company that is based in Wisconsin. See *Our Journey to Transform Quad: 2014 Shareholders Letter and Annual Report on Form 10-K*, QUAD/GRAPHICS, INC. (Dec. 31, 2014), <http://investors.qg.com/phoenix.zhtml?c=231687&p=irol-reportsannual> [<https://perma.cc/PNL7-GS5V>]; Wis. Ethics Comm’n, *2013–2014 Legislative Session: Senate Bill 498, EYE ON LOBBYING*, <https://lobbying.wi.gov/What/BillInformation/2013REG/Information/10968?tab=Efforts> [<https://perma.cc/T6ZQ-8ZZE>] (last visited Apr. 1, 2017).

191. E.g., Jeff Mayers, *State Recycling Bill Passes*, WIS. ST. J., Mar. 21, 1990, at 1A (calling Wisconsin Manufacturers and Commerce “the state’s most influential business group”); Karen Rivedal, *WMC Names Leader to Replace Haney*, WIS. ST. J., Mar. 4, 2011, at B8 (calling the Wisconsin Bankers Association “the state’s largest financial industry trade group” and Wisconsin Manufacturers and Commerce “the state’s most influential business and industrial lobby”).

Midwest chapter of the Printing Industries of America and the Nebraska Bankers Association testified in support of an anti-patent bill that eventually became law in that state, as did the Oregon Home Builders Association in writing in that state.¹⁹² The Oregon association pointed to demand letters its member companies had received, discussing a newly issued patent that allegedly “covers certain moisture removal processes that you are presently using, or may use in the future, in your construction business;” the association called the letters “precisely the sort of shakedown that [the bill] is designed to prevent.”¹⁹³

The bills were not without opponents. In Wisconsin, for instance, representatives of the Wisconsin Alumni Research Foundation and the biotechnology industry group BioForward testified against the bill, and two multinational pharmaceutical companies, AstraZeneca and Johnson & Johnson, lobbied against the bill.¹⁹⁴ But many more large companies and trade associations—including several that rely on patent rights, like 3M, GlaxoSmithKline, Microsoft, and PhRMA—lobbied without opposing the bill, likely to help shape its terms so they would apply to fewer patent assertions.¹⁹⁵ Indeed, as discussed below, the laws are structured such that they largely affect only the most problematic patent assertions and leave most patent assertions unscathed, likely thanks in part to this sort of lobbying.¹⁹⁶

Even with mixed support for these bills, the balance of interest-group support tilted in favor of enacting the bills. Although there has been some overlap, in general local businesses and groups have been more likely to support anti-patent bills, while national businesses and groups have been more likely to oppose them. This asymmetry arises because the rights conveyed by the patent system are national in scope; national businesses, then, should be more likely to rely on patent rights, since local patent holders leave markets on the table and would be amortizing the fixed costs of obtaining patent rights across a smaller

192. *Hearing on LB677 Before S. Judiciary Comm.*, 2014 Leg., 103rd Sess. 17–24 (Neb. 2014) [hereinafter *Hearing on LB677*], <http://www.nebraskalegislature.gov/FloorDocs/103/PDF/Transcripts/Judiciary/2014-02-05.pdf> [<https://perma.cc/JVL2-VL2F>]; Letter from Jon Chandler, Or. Home Builders Ass’n, to Senate Comm. on Judiciary (Feb. 12, 2014).

193. Letter from Jon Chandler, *supra* note 192.

194. *Hearing on S.B. 498 Before the Wis. S. Comm. on Gov’t Operations, Pub. Works, and Telecomms.*, 2013–14 Leg. (Wis. 2014) [hereinafter *Hearing on S.B. 498*], <http://www.wiseye.org/Programming/VideoArchive/EventDetail.aspx?evhdid=8494> [<https://perma.cc/8PJU-E8L2>]; Wis. Ethics Comm’n, *supra* note 190.

