
**“TROLL” CHECK? A PROPOSAL FOR
ADMINISTRATIVE REVIEW OF PATENT LITIGATION**

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The patent system is commonly justified as a way to promote social welfare and, more specifically, technological progress. For years, however, there has been concern that patent litigation is undermining, rather than furthering, these goals. Particularly in the United States, the time, cost, and complications of patent suits provide openings for opportunistic assertions of infringement.

This Article proposes a way to address information problems that facilitate opportunistic assertion: an automatic process of administrative review at the threshold of infringement lawsuits in U.S. district courts. The results of this review would be non-binding but admissible in later court proceedings. Whether conducted by an independent Patent Litigation Review Board or a division of the U.S. Patent and Trademark Office, such review would: (1) help discourage—or bring to an earlier and less costly end—relatively weak patent-infringement lawsuits; (2) strengthen the litigation and bargaining positions of patentees with especially robust cases; (3) flag weaknesses in litigation positions to the benefit of private parties and the courts; and (4) provide policymakers with information that facilitates evaluation and adjustment of patent system performance. This Article uses multiple economic models to show the likely benefits of early-stage administrative review. Nonetheless, because of the fluid and complex nature of the patent litigation landscape, this Article proposes that the review process initially be adopted on a pilot basis.

INTRODUCTION

Patent litigation reform is coming. Just as in the lead up to the 2011 America Invents Act ("AIA"),¹ the United States Congress has entertained a host of patent reform bills over a series of years.² Many have focused on patent litigation.³ The House of Representatives passed one of these litigation reform bills by a 325-91 vote in 2013,⁴ and supermajorities of the House and Senate Judiciary Committees approved reform bills in 2015.⁵ Policymakers have promised a renewed push for reform in 2017.⁶ Meanwhile, outside pressure for reform has come not only from the usual suspects among industry stakeholders⁷ but also from the popular press. In December 2013, the *New York Times* editorial board cheered congressional consideration of "sound proposals to restrict abusive patent litigation."⁸ In August 2015, the *Economist* made patent reform its cover story⁹ and came close to advocating abolition.¹⁰

¹ See Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. B.J. 435, 438-47 (2012) (chronicling the more than six years of legislative activity that culminated in the AIA).

² See *infra* notes 11-15 and accompanying text (describing recent congressional proposals for patent reform).

³ See *infra* notes 11-15 and accompanying text.

⁴ *The Innovation Act*, HOUSE JUDICIARY COMMITTEE <https://judiciary.house.gov/the-innovation-act/> [<https://perma.cc/XG8J-N69X>] (last visited Sept. 18, 2017).

⁵ On June 4, 2015, the Senate Judiciary Committee voted 12-4 in favor of the Protecting American Talent and Entrepreneurship Act (the "PATENT Act"), S. 1137. Kevin E. Noonan, *Senate Judiciary Committee Passes PATENT Act*, JD SUPRA (June 5, 2015), <http://www.jdsupra.com/legalnews/senate-judiciary-committee-passes-85294/> [<https://perma.cc/3HNQ-RYL3>]. On June 11, 2015, the House Judiciary Committee voted 24-8 in favor of the Innovation Act, H.R. 9. *The Innovation Act*, *supra* note 4.

⁶ Joseph Marks, *Time's Too Short for Patent Venue Revamp This Congress, Sponsor Looks to Next Year*, 92 PAT., TRADEMARK & COPYRIGHT J. 1108, 1108 (2016) (reporting that Senator Jeff Flake had "high hopes for [a patent venue reform bill's] success in a new Congress, with a new administration").

⁷ Cf. Greg Reilly, *Linking Patent Reform and Civil Litigation Reform*, 47 LOY. U. CHI. L.J. 179, 238 (2015) ("[I]t is hard to dispute that procedural reform [of civil litigation] is inevitable given the political influence of the large corporate interests most burdened . . ." (emphasis omitted)).

⁸ Editorial, *Congress Takes on Abusive Patent Suits*, N.Y. TIMES (Nov. 30, 2013), <http://www.nytimes.com/2013/12/01/opinion/sunday/congress-takes-on-abusive-patent-suits.html>.

⁹ See ECONOMIST, Aug. 8, 2015 (showcasing a cover with the heading "Set innovation free!" and subheading "Time to fix the patent system").

¹⁰ *Time to Fix Patents*, ECONOMIST, Aug. 8, 2015, at 11 ("One radical answer would be to abolish patents altogether . . ."); cf. *Intellectual Property: A Question of Utility*, ECONOMIST, Aug. 8, 2015, at 50, 52 ("[A]ny lawmaker brave enough to propose doing away with [patents] altogether . . . would face an onslaught from the intellectual-property lobby.").

Reform proposals have tended toward the dramatic. Some proposals have threatened a revolution in patent litigation—for example, by proposing general adoption of regular attorney fee shifting along a European “loser pays” model¹¹ as opposed to the typical U.S. practice of shifting fees only rarely.¹² Other proposals have focused on disempowering so-called “patent trolls”¹³—a disparaging moniker for patent-assertion entities (“PAEs”) that specialize in the ownership, licensing, and enforcement of patent rights.¹⁴ Although the reform bills endorsed by the House and Senate Judiciary Committees in 2015 were generally more modest than their predecessors, they were still draconian by the usual standards of U.S. litigation reform.¹⁵

These reform efforts reflect concern that patent assertion activity is undermining patent law’s purpose to promote technological progress specifically and social welfare more generally.¹⁶ A high overall caseload, high litigation costs, and rampant forum shopping feed these concerns. Even after a drop in district court filings in 2016, patent-suit filings are proceeding at about double the rate of the year 2000.¹⁷ Moreover, these suits are not cheap. High-stakes patent litigation tends to cost each side millions of dollars in attorney fees, and even litigation in which less than \$1 million is at stake tends to cost each

¹¹ Adam Smith, Note, *Patent Trolls—An Overview of Proposed Legislation and a Solution That Benefits Small Businesses and Entrepreneurs*, 9 OHIO ST. ENTREPRENEURIAL BUS. L.J. 201, 218 (2014) (observing that a congressional bill would “essentially switch[] the traditional assumption of American legal jurisprudence” that parties pay their own attorney fees).

¹² Cf. 35 U.S.C. § 285 (2012) (providing that “[t]he court in exceptional [patent-infringement] cases may award reasonable attorney fees to the prevailing party”).

¹³ See Smith, *supra* note 11, at 217 (discussing a bill ostensibly designed to target patent trolls).

¹⁴ Cf. John M. Golden, “Patent Trolls” and Patent Remedies, 85 TEX. L. REV. 2111, 2112 (2007) (noting criticism of “the ‘patent troll’—apparently one of a class of patent owners who do not provide end products or services themselves, but who do demand royalties as a price for authorizing the work of others”).

¹⁵ Compare Protecting American Talent and Entrepreneurship Act, S. 1137, 114th Cong. §§ 3-7 (2015) (proposing patent litigation reforms), and Innovation Act, H.R. 9, 114th Cong. § 3 (2015) (same), and Prachi Agarwal, *Patent Troll: The Brewing Storm of Patent Reform in the United States of America*, 15 J. MARSHALL REV. INTELL. PROP. L. 63, 76-81 (2015) (describing provisions of the Innovation and PATENT Acts), with Jared A. Smith & Nicholas R. Transier, *Trolling for an NPE Solution*, 7 HASTINGS SCI. & TECH. L.J. 215, 238-39 (2015) (listing various bills with “direct and indirect anti-troll provisions”).

¹⁶ See, e.g., Agarwal, *supra* note 15, at 64 (“[P]atent trolls stifle, discourage, and threaten innovation.”); Smith, *supra* note 11, at 201 (noting that “the rise of certain patent-assertion entities . . . has renewed discussion . . . about the state and effectiveness of the current patent law”).

¹⁷ According to Lex Machina, over four thousand five hundred patent suits were filed in 2016 compared to just over two thousand three hundred in 2000. See LEX MACHINA, <https://lexmachina.com/> (last visited Aug. 31, 2017).

side several hundred thousand dollars.¹⁸ Further, the concentration of new suits in just two of the nation's ninety-four federal judicial districts,¹⁹ the Eastern District of Texas and the District of Delaware, has become astounding.²⁰ According to a representative tally, in each year from 2012 through 2016, as well as in the first several months of 2017, over 40% of all new patent suits have been filed in these two districts.²¹ A May 2017 decision by the Supreme Court on patent venue²² will most likely shuffle the deck of suit locations but appears unlikely to fully address concerns with forum shopping. In the immediate aftermath of the decision, filings in the Eastern District of Texas predictably decreased, but filings in the District of Delaware (also predictably²³) increased, with the result being that the cumulative percentage of filings in the two districts remained at about 40% of the total.²⁴

In recent years, multiple tweaks to patent law have responded to concerns about patent assertion and litigation. Courts have taken a more restrictive approach to granting injunctions against adjudged infringers, thereby curtailing the ability of patent holders, particularly PAEs, to extract exorbitant licensing fees by threatening to shut down a factory or line of business.²⁵ Courts have also

¹⁸ AM. INTELLECTUAL PROP. LAW ASS'N, 2015 REPORT OF THE ECONOMIC SURVEY 37 (2015) [hereinafter AIPLA 2015 SURVEY] (reporting median costs to pursue a patent suit to completion of \$600,000 when less than \$1 million is at stake, \$2 million when between \$1 million and \$10 million is at stake, and over \$3 million when more than \$10 million is at stake).

¹⁹ *Court Role and Structure*, U.S. COURTS, <http://www.uscourts.gov/about-federal-courts/court-role-and-structure> [<https://perma.cc/Z63M-5EPU>] (last visited Sept. 18, 2017).

²⁰ U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-16-490, INTELLECTUAL PROPERTY: PATENT OFFICE SHOULD DEFINE QUALITY, REASSESS INCENTIVES, AND IMPROVE CLARITY 14-16 (2016) (observing that, in 2015, nearly 50% "of all patent infringement defendants were named in cases filed in the Eastern District of Texas"); *id.* at 17 fig.3 (indicating that Delaware is the second most popular district in which to bring a patent infringement suit).

²¹ This information was obtained using Lex Machina's search functionality. *See* LEX MACHINA, *supra* note 17.

²² *TC Heartland LLC v. Kraft Food Brands Grp. LLC*, 137 S. Ct. 1514, 1521 (2017) ("As applied to domestic corporations, 'reside[nce]' in [the patent venue statute] refers only to the State of incorporation." (first alteration in original)).

²³ *See infra* text accompanying note 166.

²⁴ *See* Matthew Bultman, *Gilstrap's Venue Test an Encouraging Sign for Patent Owners*, LAW360 (July 6, 2017, 9:37 PM), <https://www.law360.com/articles/941916/gilstrap-s-venue-test-an-encouraging-sign-for-patent-owners> (reporting that, in the first thirty-eight days after the Supreme Court's decision in *TC Heartland*, sixty-one patent cases, equal to 14% of all new cases, were filed in the Eastern District of Texas and 117 cases were filed in the District of Delaware).