195. Wis. Ethics Comm’n, *supra* note 190.

196. *See infra* Part IV.B.3.

market.¹⁹⁷ But local businesses are also more likely to succeed in lobbying state legislatures, since they are more likely to have preexisting channels of influence in statehouses. Both national and local businesses are affected by state laws, but local law is relatively more important to local businesses; for national businesses, a single state's law usually constrains only a small percentage of the business's operations.

Local business support for anti-patent bills is also likely to be more intense than national opposition, because the benefits such bills offer to local businesses are likely to be greater than the costs to national businesses. This is so because businesses that do not rely on patent rights can only benefit from laws that make it harder to enforce patent rights, while businesses that rely on patent rights can benefit or suffer under such laws, since they can be both plaintiffs and defendants in patent cases. This especially describes the status quo for many electronics companies, since they both frequently patent their own inventions and frequently get sued for infringing others' patents. This explains why many businesses did not lobby for or against the laws, but instead sought modifications of draft bills.

These effects are all felt on the margins, of course; there are many local businesses that rely on patent rights or lack ties to statehouses, just as there are many national businesses that do not rely on patent rights or that have state lobbying operations. And there are other reasons states have enacted anti-patent laws, including the widespread feeling that the patent system needs reform. But the relative strength of interest groups does help explain why so many states have so quickly enacted anti-patent laws, in contrast with Congress's failure to enact meaningful patent reform.

2. AGENDA-SETTING INSTITUTIONS

Public-choice theory also suggests that legislative outcomes can be unpredictable because there is usually no equilibrium policy outcome that is preferable to every other outcome, and therefore that agenda setters¹⁹⁸ often have broad powers to shape policy outcomes.¹⁹⁹

197. These costs average about \$20,000 to \$30,000 per patent, *see supra* note 105, which are relatively small in the grand scheme of things to a large national business, but become more significant the smaller a business is.

198. This Article uses the term "agenda setter" in a broad sense, to refer to decision makers who determine or influence which policy proposals are considered and voted on by legislatures, not just the individual (usually a committee chair or legislative leader) who decides what proposals get votes and in what order. Using this definition, some of the formal findings of public-choice theory about agenda setting may not apply. But the general observation that legislative outcomes are often indeterminate and that

Legislative leaders are the most traditional form of agenda setters, but there are numerous other means by which individuals and groups can shape the policy choices that legislators consider. Indeed, interest groups are, in a sense, just a specific case of the general category of agenda setter. Besides interest groups, three other forms of agenda setting have played important roles in the enactment of state anti-patent laws.

First, state attorneys general have played important roles in drawing legislators' attention to the problems that state anti-patent laws are designed to address. In some cases, they did so after using, or attempting to use, existing provisions of state law to go after patent trolls; for instance, the Vermont, Nebraska, and Minnesota attorneys general all sued or sent cease-and-desist letters to MPHJ.²⁰⁰ After Nebraska's attorney general was slapped down by a federal court that held that the office had exceeded its authority in sending a cease-and-desist letter,²⁰¹ the office worked with a state senator to draft Nebraska's bill and testified in its support.²⁰² Similarly, the legislative director of the Oregon Department of Justice testified that a law was needed because the Oregon Unlawful Trade Practices Act "does not specifically address conduct arising from demands based upon patent rights" and because that law's "more general provisions may not have application as demands or allegations of patent infringement are often directed towards businesses," not consumers.²⁰³ Without state attorneys general identifying the problem, drafting legislative language, and advocating for passage, it is likely that few or no states would have enacted anti-patent laws.

Second, states have acted as de facto agenda setters for other states, since once one state has drafted legislation to address a widely

agenda setters have substantial power to shape those outcomes holds even for this broad conception of agenda setting.

199. See generally, e.g., FARBER & FRICKEY, *supra* note 185, at 38–62. This finding stems from Kenneth Arrow's impossibility theorem, which shows that there is no generally applicable voting mechanism that optimizes social welfare while satisfying three basic fairness criteria. *Id.* 38–39. But the importance of agenda setters also stems from two other constraints seen in the legislative process. One is that the legislative process imposes costs just like any other transaction; legislators have limited capacity to consider proposals. This gives agenda setters the ability to direct that limited attention to particular policy choices and questions. The other is that legislators are subject to the same cognitive biases and failures as others, including tendencies to be overly optimistic or risk averse. Agenda setters can capitalize on these biases, for instance by pointing to other states to induce herd behavior.

200. See *supra* note 11.

201. *Activision TV, Inc. v. Pinnacle Bancorp, Inc.*, 976 F. Supp. 2d 1157, 1160–61 (D. Neb. 2013).

202. *Hearing on LB677*, *supra* note 192, at 4.

203. Letter from Aaron Knott, Legislative Dir., to Floyd Prozanski, Chair Senate Judiciary Comm. (Feb. 11, 2014).

acknowledged problem, other states are free to borrow that language. In Nebraska, for instance, an assistant attorney general testified that “[t]he vast majority of [the Nebraska bill was] patterned off of the Vermont statute.”²⁰⁴ A senator later asked: “Are you very comfortable with this language that you copied from Vermont? Are you satisfied that they had very competent legal minds, that this language is carefully crafted and the bill is tightly drafted? That’s your feeling about this?”²⁰⁵ The assistant attorney general responded “I am, Senator. Yes,” which was apparently sufficient assurance.²⁰⁶ Legislators are risk-averse, so reassurance that other states have taken the same action, with no obvious downsides presenting themselves, may help explain the rapid expansion of these laws.

Third, the Council of State Governments, an influential organization that advises and lobbies on behalf of state governments, has acted as an agenda setter by including recommended language based on Vermont’s law in its latest round of suggested state legislation.²⁰⁷ Recommendations of the Council often spread to many states; indeed, a common pattern is for one state to enact legislation to address a common issue, and for other states to then follow suit on the Council’s recommendation.²⁰⁸ Though the Council’s recommendation is new, this pattern has begun playing out in the patent context: one of the latest states to enact an anti-patent law, Florida, specifically cited the recommendation in a bill analysis.²⁰⁹

Agenda setters have limited power; they cannot force legislatures to enact laws that do not have the support of enough legislators.²¹⁰ But the universe of bills that might attract enough support to pass a legislature is large, and recipients of demand letters and other agenda

204. *Hearing on LB677*, *supra* note 192, at 13.

205. *Id.* at 15.

206. *Id.*

207. COUNCIL OF STATE GOVERNMENTS, SUGGESTED STATE LEGISLATION 27–29 (2015), <http://knowledgecenter.csg.org/kc/system/files/SSL%202015%20Final%20with%20Cover.pdf> [<https://perma.cc/CEK2-ZNL8>]; *see also* Elizabeth Garrett, *Framework Legislation and Federalism*, 83 NOTRE DAME L. REV. 1495, 1506–07 (2008); Gugliuzza, *supra* note 44, at 1593.

208. *See* Heather L. Foss, *Torts—Municipal Corporations: Immunity for Injuries Suffered on any Municipalities’ Public Land Allowed by the North Dakota Supreme Court*, 79 N.D. L. REV. 529, 532–33 (2003).

209. STAFF OF COMM. ON JUDICIARY, BILL ANALYSIS AND FISCAL IMPACT STATEMENT ON SB 1084 at 2 (Mar. 30, 2015), <https://www.flsenate.gov/Session/Bill/2015/1084/Analyses/2015s1084.pre.ju.PDF> [<https://perma.cc/MD77-APNT>].

210. Though the most powerful agenda setters, those with the ability to unilaterally choose which options to put up to a vote, can in some circumstances cause legislators to vote for outcomes they would not prefer to other available options. *See* FARBER & FRICKEY, *supra* note 185, at 38–42.

setters have played a key role in drawing legislator attention to the patent issue.