²⁵ *See eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 394 (2006) (rejecting the "general rule" in favor of granting injunctions against adjudged infringers); Thomas F. Cotter & John M. Golden, *Empirical Studies Relating to Patents—Remedies*, in RESEARCH

tightened the standards for awarding reasonable royalty damages²⁶ and have made the shifting of attorney fees more likely in light of meritless positions in litigation.²⁷ Other court decisions have strengthened patentability requirements of subject-matter eligibility and nonobviousness, thereby making many suits more likely to fail in response to a motion for dismissal or summary judgment.²⁸

Additional reforms have been more purely procedural. Various district courts have adopted local rules specific to patent cases that, in principle, should speed up and streamline litigation but might have contributed to growth in case filings.²⁹ Through the AIA, Congress expanded opportunities for post-issuance review of patent validity by the U.S. Patent and Trademark Office (“USPTO”).³⁰ Congress also restricted joinder in patent cases in a way intended to reduce the number of defendants sued by PAEs.³¹ In 2015, amendments to the Federal Rules of Civil Procedure abrogated a model form for pleading that had enabled patent holders to file complaints featuring “little more . . . than the name and number of the patent and an allegation of infringement.”³²

HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW (Peter Menell, David Schwartz & Ben Depoorter eds., forthcoming 2018) (describing studies indicating that injunctions have become rare in patent-infringement suits brought by PAEs), *available at* <https://ssrn.com/abstract=2665680> [<https://perma.cc/LM8M-JRMG>].

²⁶ John M. Golden, *Patent Privateers: Private Enforcement’s Historical Survivors*, 26 HARV. J.L. & TECH. 545, 605 (2013) (collecting cases).

²⁷ See *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1754 (2014) (abrogating a Federal Circuit rule requiring both “subjective bad faith” and “objective[] baseless[ness]” for a court to award attorney fees for pursuing a weak litigation position).

²⁸ *Cf. id.*; Golden, *supra* note 26, at 605 (mentioning Supreme Court decisions that “tightened the requirement of patentable subject matter . . . and the requirement of nonobviousness”).

²⁹ Golden, *supra* note 26, at 607 (“Like highway improvements that attract too many drivers and make traffic congestion worse, litigation reforms can aggravate, rather than alleviate, tendencies toward excessive litigation.”).

³⁰ John M. Golden, *Working Without Chevron: The PTO as Prime Mover*, 65 DUKE L.J. 1657, 1666 (2016) (“The AIA’s provisions for *inter partes*, post-grant, and covered business method review notably empower the [USPTO’s Patent Trial and Appeal Board (“PTAB”)] to conduct more trial-like proceedings than those previously conducted by the [US]PTO.”).

³¹ In response to complaints about PAEs simultaneously suing “numerous unrelated accused infringers in inconvenient venues,” Congress overrode the Federal Rules of Civil Procedure’s liberal approach to joinder in favor of patent-specific rules that generate a greater prospect of “litigating the same factual and legal questions numerous times.” David O. Taylor, *Patent Misjoinder*, 88 N.Y.U. L. REV. 652, 654-55 (2013).

³² Matthew Bultman, *Stricter Pleading Requirements Take Effect Dec. 1*, LAW360 (Nov. 30, 2015, 3:55 PM), <https://www.law360.com/articles/717900/stricter-patent-pleading-requirements-take-effect-dec-1>; *cf.* Patricia W. Hatamyar Moore, *The Anti-Plaintiff Pending Amendments to the Federal Rules of Civil Procedure and the Pro-Defendant Composition of the Federal Rulemaking Committees*, 83 U. CIN. L. REV. 1083, 1125-26 (2015) (criticizing

Nonetheless, the flow of patent disputes into the district courts and USPTO post-issuance proceedings remains high,³³ and complaints about abusive patent litigation continue seemingly unabated.³⁴ This should not be a surprise. The tweaks to the patent system have not altered three fundamental structural problems. First, each year the USPTO continues to receive hundreds of thousands of patent applications and to issue hundreds of thousands of patents.³⁵ At these rates, one cannot reasonably expect the USPTO to perform more than a relatively cursory examination of patents before they issue.³⁶ Although the USPTO contributes its own partial corrective by processing about two thousand petitions for post-issuance review each year,³⁷ these post-issuance efforts still leave much cleanup work on patent validity to private parties and the courts. Second, the USPTO contributes even less to the resolution of questions about patent scope and infringement than it does to the resolution of questions about patent validity. Indeed, even in adversarial post-issuance proceedings, the USPTO does not address questions of patent infringement.³⁸ Moreover, in both pre-issuance and post-issuance proceedings, the USPTO uses a different

“[t]he pending abrogation of Rule 84 and all thirty-six of the official forms following the [Federal Rules of Civil Procedure]”).

³³ See *infra* notes 279-81 and accompanying text (describing how, despite various patent reforms, the filing rates for new patent suits and USPTO post-issuance proceedings remain high).

³⁴ See, e.g., *Impact of Bad Patents on American Businesses Before the Subcomm. on Courts, Intellectual Property and the Internet of the H. Comm. on the Judiciary*, 115th Cong. 3 (2017) (statement of Sean Reilly, Senior Vice President and Associate General Counsel, The Clearing House Payments Company L.L.C., also Clearing House Association L.L.C., also Financial Services Roundtable) (expressing concern about the ability of patent holders to extract settlement payments in “meritless litigation”).

³⁵ U.S. PATENT & TRADEMARK OFFICE, U.S. PATENT ACTIVITY: CALENDAR YEARS 1790 TO THE PRESENT (2016) (reporting that, in every year from 2006 through 2015, the USPTO received over four hundred thousand utility patent applications and issued over 150,000 utility patents and over twenty thousand design patents).

³⁶ See *infra* notes 73-76 and accompanying text (discussing the time available for review of a typical patent application).

³⁷ See U.S. PATENT & TRADEMARK OFFICE, PATENT TRIAL AND APPEAL BOARD STATISTICS 3 (2016) [hereinafter PTAB STATISTICS 2016] (reporting the filing of between one thousand seven hundred and one thousand nine hundred petitions for inter partes, covered business method, or post-grant review in each of fiscal years 2015 and 2016); U.S. PATENT & TRADEMARK OFFICE, *EX PARTE* REEXAMINATION FILING DATA (2016) (reporting between two hundred and two hundred fifty filings for ex parte reexamination in each of fiscal years 2015 and 2016).

³⁸ John M. Golden, *Patentable Subject Matter and Institutional Choice*, 89 TEX. L. REV. 1041, 1053 (2011) (“[T]he USPTO has historically had no direct involvement with determinations of whether an accused infringer’s conduct in fact constitutes infringement . . .”).

standard for claim construction than that used by the district courts.³⁹ Third, the several hundred thousand to several million dollar price of patent litigation⁴⁰ creates real concerns about nuisance suits and access to justice.⁴¹ The cost barrier of patent litigation can be especially problematic for small businesses, which are generally unable to appear in court pro se.⁴²

Substantially effective patent reform needs to address one or more of these fundamental problems. This Article addresses the fundamentals by proposing a new administrative filter for patent suits that, in its complete form, would apply automatically to all patent suits filed in the district courts. Unlike the USPTO, this Article's proposed Patent Litigation Review Board ("PLRB") would review questions of claim construction, infringement, and unenforceability, as well as validity, and it would use a claim-construction standard identical to that of the courts. Further, the PLRB would focus not on providing final decisions on a complete record, but on providing non-binding assessments of whether, even at a preliminary, pre-discovery stage, there is clear evidence that a party to the case should prevail on one or more issues.⁴³

The details of the proposed framework for PLRB review are intended to be measured, but this would not be a minor reform. The institution of PLRB review would constitute the most significant institutional change to the patent system since 1982, when patent appeals were centralized under a new United States Court of Appeals for the Federal Circuit.⁴⁴ The general imposition of PLRB

³⁹ *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144-45 (2016) (upholding a USPTO regulation prescribing the "broadest reasonable construction standard").

⁴⁰ See *supra* note 18 and accompanying text (describing typical costs of patent litigation).

⁴¹ FED. TRADE COMM'N, PATENT ASSERTION ENTITY ACTIVITY: AN FTC STUDY 4 (2016) (observing that the typical license royalties earned by a class of PAEs that "typically sued potential licensees and settled shortly afterward" were "less than \$300,000," an amount "approximat[ing] the lower bound of early-stage litigation costs").

⁴² John M. Golden, *Litigation in the Middle: The Context of Patent-Infringement Injunctions*, 92 TEX. L. REV. 2075, 2093 (2014) ("U.S. courts have ruled that business entities generally cannot be represented pro se . . .").

⁴³ A previous proposal for mandatory reexamination of patents asserted in litigation contemplated USPTO reexamination of a limited subset of validity issues, rather than non-binding, preliminary review for any potential question of patent validity, enforceability, or infringement. See Benjamin J. Bradford & Sandra J. Durkin, *A Proposal for Mandatory Patent Reexaminations*, 52 IDEA 135, 164-65 (2012) (noting the currently limited scope of reexaminations while proposing possible extension to encompass additional sources of prior art and challenges based on a charge of inadequate patent disclosure or patent claim indefiniteness).

⁴⁴ Cf. John M. Golden, *The Federal Circuit and the D.C. Circuit: Comparative Trials of Two Semi-Specialized Courts*, 78 GEO. WASH. L. REV. 553, 555 (2010) (describing the creation of the Federal Circuit as "an even more recent and radical experiment in semi-specialization" than the preceding creation of the D.C. Circuit).

review would provide a systematic backup to USPTO review and a substantially more accessible and informative front end for district court litigation.

Although PLRB judgments would not be substantively binding on courts, they, and the opinions behind them, would be admissible in court, and parties and the courts would likely give them substantial weight.⁴⁵ As a result, this Article contends that PLRB review would accomplish the following: (1) help discourage—or bring to an earlier and less costly end—relatively weak patent-infringement lawsuits; (2) strengthen the hands of patentees with especially robust cases; (3) flag weaknesses in litigation positions to the benefit of both private parties and the courts; and (4) provide policymakers with more readily aggregated information that facilitates evaluation and adjustment of patent system performance.

The Article proceeds in three parts. Part I provides a primer on patents and existing processes of administrative review at the USPTO. Part II describes aspects of the current landscape of patent litigation in the United States. Part III presents multiple economic models and eight tables illustrating the expected positive effects and practicability of PLRB review. Part III also describes details of a suggested framework for administrative review, including a proposal that such review initially be adopted on a pilot basis. Finally, Part III discusses how the proposed framework operates as an alternative or complement to other potential or already implemented adjustments of the patent system.

I. PRIMER ON PATENTS AND USPTO REVIEW

To motivate this Article's proposal for a new process of administrative litigation review, this Part provides a brief discussion of the basic nature of patent rights and current processes for USPTO review.