3. POLICY DESIGN AND SELECTION EFFECTS

State anti-patent laws have been designed to apply to the most troublesome patent assertions, and to avoid the most common ones, minimizing interest-group opposition in state legislatures. Coupled with the interest-group and agenda-setter support discussed above, this relatively muted opposition has made it easier for state legislatures to enact anti-patent laws.

By targeting demand letters and inflated threats to sue rather than lawsuits themselves, state anti-patent laws have their greatest effects on nuisance suits, end-user suits, and other suits with low likelihoods of success. Patent holders bringing these kinds of cases will necessarily have a harder time satisfying detailed demand-letter or pre-investigation requirements, either because the merits of their claims cannot live up to those requirements or because the economics do not support it. But patent holders that do not rely on those categories of lawsuits can relatively easily comply with the requirements and so face comparatively smaller obstacles to bringing patent lawsuits.

The businesses that would be the most effective opponents of state anti-patent laws—businesses that have much at stake because they depend on patent rights, with experience lobbying state legislatures—do not rely on the kinds of patent lawsuits that the state laws target. There are two reasons for this. First, the merits of their claims are often stronger. Businesses depend on patent rights because they give them monopolies over valuable technologies, and those monopolies can be worth millions or billions of dollars. But extracting that value requires being able to successfully enforce those rights, or competitors will not be deterred from entering the market, denying patent holders those monopoly profits. A patent holder with a meritorious claim—or even one that is reasonably likely to succeed—will have no trouble satisfying the demands of state laws targeting “bad faith” infringement claims. And second, this kind of patent holder rarely targets small defendants, whether small businesses or end users.²¹¹ Instead, they target businesses—often competitors—selling products and services that allegedly infringe the patent.²¹² There are rarely more than a few dozen such companies, though, so the incremental cost of complying with state laws is small.²¹³ Since these patent holders do not need to rely on sending hundreds or thousands of demand letters, they can take on the

211. See Gugliuzza, *supra* note 44, at 1581.

212. *Id.*

213. *Id.* at 1582–83.

incremental cost of identifying, with specificity, how defendants allegedly infringe their patents.

Interest-group advocacy in the states has reflected the limited stakes of anti-patent laws for businesses that rely on patent rights. In Wisconsin, for instance, the only industry opposition to the bill was from BioForward, a Wisconsin biotechnology industry group.²¹⁴ But BioForward's testimony acknowledged that patent trolls and patent holders sending thousands of demand letters were significant problems and that large companies relying on patent rights could and should comply with reasonable specificity requirements for demand letters.²¹⁵ Its principal contentions were that enacting a patchwork of different state requirements could have unintended consequences and that Congress was considering similar proposals, which would address the problem without state intervention and possible preemption.²¹⁶ And as observed above, other industry groups and companies relying on patent rights focused their attention on tweaking the bill instead of opposing it outright, helping ensure that the bill would be narrowly tailored.

Because concentrated interest groups with preexisting channels of influence in statehouses supported anti-patent laws and agenda setters helped push those laws along while opposition was muted at best, states have been able to act when the federal government has not. And because the state laws help address genuine problems in the federal patent system, they may end up doing more good than harm.

V. IMPLICATIONS FOR THE FEDERAL PATENT SYSTEM AND PATENT REFORM

This assessment of the strengths and weaknesses of state anti-patent laws has important implications for ongoing debates about patent federalism and the patent system as a whole.

A. Reassessing the Normative Case Against Patent Federalism

The normative case against patent federalism described earlier in this article rests on three problems with giving states more control over patent law: that it could upset the balance between innovation and competition, could increase compliance costs, and could encourage rent seeking by states that disproportionately produce or consume innovation.²¹⁷ The analysis in this article, however, suggests that these problems may be exaggerated.

214. *Hearing on S.B. 498, supra* note 194, at 32:10.

215. *Id.* at 34:26–34:47.

216. *Id.* at 34:47–35:46.

217. *See supra* Part II.

First, though it is undoubtedly the case that state laws alter the patent system's balance between innovation and competition—that's why states have passed them in the first place—that may not be a bad thing. The Supreme Court has repeatedly emphasized the careful balance patent law strikes between these competing goals, but the institutional analysis above suggests that there are strong reasons to doubt that the correct balance has been struck.²¹⁸ Moreover, the state laws are relatively narrowly targeted, disproportionately affecting low-quality patents and nuisance and end-user litigation.²¹⁹ Since these are portions of the patent system that, most agree, are especially problematic, it is relatively straightforward to conclude that the state laws might tweak the balance between innovation and competition in helpful ways. It is not as if the laws purport to undertake broader adjustments, like changing the length of the patent term or the standards for what is patentable.

Second, though markedly diverse state patent laws would substantially increase patent holders' compliance costs, there is no evidence of this happening in any widespread way under the state anti-patent laws. Partly this is because the state laws are mostly consistent with one another, so the burden has not been greatly multiplied; as long as patent holders include basic information in each demand letter, such as the name of the patent holder, the number of each asserted patent, and a description of how the recipient allegedly infringes the patent, and provides reasonable time to comply with demands, it is probably okay under even the most stringent state law. It also stems from the nature of the state laws, which principally target patent holders who send many demand letters; these are the patent holders for whom the compliance burden would be greatest, but that burden is the whole point, since these are also the patent holders who most need to be deterred. Multiple states converging onto one largely consistent body of law is a common pattern in state lawmaking. And so just as the Restatements reflect broad consensus in various areas of law, and just as trade-secret law is largely consistent from state to state, a body of largely consistent state-law limitations on patent holders may be the result of these laws.

Third, though patent federalism could lead to rent seeking by states that disproportionately produce or consume innovation, leading to systematic distortions in the patent system, there is also no evidence of this happening under the state laws that have been passed. One way such rent seeking might show up would be if states that most rely on patent rights were less likely to enact anti-patent laws. However, there has been no correlation between how many patents a state obtains

218. *See supra* Part III.A.

219. *See supra* Part III.A.3–4.

(either total or per capita) and whether it has enacted an anti-patent law; states that have enacted laws come in all shapes and sizes, from some of the ones that obtain the most patents to some of the ones that obtain the fewest.²²⁰ Not all patents are equal, of course; it is possible that some states produce more valuable patents, and that these states are less likely to enact anti-patent laws. I have no reason to believe this is true, though the assumption is ripe for further research and testing. It is also possible, if states are the easier forum for obtaining favorable legislation, that we may start to see interest groups more aggressively targeting states.

All three of these conclusions are subject to an important caveat, which is that the minimal downsides observed so far may be a result of the limited scope of the anti-patent laws enacted to date. If states could go farther in their efforts to change the patent system, then we might see greater effects that could exacerbate some of these problems. If states were free to change the patent system in broader or deeper ways, then the effect on the balance between innovation and competition would be more drastically affected; likewise, the burden of complying with multiple state laws would be a larger problem. If, for instance, each state had the power to grant its own patents,²²¹ then the cost of protecting an invention could be much higher than it is under the single federal system. Likewise, we might see more efforts to benefit home-state businesses, whether they rely on patent rights or are burdened by them, if the effects were greater. This suggests that the arguments against patent federalism have greater or lesser salience depending on the specific state laws at issue: the greater the effect a state law has on the patent system, or the more it departs from the practice of other states or the federal government, the greater the burden to show a need for the law.

220. Specifically, logistic regressions with a dependent binary variable representing whether a state has enacted an anti-patent law show no correlation with independent variables representing the per-capita number of patents issued to applicants from each state from 2000 to 2013 and the natural-log-adjusted gross numbers of patents issued to applicants from each state in those years. (The gross numbers are log-adjusted because the log-adjusted distribution much more closely approximates a normal distribution, since the distribution of state populations is highly skewed.) For the per-capita numbers, the logistic regression gives a beta value of -0.01765 and a standard error of 0.10805 , for $p = 0.87024$. For the log-adjusted gross numbers, the logistic regression gives a beta value of -0.05333 and a standard error of 0.2056 , for $p = 0.79533$. (These statistics were calculated when twenty-seven states had enacted anti-patent laws.)