A. *Patent Rights and Their Enforcement*

Patents provide their owners with territorially limited rights to exclude others from the making, use, sale or offer for sale, or importation of covered subject matter.⁴⁶ Under the current standard patent term, these rights last from the time a patent issues until twenty years from the first relevant filing of an application with the USPTO or a qualifying foreign patent office.⁴⁷ For a party to be liable

⁴⁵ Cf. Irina D. Manta, *Bearing Down on Trademark Bullies*, 22 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 853, 867 (2012) (proposing USPTO review of trademark cease-and-desist letters).

⁴⁶ See 35 U.S.C. § 154(a)(1) (2012) (describing the patent owner's "right to exclude"); *id.* § 271(a) (listing acts that constitute patent infringement).

⁴⁷ See *id.* § 154(a)(2) (specifying the default term for new U.S. patents).

for patent infringement, that party need not know of the infringed patent.⁴⁸ Nor need the party have derived the covered subject matter in any way from the patent's inventors or owners.⁴⁹ Although knowledge of a relevant patent is generally required for liability for indirect infringement in the nature of aiding and abetting,⁵⁰ direct infringement by engaging in such acts as manufacture, use, sale, or importation occurs regardless of whether any of the parties have knowledge of the pertinent patent and regardless of the fact that the manufacturer independently developed all the relevant technology.⁵¹ Hence, if a consumer uses in the United States a smartphone, which was purchased from a retail store in the United States and imported by a manufacturer who independently developed all the technology associated with the smartphone, the consumer, retail store, and manufacturer could all be liable for direct infringement of a U.S. patent covering technology in the smartphone.

When a patent owner suspects that its patent is being infringed, the owner can sue in district court⁵² for relief such as lost profits or reasonable royalty damages,⁵³ enhanced damages,⁵⁴ or an injunction.⁵⁵ The patent owner who brings such a suit need not be the inventor of the patented technology or the owner of the relevant rights at the time the patent issued. By statute, patent rights may be assigned to others.⁵⁶ This assignability permits the sale of patent rights to entities that specialize in the acquisition and assertion of patent rights without any direct involvement in the development, sale, or use of the covered subject

⁴⁸ *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1926 (2015) (observing that “[d]irect infringement is a strict-liability offense” for which “a defendant’s mental state is irrelevant”).

⁴⁹ See John M. Golden, *Principles for Patent Remedies*, 88 TEX. L. REV. 505, 515 (2010) (“[U]nlike copyright infringement, patent infringement does not require ‘copying’ and, as a general rule, does not excuse independent creation.”).

⁵⁰ *Global-Tech Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 765 (2011) (concluding that “knowledge of the relevant patent” is required for indirect infringement).

⁵¹ *Commil*, 135 S. Ct. at 1926.

⁵² See 28 U.S.C. § 1338(a) (2012) (setting forth the district courts’ original jurisdiction over patent cases); 35 U.S.C. § 281 (“A patentee shall have remedy by civil action for infringement of his patent.”).

⁵³ See 35 U.S.C. § 284 (providing for compensatory damages for patent infringement); JANICE MUELLER, *PATENT LAW* 321 (4th ed. 2013) (describing “lost profits and reasonable royalty” as the “two primary analytical methods of computing” compensatory damages for patent infringement).

⁵⁴ 35 U.S.C. § 284 (“[T]he court may increase the damages up to three times the amount found or assessed.”).

⁵⁵ *Id.* § 283 (granting courts the power to “grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent”).

⁵⁶ *Id.* § 261 (providing that “patents, or any interest therein, shall be assignable in law by an instrument in writing”).

matter itself, entities variously called "patent aggregators," "patent assertion entities," "non-practicing entities" ("NPEs"),⁵⁷ or "patent trolls."⁵⁸

B. *The Patent Document and USPTO Review*

The patent document is the primary indicator of the scope of associated patent rights.⁵⁹ This document consists of drawings, a written description of the alleged invention, and patent claims that are drafted by the patent applicant or its agents, submitted to the USPTO, and commonly amended during the examination process.⁶⁰ The written description is required to disclose the alleged invention and "the manner and process of making and using it" in a manner sufficient to show that the inventor was in "possession" of the invention at the time of filing a patent application,⁶¹ and "to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same."⁶² Patent claims are numbered clauses at the end of the patent document⁶³ that are required to "particularly point[] out and distinctly claim[] the subject matter which the inventor or a joint inventor regards as the invention."⁶⁴ The claims are the primary reference points for determining the scope of rights under a

⁵⁷ NPEs, which are distinguished from practicing entities ("PEs"), are "patent holders that do not themselves produce the sort of saleable products, services, or components thereof that infringement suits tend to target." Mark P. Gergen, John M. Golden & Henry E. Smith, *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 244 (2012).

⁵⁸ LANNING G. BRYER, SCOTT J. LEBSON & MATTHEW D. ASBELL, *INTELLECTUAL PROPERTY STRATEGIES FOR THE 21ST CENTURY CORPORATION: A SHIFT IN STRATEGIC AND FINANCIAL MANAGEMENT* 145 (2011) (listing "various monikers" for so-called "[p]atent trolls").

⁵⁹ See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (2005) (en banc) ("Importantly, the person of ordinary skill in the art is deemed to read the [patent] claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.").

⁶⁰ See ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 13-26 (6th ed. 2013) (describing the patent document and its relation to the application).

⁶¹ *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (holding that § 112 of the Patent Act "contains a written description requirement" demanding that "the disclosure of the [patent] application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date").

⁶² 35 U.S.C. § 112(a) (2012).

⁶³ John M. Golden, *Construing Patent Claims According to Their "Interpretive Community": A Call for an Attorney-Plus-Artisan Perspective*, 21 HARV. J.L. & TECH. 321, 322 (2008).

⁶⁴ 35 U.S.C. § 112(b).

particular patent.⁶⁵ Under the “doctrine of equivalents,” however, there is often room for a patent to cover matter substantially equivalent to what is claimed even though not within the claims’ literal scope.⁶⁶

The USPTO subjects each patent application to substantive review by one or more examiners.⁶⁷ To be validly patented, an invention must: (1) satisfy requirements that the invention claimed by the application have at least minimal functionality;⁶⁸ (2) be novel and nonobvious at the relevant time to one skilled in the relevant art;⁶⁹ (3) be adequately described by the patent document;⁷⁰ and (4) be delineated in a way that “inform[s] those skilled in the art about the scope of the invention with reasonable certainty.”⁷¹

Examiners generally have expertise associated with the subject matter they review,⁷² but the quality of their examination suffers from severe constraints. In large part because the USPTO receives hundreds of thousands of patent applications each year,⁷³ examiners have only very limited time to review individual applications. Even if one heroically assumes that each of the USPTO’s approximately nine thousand examiners⁷⁴ spends two thousand hours per year examining applications, one ends up with an estimate of thirty hours for an individual examiner to review each of the roughly six hundred thousand new

⁶⁵ See Golden, *supra* note 63, at 322 (“Claims—numbered clauses at the end of a patent—are meant to provide notice of what a patent covers and to describe a patented invention in a way that distinguishes it from prior art.”).

⁶⁶ See *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 732 (2002).

⁶⁷ See F. Scott Kieff, *The Case for Registering Patents and the Law and Economics of Present Patent-Obtaining Rules*, 45 B.C. L. REV. 55, 70-71 (2003) (noting that the “examination process” is “also called patent prosecution”).

⁶⁸ See MUELLER, *supra* note 53, at 321 (“[T]he substantive threshold for satisfying the utility requirement is relatively low.”).

⁶⁹ 35 U.S.C. §§ 101-103 (setting out requirements of novelty and nonobviousness).

⁷⁰ See *supra* text accompanying notes 61-62 (discussing U.S. patent law’s written description and enablement requirements).

⁷¹ *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2139 (2014) (discussing the requirement of patent claim definiteness).

⁷² See F. SCOTT KIEFF ET AL., *PRINCIPLES OF PATENT LAW* 99 (6th ed. 2013) (“When an application reaches an examining group, it is assigned to the appropriate art (i.e., technology) unit and then to a particular examiner.”); MERGES & DUFFY, *supra* note 60, at 52 (noting “the specialization of the examiners, who are assigned to a particular technology”).

⁷³ See U.S. PATENT & TRADEMARK OFFICE, U.S. PATENT STATISTICS CHART: CALENDAR YEARS 1963-2015 (2017) [hereinafter *CALENDAR YEAR PATENT STATISTICS*], http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm [https://perma.cc/B3GG-YUSL].

⁷⁴ U.S. PATENT & TRADEMARK OFFICE, *FISCAL YEAR 2015 PERFORMANCE AND ACCOUNTABILITY REPORT* 14 (2015), <http://www.uspto.gov/sites/default/files/documents/USPTOFY15PAR.pdf> [https://perma.cc/GN8B-XDCV] (indicating that the USPTO employed 9161 patent examiners at the end of fiscal year 2015).

applications filed per year.⁷⁵ In these thirty hours, the examiner must: (1) read the application and understand its technical subject matter; (2) search and review antecedent material ("prior art") that could indicate that the claimed invention lacks novelty or nonobviousness; (3) evaluate satisfaction of patentability requirements; (4) write up any relied-upon bases for rejecting the application; and (5) possibly engage in telephone or in-person interviews with the applicant or the applicant's agents.⁷⁶

Limits on examiner time suffice to indicate that the USPTO's pre-issuance review can act only as a rough screen for patent application quality. But there are other reasons to suspect that the USPTO issues a large number of patents or, at least, individual patent claims that do not really satisfy requirements for patentability.⁷⁷ Not only are examiners limited in the time that they can search prior art, they are generally limited in their ability to consult outside experts⁷⁸ and other sources of information, including the Internet, during the eighteen months that applications typically remain confidential.⁷⁹ Moreover, examiners bear the burden of proof. From the moment of a patent application's filing, an entitlement to an issued patent is effectively presumed: the examiner must show

⁷⁵ See CALENDAR YEAR PATENT STATISTICS, *supra* note 73 (showing that USPTO received 589,410 utility patent applications, 39,097 design patent applications, and 1140 plant patent applications in 2015); cf. John M. Golden, *Proliferating Patents and Patent Law's "Cost Disease,"* 51 Hous. L. Rev. 455, 496-97 (2013). More realistic estimates of examiner time per application put the average time available for these activities at about twenty hours per application, rather than thirty. See Chris J. Katopis, *Perfect Happiness?: Game Theory as a Tool for Enhancing Patent Quality,* 10 YALE J.L. & TECH. 360, 373 (2008) ("It is estimated that, on average, an examiner must examine eighty-seven applications per year, spending approximately nineteen hours on each application."); Mark A. Lemley, *Rational Ignorance at the Patent Office,* 95 Nw. U. L. Rev. 1495, 1500 (2001) ("The total average time the examiner spends on all these tasks over the two- to three-year prosecution of the patent is eighteen hours." (emphasis omitted)).

⁷⁶ See KIEFF ET AL., *supra* note 72, at 99-102, 101 nn.38-43; Lemley, *supra* note 75, at 1500.