221. See, e.g., Hrdy, *supra* note 17.

B. Rethinking the Preemption Case Law

This assessment of patent federalism also has implications for the Supreme Court's and Federal Circuit's respective analyses of patent law's preemptive effect.

Experience with state anti-patent laws suggests that the Supreme Court's preemption cases may be too quick to find state laws preempted. Since, the Supreme Court has held, federal law does not occupy the entire field of patent law, there is room for state laws to have an effect on the patent system; only when a state law conflicts with federal patent law or stands as an obstacle to the goals of federal patent law is the state law preempted.²²² The game, then, is in determining when a state law stands as an obstacle to the goals of federal law. And on that question, the Supreme Court has drawn a demanding line: state laws are vulnerable whenever they act in a way that might change patent law's balance between innovation and competition.²²³ But the analysis in this Article suggests that the Supreme Court's line may be too strict. The Court has repeatedly emphasized the careful balance federal patent law strikes between competing objectives, but the analysis in this article suggests that state tweaks to that balance can further the system's ultimate goal of encouraging both innovation and competition.

Though it involved a state law providing additional patent-like protections instead of a law limiting federal protections, the Court's *Bonito Boats* case is an instructive example of the aggressive nature of its preemption doctrine.²²⁴ Although the Court found that Florida's protection for boat-hull designs upset federal patent law's careful balance of incentives, there are reasons to suggest that Florida had identified a real problem.²²⁵ And Congress eventually agreed, passing the Vessel Hull Design Protection Act nine years later as part of the Digital Millennium Copyright Act.²²⁶ The Supreme Court's preemption decision, then, protected a "careful balance" that turned out to be anything but.²²⁷ In that particular case, Congress solved the problem,

222. See generally *supra* Part I.B.

223. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141 (1989).

224. *Id.*

225. See H.R. REP. NO. 105-436, at 12-13 (1998) (reporting that a manufacturer may spend up to \$500,000 designing the shape of a boat hull, while copying an existing design is much cheaper—precisely the high-innovation-cost, low-copying-cost scenario in which intellectual property makes economic sense).

226. See 17 U.S.C. §§ 1301-1332 (2012).

227. See, e.g., *Bonito Boats, Inc.*, 489 U.S. at 146 ("From their inception, the federal patent laws have embodied a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy.").

though only after a nine-year delay, and only because in the specific instance of boat hulls, there was no significant interest group opposed to the legislation. With broader problems like nuisance litigation and patent trolls, of course, the public-choice obstacles to federal legislation are much greater.

This experience with state anti-patent laws also suggests that the Federal Circuit's preemption cases may be too demanding. Those cases permit state laws to survive preemption analysis only when they require both objective and subjective bad faith on the part of patent holders, but experience with the state laws shows that that requirement accounts for a small fraction of troubling patent assertions. These requirements rule out, for instance, any effort to regulate letters demanding excessive royalties, or providing inadequate information about the asserted patents, or giving inadequate time to respond, or falsely threatening suit. But all these practices are troubling because they let patent holders extract settlements that can bear little relation to the value of the asserted patents. The state laws' more-expansive view, which considers numerous factors in concluding whether a patent holder has committed "bad faith," provides a better model for identifying these problematic patent assertions.

C. Reconsidering Federal Patent Reform

State efforts to influence and change the patent system can also provide both substantive and mechanistic insights that should inform federal efforts to reform the patent system.

On the substantive side, state laws show the importance of considering out-of-court behavior by patent holders. Most federal reform efforts focus on improving patent quality or on reforming the litigation system, but state laws have mostly taken another tack, targeting pre-litigation behavior. To some degree, this was necessary, since measures targeting pre-litigation behavior are less vulnerable to preemption attacks. But the states also recognized a genuine problem with information asymmetries that let unscrupulous patent holders extract unmerited settlements. By making it harder for patent holders to target end users, states can channel meritorious patent litigation into cases against manufacturers and competitors, which are less socially wasteful than end-user cases; by making it harder to bring nuisance cases, states can channel unmeritorious litigation out of the system entirely. And to the extent these measures are successful, they can reduce the incentive to obtain low-quality patents, helping to address

the patent-quality critique.²²⁸ These out-of-court measures, then, may be an important component of effective patent reforms.