⁷⁷ See Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help,* 19 BERKELEY TECH. L.J. 943, 944-45 (2004) (discussing grounds for believing that the USPTO "issues many patents that should not be enforced, either on economic or on legal grounds").

⁷⁸ Cf. Doug Lichtman & Mark A. Lemley, *Rethinking Patent Law's Presumption of Validity,* 60 STAN. L. REV. 45, 62 (2007) (advocating a review process enabling examiners "not only to spend at least one full month researching each purported invention, but also to hire relevant outside experts").

⁷⁹ See MPEP § 904.02(c), at 900-44 (rev. 9th ed. Nov. 2015) (stating that examiner Internet use must comply "with confidentiality requirements"); Golden, *supra* note 63, at 336 ("[E]xaminers face tight restrictions on their ability to consult any outside evidence, never mind outside experts.").

non-patentability by a preponderance of evidence.⁸⁰ The USPTO might further tilt the balance against rejection through the agency's openly declared concern for fee-paying customers, such as patent applicants, and, more particularly, through the agency's traditional assignment of performance credit for an examiner's closing of a case through the grant of patent rights.⁸¹

Given the deficiencies of the USPTO's pre-issuance review of patents, the patent system unsurprisingly provides opportunities for private-party challenges to the validity of an issued patent. Most notably for our purposes, a party sued for infringement or confronting an immediate threat of suit for infringement⁸² has long been able to challenge the validity of the relevant patent in district court.⁸³ A party making such a challenge must prove invalidity by clear and convincing evidence,⁸⁴ but success in such challenges is far from rare. In cases in which questions of novelty or nonobviousness are litigated to a final judgment, challengers win about half the time.⁸⁵ Selection effects—products of parties' presumed selectivity in determining which issues are litigated to final judgment as opposed to settled, voluntarily dismissed, or never even asserted—mean that such litigation-based invalidation rates do not provide a great indication of the underlying percentage of issued patent claims that are invalid.⁸⁶ Regardless, it seems accepted that an accused infringer can generally mount a substantial validity challenge to at least some of a patent's claims.⁸⁷

In the early 1980s, Congress began responding to uncertainty about issued patent claims' validity by establishing administrative post-issuance proceedings

⁸⁰ Sean B. Seymore, *The Presumption of Patentability*, 97 MINN. L. REV. 990, 1023 (2013) (noting an examiner's "dual burden of building a prima facie case of [non]patentability and carrying the ultimate burden of persuasion").

⁸¹ Patrick A. Doody, *How to Eliminate the Backlog at the Patent Office*, 37 AIPLA Q.J. 395, 411-13 (2009).

⁸² See, e.g., *Arkema Inc. v. Honeywell Int'l, Inc.*, 706 F.3d 1351, 1357 (Fed. Cir. 2013); KIMBERLY A. MOORE, PAUL R. MICHEL & TIMOTHY R. HOLBROOK, *PATENT LITIGATION AND STRATEGY* 50 (3d ed. 2008) ("Declaratory judgment actions can be a sword for the alleged infringer as well as a shield.").

⁸³ See 35 U.S.C. § 282(b) (2012) (identifying potential "defenses in any action involving the validity or infringement of a patent").

⁸⁴ *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011) (holding that the Patent Act "requires an invalidity defense to be proved by clear and convincing evidence").

⁸⁵ See 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, 621 (2015) (noting "the frequently cited statistic that courts invalidate nearly half of all litigated patents that make it to final judgment").

⁸⁶ See *id.* at 621-22 (observing "that litigated patents are a highly select sample of patents whose characteristics vary substantially from allowed patents in general").

⁸⁷ See Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75, 76 ("The risk that a patent will be declared invalid is substantial.").

through which the validity of patent claims might be challenged or clarified.⁸⁸ The available types of such proceedings and the frequency of their overall use have grown over the past three decades.⁸⁹ Now there are four such types, with hundreds of proceedings launched each year.⁹⁰ The four types are: (1) ex parte reexaminations to evaluate new questions of novelty or nonobviousness based on prior-art "patents or printed publications";⁹¹ (2) inter partes review proceedings, in which a private party can effectively litigate novelty or nonobviousness based on the same art forms;⁹² (3) post-grant review proceedings in which a party can litigate essentially any kind of validity question as long as the request for review comes within nine months of the relevant patent's issuance;⁹³ and (4) covered business method review proceedings whose procedure and permissible substance track those of post-grant review.⁹⁴

Although post-issuance USPTO proceedings have become a booming business,⁹⁵ substantial statutory limitations on these proceedings mean they cannot completely substitute for district court litigation. As noted above, ex parte reexamination and inter partes review are restricted to a limited subset of potential bases for challenging a patent claim's validity—namely, arguments of lack of novelty or nonobviousness relative to previously available patents or

⁸⁸ Gregory Dolin, *Dubious Patent Reform*, 56 B.C. L. REV. 881, 899 (2015) (noting that reexamination processes established in 1981 and 1999 were intended to increase "the reliability of issued patents").

⁸⁹ *Id.* at 883-84 (discussing the increase in post-issuance review mechanisms beginning in 1981).

⁹⁰ See U.S. PATENT & TRADEMARK OFFICE, PATENT TRIAL AND APPEAL BOARD STATISTICS 7 (2015) [hereinafter PTAB STATISTICS 2015], <http://www.uspto.gov/sites/default/files/documents/2015-11-30%20PTAB.pdf> [<https://perma.cc/DP97-S389>] (reporting PTAB institution of about nine hundred inter partes review, post-grant review, and covered business method review proceedings in fiscal year 2015, not including joinders); U.S. PATENT & TRADEMARK OFFICE, PERFORMANCE AND ACCOUNTABILITY REPORT FISCAL YEAR 2015, at 196 tbl.14A (2015) <https://www.uspto.gov/sites/default/files/documents/USPTOFY15PAR.pdf> [<https://perma.cc/64KG-42AU>] (reporting grants of about two hundred requests for ex parte reexamination in fiscal year 2015).

⁹¹ 35 U.S.C. § 303 (2012); MERGES & DUFFY, *supra* note 60, at 1040.

⁹² See 35 U.S.C. § 311; MERGES & DUFFY, *supra* note 60, at 1050-51.

⁹³ See MERGES & DUFFY, *supra* note 60, at 1047.

⁹⁴ See Eric C. Cohen, *A Primer on Inter Partes Review, Covered Business Method Review, and Post-Grant Review Before the Patent Trial and Appeal Board*, 24 FED. CIR. B.J. 1, 22 (2014) ("The transitional proceeding [for covered business method patents] employs the standards of post-grant review, except that there is no nine-month deadline for filing and the stoppel provisions of post-grant review do not apply to civil actions.").

⁹⁵ See Golden, *supra* note 30, at 1667 ("From mid-2014 through the third quarter of 2015, filings for inter partes post-issuance proceedings before the PTAB arrived at a rate of about one hundred fifty per month.").

printed publications.⁹⁶ Post-grant review and covered business method review enable challenges to validity on any grounds but are available only within nine months of a patent's issuance or for covered business method patents, respectively.⁹⁷

Two more concerns with USPTO proceedings are that they are either non-adversarial or expensive. Ex parte USPTO proceedings like pre-issuance examination and post-issuance reexamination generally exclude continuing input from patent challengers and are commonly viewed as too likely to favor patentees.⁹⁸ The three adversarial forms of post-issuance proceedings are significantly less costly than district court proceedings but still pricey for many potential litigants. Between USPTO fees and fees for attorneys and experts, a party to inter partes review is likely to spend \$200,000 by the end of motion practice and about \$350,000 overall.⁹⁹

This Article proposes a new type of administrative proceeding that is expected to be cheaper for the parties involved and offer an adversarial administrative forum to hear disputes over patent claim construction and infringement as well as patent validity. Part II builds the initial case for this new type of administrative proceeding by describing the troubled nature of the current patent litigation landscape.

II. THE PATENT LITIGATION LANDSCAPE

Many critics of the patent system believe patent litigation produces problematic incentives in general or at least in circumstances involving PAEs.¹⁰⁰ Patent litigation can hurt more than help overall incentives for innovation if litigation outcomes improperly allocate economic rewards or if any benefits from improved allocation through litigation are outweighed by social costs of

⁹⁶ See *supra* text accompanying notes 91-92.

⁹⁷ See *supra* text accompanying notes 93-94.

⁹⁸ See Dale L. Carlson & Robert A. Migliorini, *Patent Reform at the Crossroads: Experience in the Far East with Oppositions Suggests an Alternative Approach for the United States*, 7 N.C. J.L. & TECH. 261, 270 (2006) (describing ex parte reexamination as “unduly favorable to the patentee because of the very limited involvement of the third-party requester”).

⁹⁹ See AIPLA 2015 SURVEY, *supra* note 18, at 38.

¹⁰⁰ See, e.g., James Bessen, Jennifer Ford & Michael Meurer, *The Private and Social Costs of Patent Trolls*, 34 REGULATION 26, 26 (concluding that lawsuits brought by NPEs “substantially reduce [technology companies’] incentives to innovate”); Herbert Hovenkamp, *Antitrust and the Patent System: A Reexamination*, 76 OHIO ST. L.J. 467, 559-60 (2015) (describing “the recent sharp increase in PAE activity” as “a ballooning crisis in the patent system”).

litigation itself.¹⁰¹ This Part describes reasons for concern that patent litigation has become a morass that often undermines the objectives that Congress intends patents to serve.

A. *Recipe for Trouble*

A patent-infringement suit in district court is a form of complex litigation that typically features technical subject matter, multiple stages, and high costs.¹⁰² The Judicial Conference of the United States has attested to the burden that patent-infringement suits impose on courts by assigning these suits the fourth highest case weight for civil suits in district courts, trailing only death-penalty habeas, environmental, and civil RICO cases.¹⁰³ Three aspects of the patent litigation landscape are particularly worth highlighting (1) the complexity, longevity, and cost of litigation; (2) concerns with PAEs and software patents; and (3) the apparent prevalence of forum shopping.

1. Litigation Complexity, Longevity, and Cost

Patent litigation in the district courts and other forms of complex civil litigation share many common characteristics. After a patent holder files suit and the defendant answers and potentially countersues, “[t]he parties proceed to fact and expert discovery, motion practice, pretrial briefing, and trial.”¹⁰⁴

But patent litigation in the district courts typically features a relatively distinct claim construction phase in which a judge determines the meaning of contested patent claim language.¹⁰⁵ The claim construction phase of patent cases ordinarily precedes summary judgment filings and occurs after much, if not all, discovery.¹⁰⁶ In a conventional version of this phase, the parties brief disputed claim terms¹⁰⁷ and provide a technology tutorial,¹⁰⁸ and the trial judge holds an

¹⁰¹ See Golden, *supra* note 49, at 517-18 (discussing costs imposed by the patent system and noting that excessive rewards from patent rights could “induc[e] the diversion of resources from more socially productive activity”).

¹⁰² See *infra* text accompanying notes 103-31.

¹⁰³ FED. JUDICIAL CTR., 2003-2004 DISTRICT COURT CASE-WEIGHTING STUDY: FINAL REPORT TO THE SUBCOMMITTEE ON JUDICIAL STATISTICS OF THE COMMITTEE ON JUDICIAL RESOURCES OF THE JUDICIAL CONFERENCE OF THE UNITED STATES 5 tbl.1 (2005).

¹⁰⁴ PETER S. MENELL ET AL., PATENT CASE MANAGEMENT JUDICIAL GUIDE 2-4 (3d ed. 2016).

¹⁰⁵ See *id.* at 5-3 (describing claim construction as “one of the most distinctive aspects of patent litigation”).

¹⁰⁶ See *id.* at 5-5 to 5-6 (discussing practices with respect to discovery both before and after claim construction).

¹⁰⁷ Ronald J. Schutz & Jonathan D. Goins, *Case Management Issues in Patent Litigation*, 5 SEDONA CONF. J. 1, 2 (2004) (“*Markman* briefs and hearings are a critical part of patent litigation proceedings . . .”).

¹⁰⁸ MENELL ET AL., *supra* note 104, at 5-15.

oral hearing and issues a claim construction order—often called a “*Markman* order”—that interprets relevant terms.¹⁰⁹ Claim construction can significantly clarify the strength of parties’ positions¹¹⁰ but often comes only after much time and money has already been expended. According to a study using data from Lex Machina, for the approximately 10% of patent suits initiated and terminated between 2000 and 2010 that resulted in a claim-construction order, the average time from case filing to claim construction was 1.8 years.¹¹¹

A variety of litigation phases can follow claim construction. As indicated above, the district court’s claim construction is often followed by a summary judgment phase, in which parties file, support, and dispute motions for summary judgment.¹¹² If a case is not resolved by summary judgment or by settlement before or after rulings on summary judgment, the case proceeds with further pretrial developments such as the drafting of jury instructions.¹¹³ Courts have recognized a right to a jury trial in patent cases involving a claim for damages,¹¹⁴ and most present-day trials occur before a jury.¹¹⁵ These jury trials may be followed by post-trial motions for a new trial or judgment as a matter of law.¹¹⁶ The district courts might conduct additional post-jury-verdict proceedings on attorney fee shifting, enhanced damages, or injunctive relief.¹¹⁷ After a district court’s final judgment, a party may appeal to the U.S. Court of Appeals for the

¹⁰⁹ See *id.* at 2-4 to 2-5; Pauline M. Pelletier, *The Impact of Local Patent Rules on Rate and Timing of Case Resolution Relative to Claim Construction: An Empirical Study of the Past Decade*, 8 J. BUS. & TECH. L. 451, 467 (2013) (noting that the “*Markman* order” is “so called after the seminal case on claim construction”).

¹¹⁰ See Schutz & Goins, *supra* note 107, at 2 (“[T]he court’s rulings on claim construction and interpretation often determine the outcome of the case.”).

¹¹¹ Pelletier, *supra* note 109, at 477 (describing results from a study of 28,377 patent cases).

¹¹² See MENELL ET AL., *supra* note 104, at 6-10.

¹¹³ *Id.* at 7-2.

¹¹⁴ Devon Curtis Beane, Note, *Whose Right Is It Anyway?: The Evisceration of an Infringer’s Seventh Amendment Right in Patent Litigation*, 2011 U. ILL. L. REV. 1853, 1858 (noting courts’ differential treatment of cases “where plaintiffs seek damages” and those where “the patentee seeks only injunctive relief”).

¹¹⁵ Mark A. Lemley, *Why Do Juries Decide If Patents Are Valid?*, 99 VA. L. REV. 1673, 1674 & n.1 (2013) (“Lawyers, scholars, and judges take for granted that when a patent case goes to trial, that trial will almost always be before a jury.”).

¹¹⁶ MENELL ET AL., *supra* note 104, at 9-2.

¹¹⁷ *Id.*

Federal Circuit in Washington, D.C.¹¹⁸ Appeals frequently result in cases being remanded for further proceedings.¹¹⁹

Key aspects of this process of multistage litigation are that it tends to take years and that at least half of its overall cost tends to occur during discovery phases that precede any trial.¹²⁰ Even before any appeal, district court proceedings that run through trial commonly span about two years, with even a district known for "quick case schedules," the Eastern District of Texas, having a median time to trial of 1.8 years during the period from 2000 to 2007.¹²¹

Moreover, the costs of patent litigation are typically high. Patent litigation has commonly been called a "sport of kings," the sense being that it is typically so expensive that only extraordinarily well-heeled plaintiffs and defendants can afford to pursue it.¹²² Much of the cost is associated with the process of discovery, in which sides frequently exchange huge quantities of documents relating to the claimed invention, the nature of the accused product or process, and the developmental histories of both.¹²³ Testifying and non-testifying experts are commonly employed to analyze and explain aspects of such material,¹²⁴ and the two sides can incur additional expenses developing instructional or illustrative graphics to help render relevant technology comprehensible to generalist judges and juries.¹²⁵ According to the results of a biannual survey by the American Intellectual Property Lawyers Association, such activities lead to litigation costs per side that tend to rise with perceived stakes and that often total millions of dollars.¹²⁶

Of course, the true costs of litigation likely exceed out-of-pocket costs, and these overall costs might be even more heavily weighted toward pretrial

¹¹⁸ See John M. Golden, *The Supreme Court as "Prime Percolator": A Prescription for Appellate Review of Questions in Patent Law*, 56 UCLA L. REV. 657, 664 (2009) (describing the patent jurisdiction of the Federal Circuit); John M. Golden, Response, *Too Human? Personal Relationships and Appellate Review*, 94 TEX. L. REV. 70, 77 (2016) (discussing the location and "national jurisdiction" of the Federal Circuit).

¹¹⁹ MENELL ET AL., *supra* note 104, at 9-21.

¹²⁰ See *infra* note 123.

¹²¹ Daniel Klerman & Greg Reilly, *Forum Selling*, 89 S. CAL. L. REV. 241, 265 & n.131 (2016) ("Nationwide, the median time to trial in [patent cases from 2000 to 2007] was two years.").

¹²² Golden, *supra* note 42, at 2077 & n.15.

¹²³ See AIPLA 2015 SURVEY, *supra* note 18, at 37-39 (listing median litigation costs through discovery that generally either approximately equal or exceed half of median total litigation costs).

¹²⁴ Edward G. Poplawski, *Selection and Use of Experts in Patent Cases*, 27 AIPLA Q.J. 1, 3 (1999) ("[E]xpert testimony is virtually essential in assisting the trier of fact to understand the evidence and to resolve factual issues in [patent] litigation.").

¹²⁵ See Lisa C. Wood, *Making Your Case with Graphics: An Interview*, 22 ANTITRUST 103, 104-05 (2008).

¹²⁶ See *supra* note 18 and accompanying text.

discovery. A defendant's business might operate under a cloud of uncertainty¹²⁷ until it can implement a "design-around" of asserted patent rights, which is a redesign of the defendant's products or processes that the defendant can claim steers well clear of any charges of infringement.¹²⁸ Further, patent litigation can be most disruptive to a defendant's business during discovery, in substantial part because the number of key employees subjected to questioning, depositions, and document requests during this stage can far exceed the number of employees called as witnesses at trial.¹²⁹

In sum, patent litigation in the district courts tends to be an expensive, multistage process that, in the absence of settlement, takes years to conclude. These aspects of patent litigation can have negative social effects, including the relative chilling of innovative activity that might result either from undue barriers to the enforcement of patent rights¹³⁰ or from the encouragement of so-called nuisance suits focused on extracting settlement payments by threatening innovators with litigation costs.¹³¹

2. Rise in Litigation, Especially Involving Software and PAEs

Concerns about the complexity, longevity, and cost of patent litigation have not stifled its growth. Patent suit filings have increased dramatically since the year 2000, with the number of new suits rising from about two thousand three hundred to over four thousand five hundred annually.¹³² Although part of this

¹²⁷ Martin J. Adelman & Gary L. Francione, *The Doctrine of Equivalents in Patent Law: Questions that Pennwalt Did Not Answer*, 137 U. PA. L. REV. 673, 682 (1989) ("[U]ncertainty about the scope of patent protection hinders both patent holders and potential defendants from assessing the possible outcome of litigation or from making other business decisions" (footnote omitted)).

¹²⁸ Cf. KIEFF ET AL., *supra* note 72, at 68.

¹²⁹ Cf. Colleen Chien, *Startups and Patent Trolls*, 17 STAN. TECH. L. REV. 461, 472 (2014) (stating that surveyed entrepreneurial companies commonly reported "that resolving [a patent] demand required founder time (73%) and distracted from the core business (89%)" (footnote omitted)).

¹³⁰ See D. Rosenberg & S. Shavell, *A Model in Which Suits Are Brought for Their Nuisance Value*, 5 INT'L REV. L. & ECON. 3, 3 (1985) (stating that a plaintiff could "be likely to prevail . . . but . . . still not want to go to trial because the litigation costs would exceed the expected judgment").

¹³¹ See Sergio J. Campos, Christopher S. Cotton & Cheng Li, *Deterrence Effects Under Twombly: On the Costs of Increasing Pleading Standards in Litigation*, 44 INT'L REV. L. & ECON. 61, 67 (2015) (describing "nuisance lawsuits" as "frivolous lawsuits intended to entice settlement from a likely innocent defendant who wants to avoid litigation costs").

¹³² LEX MACHINA, *supra* note 17; see also Lauren Cohen, Umit G. Gurun & Scott Duke Kominers, *The Growing Problem of Patent Trolling: Cash-Hungry Patent Trolls Are Squelching Innovation—and Should Be Screened Out*, 352 SCIENCE 521, 521 (2016) [hereinafter Cohen et al., *Growing Problem*] ("The last decade has seen a sharp rise in patent litigation in the United States . . ."); Lauren Cohen, Umit Gurun & Scott Duke Kominers,

rise reflects multiplication of suits as a result of the new joinder restrictions enacted in 2011,¹³³ the dramatic rise in patent-suit defendants provides a less ambiguous indication of the growing intensity of patent litigation. According to one estimate, the number of defendants in new patent cases increased from about six thousand five hundred or less in each of the three years from 1999 through 2001 to about twelve thousand or more in each of the three years from 2012 through 2014.¹³⁴ Two focal points of concern with such growth in litigation have been software patent cases and lawsuits brought by PAEs.