On the mechanistic side, however, this analysis shows that the federal government may be ill-suited to adopt these reforms. Policymakers and scholars have proposed that the federal government should borrow ideas from states enacting anti-patent laws,²²⁹ but the public-choice failures in Congress suggest that efforts to enact pre-litigation reforms may be doomed to failure; just as the America Invents Act was watered down by opposition from patent-dependent interest groups, reforms that make it harder to enforce patent rights can count on similar opposition. And even if reforms were enacted, institutional failures in the federal courts suggest that those reforms may be watered down. Because states are not subject to these constraints, they may be more effective conduits for these reforms.

Indeed, there is a history of the federal government taking over organic state-level reforms and effectively neutralizing them. For instance, the CAN-SPAM Act, the federal law that regulates spam email, was enacted in response to anti-spam laws enacted in many states. The act adopted many of the provisions of those state laws, banning forged email headers and deceptive subject lines and requiring senders to include contact information and provide opt-out mechanisms.²³⁰ But it was notably weaker in two ways than some of the state laws: its enforcement mechanisms were far more limited, and it failed to ban unsolicited commercial email outright, as two states had done.²³¹ A Senate committee report explained that a uniform national standard was important because email is interstate in nature and because an email address does not reveal the holder's location, making it hard to comply with different state laws.²³² But the report also made clear why spam would not be banned, distinguishing "fraud and deception in e-mail" as "behavior that a legitimate business trying to comply with relevant laws would not be engaging in anyway."²³³ If Congress concluded that non-fraudulent, but unsolicited, email *was* a tool that a legitimate business might use, then state laws banning it would go too far. State lawmakers were less likely to come to that conclusion for

228. See Ford, *supra* note 101, at 841–54.

229. E.g., PAUL R. GUGLIUZZA, TESTIMONY BEFORE THE HOUSE COMMITTEE ON ENERGY AND COMMERCE, HEARING ON PATENT DEMAND LETTER PRACTICES AND SOLUTIONS 20 (2015), <http://ssrn.com/abstract=2571437> [<https://perma.cc/AA5Z-5D7C>].

230. See generally Roger Allan Ford, Comment, *Preemption of State Spam Laws by the Federal CAN-SPAM Act*, 72 U. CHI. L. REV. 355, 358–62 (2005).

231. On enforcement mechanisms, see *id.* at 374–79. On bans, see *id.* at 360–61, 363–64.

232. S. REP. NO. 108-102, at 21–22 (2003).

233. *Id.* at 22.

many of the same reasons state lawmakers are more likely to want to limit patent enforcement: because businesses relying heavily on email were more likely to be national or international in scale, while individuals who would enjoy greater protections under state laws had comparatively greater power at the statehouse level.

To be sure, state experiences with anti-patent laws can help inform federal patent reform. But those experiences suggest that relying exclusively on federal law to reform the patent system is unlikely to work, and that states are well-positioned to play a helpful role.

CONCLUSION

After many decades of exclusive federal control over the patent law, states have started asserting themselves in ways that may threaten the uniform federal patent system. There are strong reasons to be concerned about this development, since it threatens to increase costs and reduce the incentives the patent system creates to develop innovative new technologies. And yet, as this Article has pointed out, there are also reasons to give this development a second glance. These laws respond to real problems in the federal patent system, problems which that system has been largely unable to address. And while the states have their own problems, those problems happen to offset the ones in the federal system. The result, then, may be a system that is better than a purely federal system not in spite of, but because of, the states' flaws. State efforts to affect the patent system, then, may reflect a second-best option for achieving effective patent reform.