In 2013, the Government Accountability Office (the “GAO”) reported that software-related patents were at issue in nearly half of the patent-infringement suits filed from 2007 through 2011, with suits over software-related patents accounting for nearly two-thirds of defendants in new patent-infringement suits and just under 90% of “the increase in defendants over this period.”¹³⁵ The GAO also found that suits involving software-related patents had an unusual tendency to persist before the courts, thereby presumably running up higher litigation costs. Specifically, the GAO found “a statistically significant difference between suits involving software-related patents, of which 82% settled compared with 89% of suits that did not involve software-related patents.”¹³⁶

Concern about software patent litigation has extended beyond the GAO. Commentators have argued that software-related patents tend to raise particular problems for assessments of patent scope, the validity of patent claims, and the proper value of patent damages.¹³⁷ Moreover, a recent Supreme Court decision has cast doubt on the subject-matter eligibility—and thus validity—of many

Patent Trolls: Evidence from Targeted Firms 5 (Nat’l Bureau of Econ. Research, Working Paper No. 20322, 2014) [hereinafter Cohen et al., *Patent Trolls*], <http://www.nber.org/papers/w20322.pdf> [<https://perma.cc/7XE7-DDDV>] (“The amount of patent-related litigation has increased tenfold since 2000.”).

¹³³ See *supra* text accompanying note 31 (describing change in joinder rules); see also Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649, 655 (2014) (“[M]ost of the differences between the years [2010 and 2012] are likely explained by, and attributable to, a change in the joinder rules adopted in 2011 . . .”).

¹³⁴ Matthew Sag, *IP Litigation in U.S. District Courts: 1994-2014*, 101 IOWA L. REV. 1065, 1082 & tbl.3 (2016) (“The real trend in patent litigation over the past two decades can be seen in the number of defendants filed against.”).

¹³⁵ U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-13-465, INTELLECTUAL PROPERTY: ASSESSING FACTORS THAT AFFECT PATENT INFRINGEMENT LITIGATION COULD HELP IMPROVE PATENT QUALITY 21 (2013) [hereinafter 2013 GAO REPORT].

¹³⁶ *Id.* at 25 n.46.

¹³⁷ See, e.g., JAMES BESSEN & MICHAEL J. MEURER, PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK 187 (2008) (contending that, because “software is an abstract technology,” software patents are especially likely to “have unclear boundaries and give rise to opportunistic litigation” (emphasis omitted)).

software-related patent claims.¹³⁸ As a result, general concerns with uncertainty about patent quality and vagaries in patent litigation are commonly intensified for software patents.¹³⁹

Like software patents, PAEs loom large in the recent growth in patent litigation. Evidence indicates that PAEs have driven most of that growth, with the numbers of suits brought annually by entities that actively commercialize or otherwise practice their patented inventions being comparatively flat.¹⁴⁰ Evidence on whether overly broad or otherwise invalid (“bad”) patents substantially explain growth in PAE activity is ambiguous, but recent large-sample empirical evidence suggests that, on average, entities such as PAEs buy and litigate lower quality patents. Initial studies based on relatively small samples indicated that patents held or asserted by PAEs were of higher than normal quality, in the sense that they were more highly cited and had wider technical breadth than was typical of patents overall.¹⁴¹ Such small-sample studies tend to be particularly liable to data-collection biases, however.¹⁴² Large-sample empirical studies have provided significant indications of comparatively low quality for PAE-owned patents. Specifically, such studies have indicated PAE patent portfolios disproportionately comprised patents whose claims were allowed by patent examiners who spent relatively less time reviewing and

¹³⁸ *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2352 (2014) (holding “that merely requiring generic computer implementation fails to transform [a specified] abstract idea into a patent-eligible invention”).

¹³⁹ See 2013 GAO REPORT, *supra* note 135, at 45 (suggesting that software-related patents might be a better focus of patent reform efforts than any particular class of patent owners, and also noting that “most of the suits brought by [patent monetization entities from 2007 through 2011] involved software-related patents”).

¹⁴⁰ Lauren Cohen, Umit G. Gurun & Scott Duke Kominers, *Empirical Evidence on the Behavior and Impact of Patent Trolls: A Survey*, in PATENT ASSERTION ENTITIES AND COMPETITION POLICY 27, 28 fig.3.1 (D. Daniel Sokol ed., 2017) [hereinafter Cohen et al., *Empirical Evidence*].

¹⁴¹ See, e.g., Timo Fischer & Joachim Henkel, *Patent Trolls on Markets for Technology—An Empirical Analysis of NPE’s Patent Acquisitions*, 41 RES. POL’Y 1519, 1526 (2012) (“NPEs acquire patents that, on average, lie in denser technology fields, received more forward citations, have more claims, are older, and lie in more crowded technology fields than patents acquired by practicing firms.”); Michael Risch, *Patent Troll Myths*, 42 SETON HALL L. REV. 457, 481 (2012) (“[T]raditional patent quality measures imply at the very least that NPE patents look a lot like other litigated patents. If one believes that these measures indicate patent quality, then NPE patents would appear to be of equal or higher quality.”); Sannu K. Shrestha, Note, *Trolls or Market-Makers? An Empirical Analysis of Nonpracticing Entities*, 110 COLUM. L. REV. 114, 146 (2010) (citing data indicating “that the NPE patents in the sample have disproportionately higher values than randomly selected litigated patents and the analyzed set of litigated peer patents”).

¹⁴² See Cohen et al., *Empirical Evidence*, *supra* note 140, at 35 (noting concerns about the representativeness of the small samples used in earlier studies).

narrowing claims,¹⁴³ PAEs were significantly more likely than practicing entities ("PEs")¹⁴⁴ to have patent claims invalidated,¹⁴⁵ and PAEs tended to litigate patents that were older and closer to expiration than those litigated by PEs.¹⁴⁶

In short, there is substantial evidence that not only the increased volume of patent litigation but also the emergence of software patents and PAEs as major players in patent litigation might be straining the patent system's ability to advance social goals. An additional troublesome aspect of the current patent litigation landscape, the apparent prevalence of forum shopping, arguably exacerbates these strains.

3. Forum Shopping and Selling

From at least the early 1990s until the spring of 2017, a patent owner commonly had a wide choice of fora in which to file suit. By act of Congress, "[a]ny civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business."¹⁴⁷ Congress defines "[r]esidency" in another section of the same title of the U.S. Code.¹⁴⁸ This definition provides, in part, that "an entity with the capacity to sue and be sued in its common name under applicable law . . . reside[s], if a defendant, in any judicial district in which such defendant is subject to the court's personal jurisdiction with respect to the civil action in question."¹⁴⁹

¹⁴³ Josh Feng & Xavier Javel, *Who Feeds the Trolls?: Patent Trolls and the Patent Examination Process* 4 (July 12, 2016) (unpublished manuscript), <http://ssrn.com/abstract=2838017> [<https://perma.cc/C35K-LTE6>] ("We find that patents purchased by NPEs are, on average, granted by examiners who allow more incremental patents and patents with vaguer language.").

¹⁴⁴ See *supra* note 57 (implicitly defining PEs by comparison to NPEs).

¹⁴⁵ John R. Allison, Mark A. Lemley & David L. Schwartz, *How Often Do Non-Practicing Entities Win Patent Suits?* 40 (Stanford Law Sch. John M. Olin Program in Law & Econ., Paper No. 485, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2750128 [<https://perma.cc/7SS2-5MUQ>] ("Operating companies won more often [in litigation] than NPEs in our data set.").

¹⁴⁶ Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1312 (2013) ("Product-producing companies predominantly enforce their patents soon after they issue and complete their enforcement activities well before their patents expire. NPEs, on the other hand, begin asserting their patents relatively late in the patent term and frequently continue to litigate their patents to expiration.").

¹⁴⁷ 28 U.S.C. § 1400(b) (2012).

¹⁴⁸ *Id.* § 1391(c).

¹⁴⁹ *Id.* § 1391(c)(2).

In 1990, the Federal Circuit held that this definition determines the scope of residency for purposes of patent venue.¹⁵⁰ Under this ruling, companies that produced consumer products sold throughout the United States could often be sued for patent infringement in any of the country's ninety-four judicial districts.¹⁵¹ A Supreme Court decision issued in May 2017 overruled the Federal Circuit, however, holding "that a domestic corporation 'resides' only in its State of incorporation for purposes of the patent venue statute."¹⁵² Partly because a patent infringement suit may also "be brought in the judicial district . . . where the defendant has committed acts of infringement and has a regular and established place of business,"¹⁵³ the practical significance of the Court's holding on residency remains to be determined.¹⁵⁴

In any event, for at least some patentees, there is an alternative forum beyond the district courts. Upon complaint by a private party, the International Trade Commission (the "ITC"), an independent agency created "[t]o protect domestic industry from unfair practices,"¹⁵⁵ can launch proceedings that culminate in an order prohibiting the importation of specified articles or prohibiting domestic activities involving imported matter.¹⁵⁶ But the overall number of ITC proceedings to enforce patents is much smaller than the number of district court cases. Whereas several thousand patent suits are initiated annually in district courts,¹⁵⁷ the ITC lists less than eighty total Section 337 proceedings as having been instituted in each fiscal year between 2010 and 2015 and estimates that less

¹⁵⁰ *VE Holding Corp. v. Johnson Gas Appliance Co.*, 917 F.2d 1574, 1584 (Fed. Cir. 1990) (describing personal jurisdiction as "the first test for venue"), *abrogated by* *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514 (2017); Elizabeth P. Offen-Brown, Note, *Forum Shopping and Venue Transfer in Patent Cases: Marshall's Response to TS Tech and Genentech*, 25 *BERKELEY TECH. L.J.* 61, 64-65 (2010) (discussing interpretation of 28 U.S.C. § 1400(b)).

¹⁵¹ Jeanne C. Fromer, *Patentography*, 85 *N.Y.U. L. REV.* 1444, 1451 (2010) ("[A] patent plaintiff may frequently choose to initiate a lawsuit in virtually any federal district court."); Mark Liang, *The Aftermath of TS Tech: The End of Forum Shopping in Patent Litigation and Implications for Non-Practicing Entities*, 19 *TEX. INTELL. PROP. L.J.* 29, 39 (observing that patentees commonly can sue in essentially any district because of the nationwide scope of sales).

¹⁵² *TC Heartland LLC*, 137 S. Ct. at 1517.

¹⁵³ 28 U.S.C. § 1400(b).

¹⁵⁴ *Raytheon Co. v. Cray, Inc.*, 2:15-cv-01554, 2017 WL 2813896, *12 (E.D. Tex. June 29, 2017) (concluding "that a fixed physical location in the district is not a prerequisite to proper venue" based on the location of infringing acts and place of business).

¹⁵⁵ Sapna Kumar, *The Other Patent Agency: Congressional Regulation of the ITC*, 61 *FLA. L. REV.* 529, 544 (2009).

¹⁵⁶ 19 U.S.C. § 1337(a)(1), (b)(1), (d)-(f) (2012); Cotter & Golden, *supra* note 25 (noting the ITC's remedial powers).

¹⁵⁷ *See supra* text accompanying note 132 (describing the volume of patent litigation in district courts).

than fifty such proceedings will be instituted in each of fiscal years 2016 and 2017.¹⁵⁸ Because ITC proceedings account for only a small fraction of patent-infringement litigation, this Article focuses on suits filed in district courts.

There has been strong evidence of rampant forum shopping in the district courts. Broadly based venue in patent cases enabled a remarkable concentration of new patent suits in two federal districts commonly lying far from the centers of infringers' operations, the District of Delaware and the Eastern District of Texas.¹⁵⁹ According to data compiled by Lex Machina,¹⁶⁰ more than 40% of the thousands of new patent-infringement suits filed in each year from 2012 through the first several months of 2017 were filed in one of these two districts.¹⁶¹ In 2015, nearly 45% of suits were filed in the Eastern District of Texas alone.¹⁶² Further, evidence suggests that, among patent holders, PAEs and other NPEs were especially likely to sue in the Eastern District of Texas.¹⁶³ Plaintiff-friendly local procedural and administrative rules and realities, such as local rules that expedite pretrial proceedings,¹⁶⁴ comparatively predictable assignment of judges

¹⁵⁸ U.S. INT'L TRADE COMM'N, ANNUAL PERFORMANCE PLAN, FY 2016-2017 AND ANNUAL PERFORMANCE REPORT, FY 2015, at 83 tbl.C.2 (2016) https://www.usitc.gov/documents/usitc_2016_2017_app_and_2015_apr.pdf [<https://perma.cc/E36E-2MFZ>] (outlining total Section 337 proceedings instituted and completed for fiscal years 2010 through 2015 and estimating total Section 337 proceedings expected to be instituted and completed in fiscal years 2016 and 2017).

¹⁵⁹ See J. Jonas Anderson, *Court Competition for Patent Cases*, 163 U. PA. L. REV. 631, 632 (2015) ("[N]early half of the six thousand patent cases filed in 2013 were filed in just two of [the ninety-four districts in the United States]: the District of Delaware and the Eastern District of Texas."); Klerman & Reilly, *supra* note 121, at 249 tbl.1 (listing the Eastern District of Texas and the District of Delaware as the two most popular venues for patent cases from 2007 through the first half of 2015).

¹⁶⁰ Lex Machina makes data on intellectual property litigation in the United States freely available to qualifying "public interest users" such as university scholars. *Public Interest*, LEX MACHINA, <https://lexmachina.com/public-interest/> [<https://perma.cc/TCN4-4R8Q>] (last visited Sept. 18, 2017).

¹⁶¹ This information was obtained from a Lex Machina page entitled "All Court Case Filings by Year." See LEX MACHINA, *supra* note 17.

¹⁶² *Id.*

¹⁶³ Cohen et al., *Growing Problem*, *supra* note 132, at 521 ("[T]he preponderance of NPE patent litigation . . . is brought in the Eastern District of Texas . . ."); cf. Allison, Lemley & Schwartz, *supra* note 145, at 30 (finding that only 8.2% of suits brought by PEs and litigated to judgment were filed in the Eastern District of Texas, whereas the analogous figure was 26.9% for litigated-to-judgment suits brought by NPEs).

¹⁶⁴ Liang, *supra* note 151, at 43-46 (pointing to procedural factors such as "filing-to-trial time").

to individual cases,¹⁶⁵ judicial reluctance to grant summary judgment,¹⁶⁶ and the nature of local jury pools,¹⁶⁷ might explain much of the disproportionate caseload of Delaware and the Eastern District of Texas. Given this backdrop, the Supreme Court's holding on residence for patent venue purposes might do much to shift cases from the Eastern District of Texas to the District of Delaware, the leading state of incorporation for publicly traded companies.¹⁶⁸ But such a shift might fail to relieve concern about combined concentration of cases in these two districts.¹⁶⁹

Although some commentators defend forum shopping and district courts' self-differentiation as legitimate legal practices,¹⁷⁰ the apparent intensity of the phenomenon in patent law is at least ironic, just as the concern that judges might be biasing procedures to attract categories of plaintiffs is troubling.¹⁷¹ Congress specifically sought to limit forum differentiation in patent cases by creating the Federal Circuit, an appellate court with nationwide jurisdiction over patent

¹⁶⁵ Klerman & Reilly, *supra* note 121, at 254 (“Patentees have the unique opportunity in the Eastern District of Texas to choose their judge.”); *id.* at 281 (observing that the District of Delaware’s “small size—four allotted judgeships, with a vacancy for most of the past decade—provides significant judicial predictability”).

¹⁶⁶ Liang, *supra* note 151, at 43-46; *see also* Klerman & Reilly, *supra* note 121, at 251 (“[J]udges in the Eastern District of Texas grant summary judgment at less than one-quarter the rate of judges in other districts.”); *id.* at 281 (“The District of Delaware has . . . a low summary judgment rate.”).

¹⁶⁷ Klerman & Reilly, *supra* note 121, at 254 (“[J]uries in the Eastern District [of Texas] have a pro-patentee reputation.”); Yan Leychkis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J.L. & TECH. 193, 210-11 (2007) (reporting a 90% win rate for patentees in jury trials in the Eastern District of Texas from 1998 to 2006, as opposed to the national win rate of 68%).

¹⁶⁸ Sean J. Griffith & Alexandra D. Lahav, *The Market for Preclusion in Merger Litigation*, 66 VAND. L. REV. 1053, 1054-55 (2013) (“More than half of all public companies and over 60% of the Fortune 500 are incorporated in Delaware.”).

¹⁶⁹ *See supra* text accompanying notes 19-24.

¹⁷⁰ *See, e.g.*, Mary Garvey Algero, *In Defense of Forum Shopping: A Realistic Look at Selecting a Venue*, 78 NEB. L. REV. 79, 111 (1999) (concluding that “forum shopping should be recognized as a legitimate practice”); Debra Lyn Bassett, *The Forum Game*, 84 N.C. L. REV. 333, 335 (2006) (contending that “forum shopping is a legitimate, expressly authorized action when more than one forum satisfies the requisite legal criteria”).

¹⁷¹ *See* Anderson, *supra* note 159, at 634-35 (hypothesizing “that forum shopping in patent law is driven, at least in part, by federal district courts competing for litigants”); Klerman & Reilly, *supra* note 121, at 250 (contending “that judges in the Eastern District [of Texas] have consciously sought to attract patentees . . . by departing from mainstream doctrine in a variety of procedural areas”).

appeals.¹⁷² Evidence of trial-level forum shopping suggests that district courts' abilities to distinguish themselves through procedure and practice might threaten a fundamental congressional goal.¹⁷³

B. *Social Welfare Concerns with Patent Litigation*

How do problems with patent litigation affect social welfare? The patent system is commonly justified on grounds that it promotes technological progress or increases social welfare more generally.¹⁷⁴ But there has long been concern that patents, like other forms of intellectual property rights, can undermine these aims by acting more as an innovation-sapping tax or rent-seeker's delight than as a beneficent stimulus for innovation.¹⁷⁵ Such concern has become particularly sharp with respect to modern patent litigation.

1. General Social Welfare Concerns

Two basic causes of social concern with patent litigation are its costs and the vagaries of its outcomes. Section II.A.1 discussed the private costs of patent litigation. This Section explores the social welfare implications of such costs and of possibilities for error and bias in litigation outcomes.

As noted previously,¹⁷⁶ high litigation costs can encourage so-called nuisance or strike suits, lawsuits of relatively low legal merit whose expected value for patent holders primarily results from anticipation of the accused infringer's willingness to pay to avoid expected litigation costs.¹⁷⁷ Because of the

¹⁷² *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390 (1996) ("It was just for the sake of such desirable uniformity [in treatment of individual patents] that Congress created the Court of Appeals for the Federal Circuit . . ."); Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 7 (1989) (stating that proponents of the Federal Circuit's creation contended that "channelling patent cases into a single appellate forum would create a stable, uniform law and would eliminate forum shopping").

¹⁷³ See Megan M. La Belle, *The Local Rules of Patent Procedure*, 47 ARIZ. ST. L.J. 63, 65 (2015) (observing that, "[w]ith the surge of patent litigation in recent years, district courts around the country have crafted unique procedural rules for patent suits").

¹⁷⁴ Golden, *supra* note 49, at 509 (describing the "utilitarian goal that is standard in modern accounts").

¹⁷⁵ See, e.g., Fritz Machlup & Edith Penrose, *The Patent Controversy in the Nineteenth Century*, 10 J. ECON. HIST. 1, 1 (1950).

¹⁷⁶ See *supra* text accompanying notes 40-41, 131.

¹⁷⁷ Colleen Chien et al., *Santa Clara Best Practices in Patent Litigation Survey*, 42 AIPLA Q.J. 137, 180-81 (2014) ("Nuisance suits are suits for patent infringement that the defendant is motivated to settle due to the high cost of litigation, even if the patent is weak or its economic value is low."); William H.J. Hubbard, *A Fresh Look at Plausibility Pleading*, 83 U. CHI. L. REV. 693, 722 (2016) ("[T]he defendant's primary objective in a nuisance suit is avoiding its litigation costs.").

disconnect between the private value of such litigation-cost-driven enforcement activities and the social value of the patented invention, there is little reason to believe that such activities will provide patent-holder awards well-tailored to advance the patent system's social goals. Meanwhile, by acting as a tax on litigation targets, nuisance suits and the threat of nuisance suits can discourage socially valuable innovation by depressing the net private value of activities that such suits target.¹⁷⁸

Even if a private party is not sued, that party might incur costs in an effort to limit the risk of a patent-infringement suit. For example, the party might undertake an expensive design-around¹⁷⁹ or stockpile patents defensively, either to deprive others of patent-assertion opportunities or to be better positioned to respond to a patent-infringement suit with a countersuit.¹⁸⁰ Although such risk-responsive behavior can generate social benefits through associated investments in innovation or patenting, there seems to be little reason to believe that private parties' evasive or arms-race-style behavior will yield social benefits that outweigh its social costs.¹⁸¹

On the patent enforcement side, anticipated litigation costs can act as a barrier to use of the courts. Cash-strapped patent holders might find that their patents are effectively unenforceable outside the slim prospect of their case being cherry-picked for enforcement on a contingent-fee basis.¹⁸² Even capital-rich patent holders might find that litigation costs effectively preclude enforcement of patents of moderate value by causing meritorious suits to have a negative net present value. As with nuisance suits' effect on the value of the innovative

¹⁷⁸ See Golden, *supra* note 49, at 517 & n.71 ("Patents can impair dynamic efficiency by impeding follow-on development . . ."); Rebecca S. Eisenberg, *Noncompliance, Nonenforcement, Nonproblem? Rethinking the Anticommons in Biomedical Research*, 45 HOUS. L. REV. 1059, 1079 (2008) (discussing survey results on how concerns of patent clearance can affect innovative activities).

¹⁷⁹ See Carl Shapiro, *Injunctions, Hold-Up, and Patent Royalties*, 12 AM. L. & ECON. REV. 280, 290-99 (2010).

¹⁸⁰ Michael Risch, *Patent Portfolios as Securities*, 63 DUKE L.J. 89, 100-01 (2013) (reporting that motivations "to acquire large portfolios of patents" include preventing assertion of those patents against the buyer and protecting against "lawsuits filed by competitors").

¹⁸¹ See John M. Golden, *Injunctions as More (or Less) than "Off Switches": Patent-Infringement Injunctions' Scope*, 90 TEX. L. REV. 1399, 1409 (2012) (suggesting that design-around activity might best be viewed "as a means to mitigate the patent system's costs," rather than as a primary justification for patents); Golden, *supra* note 14, at 2154 (observing that "patent détente is neither costless nor uninterrupted" and can involve use of patents "to create barriers to new entrants" (footnote omitted)).

¹⁸² See David L. Schwartz, *The Rise of Contingent Fee Representation in Patent Litigation*, 64 ALA. L. REV. 335, 358 (2012) (reporting survey results indicating that contingent-fee lawyers for patent cases decline two-thirds to "over ninety-nine percent of potential cases").

activities of alleged infringers, litigation costs' depression of patents' effective value seems likely to be substantially untethered to social interests.

Error and bias in patent litigation outcomes can also undermine patents' promise by inducing a misallocation of resources from more to less socially productive activities. The generalist judges and juries of district courts might commonly struggle with patent law's technical legal provisions or technological and economic subject matter.¹⁸³ Lack of mastery of the law or technological subject matter could help to randomize case outcomes, leading to an unusually high percentage of cases in which trial courts award victory to a party who would not prevail under perfect application of relevant facts and law. Although vagaries in courts' decision making might wash out on average over the mine run of cases,¹⁸⁴ to the extent prior decisions inform later results there is some reason to suspect that vagaries will not average out and will instead tend toward a particular form of error that undermines patent system performance.¹⁸⁵ Moreover, even if vagaries do wash out on average, variance in results about the average can harm social welfare by distorting incentives for parties who are risk-prone or risk-averse.¹⁸⁶

The sort of forum shopping suggested by Subsection II.A.3 can exacerbate concerns with litigation vagaries by increasing the risk of biased results when

¹⁸³ See Arti K. Rai, *Specialized Trial Courts: Concentrating Expertise on Fact*, 17 BERKELEY TECH. L.J. 877, 877-78 (2002) (arguing for "a specialized patent trial court" because "difficult questions of scientific fact are likely to arise more routinely in patent law than in virtually any other field of law"); cf. Thomas F. Cotter, *Reining in Remedies in Patent Litigation: Three (Increasingly Immodest) Proposals*, 30 SANTA CLARA HIGH TECH. L.J. 1, 21 (2013) (expressing a belief that "the right to trial by jury contributes to the high cost of patent litigation and to overinflated damages awards").

¹⁸⁴ Golden, *supra* note 49, at 580 (noting "classic arguments that [courts'] average correctness suffices to provide proper incentives").

¹⁸⁵ At least in part because court awards of reasonable royalties can inform out-of-court royalty rates, which can inform later court awards, a number of commentators have suggested reasons that vagaries in the assessment of patent damages might not average out over time. See, e.g., Einer Elhauge, *Do Patent Holdup and Royalty Stacking Lead to Systematically Excessive Royalties?*, 4 J. COMPETITION L. & ECON. 535, 546 (2008) (contending that, under various circumstances, "royalty rates are likely to be suboptimal"); William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 438 (2016) (contending that "[t]he current reasonable royalty doctrine systematically overcompensates patent holders"); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 2163, 2164 (2007) (contending that patent law systematically overcompensates "patentees whose inventions are only one component of a larger product"); Jonathan S. Masur, *The Use and Misuse of Patent Licenses*, 110 NW. U. L. REV. 115, 144 (2015) (discussing how use of patent licenses to calculate reasonable royalty damages likely depresses damages more than "any [upward] distortion that patentees can introduce by inflating license prices").

¹⁸⁶ See Golden, *supra* note 49, at 581.

one side to patent cases, likely that of patent holders, tends to dominate the choice of forum.¹⁸⁷ Further, significant discrepancies in treatment at the district level can encourage socially wasteful strategic behavior in the form of races to the courthouse.¹⁸⁸

In short, there are substantial causes for concern that patent litigation's high costs, duration, and susceptibility to error or bias might undermine the patent system's aim to promote technological progress or social welfare more generally. The next Subsection highlights how PAEs can aggravate these causes for concern.

2. Concerns with PAEs

To a great extent, concerns with the litigation and licensing activities of PAEs are no more than extensions of concerns about patent litigation as a whole. PAEs can act as helpful intermediaries, identifying potential licensees and infringers and providing a means by which patent holders unable to afford litigation can obtain recompense for otherwise unenforceable rights.¹⁸⁹ But PAEs can also exploit litigation costs, legal vagaries, and hold-up potential to "tax" the work of innovators or consumers while failing to funnel sufficiently counterbalancing compensation to inventors.¹⁹⁰ Non-PAE patent holders can abuse the system in similar ways. But at least on average, PAEs might be more effective at exploiting rough edges of the patent system—partly because PAEs might be more efficient enforcement specialists and partly because, compared to PE patent holders,

¹⁸⁷ See Kimberly A. Moore & Francesco Parisi, *Rethinking Forum Shopping in Cyberspace*, 77 CHI.-KENT L. REV. 1325, 1328 (2002) ("[I]f some individuals are statistically more likely to be plaintiffs than defendants . . . , the opportunity for forum shopping may have biased distributional effects with a potential impact on the ex ante incentives of the parties.").

¹⁸⁸ See *id.* (noting that racing to the courthouse can "accelerat[e] the filing process and bring[] to trial cases that may not have matured into court claims had they been left to the choice of the natural plaintiff"); Harvey I. Safenstein & Nathan R. Hamler, *Location, Location, Location: A Proposal for Centralized Review of the Now Largely Unreviewable Choice of Venue in Federal Litigation*, 90 OR. L. REV. 1065, 1067 (2012) ("Motions to change venue . . . are often preceded by a race to the courthouse, especially in patent litigations . . .").

¹⁸⁹ See EXEC. OFFICE OF THE PRESIDENT, PATENT ASSERTION AND U.S. INNOVATION 3 (2013) (discussing how "[p]atent intermediaries can play a useful social role").

¹⁹⁰ See Brian T. Yeh, CONG. RESEARCH SERV., CRS R42668, AN OVERVIEW OF THE "PATENT TROLLS" DEBATE 6 (2013) ("PAEs have frequently been accused of imposing a 'tax on innovation' . . ."). *But cf.* Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2125, 2151 n.148 (2013) (finding evidence inconclusive on the extent to which "trolls increase or decrease the amounts that fund" innovation).

PAEs are likely to be less vulnerable to a patent-infringement countersuit and less bothered by a reputation for litigiousness.¹⁹¹

Generally speaking, there seem to be at least three basic storylines for PAE activities that are substantially socially detrimental:

1) *Hold-Up*: One concern with PAEs has been that, like a mythological troll emerging from under a bridge, PAEs can use patent rights to ambush a technology into which a supplier or user has become "lock[ed] in," thereby extracting a ransom that has little to do with the merits of the patented invention.¹⁹² With a large sheaf of patents in hand and no competing business concerns to drive the timing of litigation, certain PAEs might be especially adept at selecting and timing patent-infringement assertions to exploit such lock-in effects. But concerns about such potential PAE behavior appears substantially answered by the 2006 Supreme Court decision in *eBay Inc. v. MercExchange, L.L.C.*¹⁹³ and its aftermath.¹⁹⁴ In the wake of *eBay*, district courts have tended to deny injunctive relief for PAEs and in cases involving complex products,¹⁹⁵ thus defusing concerns about lock-in. Consequently, this Article's reform proposal specifically targets the two other PAE storylines described below.¹⁹⁶

2) *Exploiting System Vagaries for an Unmerited Windfall*: Related to the classic hold-up story but somewhat distinguishable is a "lottery-ticket" model under which PAEs exploit vagaries of the patent system to pursue a large and socially unmerited payoff.¹⁹⁷ The value of patent rights can be very difficult to assess, and thus, even if one makes the heroic assumption that the design of patent law is otherwise socially optimal, there is good reason to believe that courts' assessments of patent value will be erroneous in a number of cases and perhaps by much more than a factor of ten.¹⁹⁸ When one considers additional,

¹⁹¹ John M. Golden, *Patent Privateers: Private Enforcement's Historical Survivors*, 26 HARV. J.L. & TECH. 545, 598 (2013) (discussing potential explanations for "a past tradition of relative restraint in patent rights' enforcement and acquisition"); see also Cotropia, Kesan & Schwartz, *supra* note 133, at 650 (noting arguments that PAEs "are fundamentally different" from other plaintiffs because of their common lack of liability to patent-infringement countersuit).

¹⁹² See, e.g., Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUS. L. REV. 1165, 1184, 1189 (2008) (observing that situations involving high "switching costs . . . may cover many scenarios involving patent 'trolls'"); Robert P. Merges, *The Trouble with Trolls: Innovation, Rent-Seeking, and Patent Law Reform*, 24 BERKELEY TECH. L.J. 1583, 1590-91 (2009) ("The patent troll strategy is to take advantage of 'lock-in' that occurs as a result of [sunk cost] investments.").

¹⁹³ 547 U.S. 388, 394 (2006).

¹⁹⁴ See *supra* note 25 and accompanying text.

¹⁹⁵ Cotter & Golden, *supra* note 25.

¹⁹⁶ See *supra* text accompanying notes 45-46.

¹⁹⁷ Lemley & Melamed, *supra* note 190, at 2126.

¹⁹⁸ See Golden, *supra* note 14, at 2151 (noting party positions on reasonable royalties that differed by factors of about one hundred twenty and two hundred); see also *Apple, Inc. v.*

real-world vagaries attendant to assessments of patent validity and scope, the possibilities for unmerited windfalls multiply.¹⁹⁹

3) *Litigation-Cost Rent-Seeking and Harassment*: In accordance with a third storyline, some PAEs—so-called “‘bottom-feeder’ trolls”²⁰⁰—exploit costs of litigation, legal advice, and uncertainty itself to extort amounts of money that have little to do with a patent suit’s merits. A PAE could target a company at a particularly vulnerable moment: conventional wisdom holds “that companies are often sued for patent infringement shortly before their initial public offering.”²⁰¹ Under an alternative approach, PAEs can sue or send “demand letters” to hundreds and even thousands of potential targets, including relatively small firms and startups that are only end users of technology, such as restaurants and hotels providing wireless Internet to customers.²⁰² A PAE can induce payments by such parties by offering a licensing fee that is small compared to expected litigation costs or even the several thousand dollars commonly necessary for a simple attorney opinion on the merits of a patent-infringement allegation.²⁰³ In a variant of this nuisance-suit storyline, a PAE brings suit primarily to harass its target, perhaps on behalf of a PAE sponsor. In one suspected case of commissioned patent assertion, a company began suing

Motorola, Inc., No. 1:11-cv-08540, 2012 WL 1959560, at *3-7 (N.D. Ill. May 22, 2012) (reporting expert opinions for reasonable royalty damages differing by a factor of one hundred forty for one patent and by a factor of three hundred fifty for another), *rev’d in part and vacated in part*, 757 F.3d 1286 (Fed. Cir. 2014).

¹⁹⁹ See, e.g., Timothy R. Holbrook, *Equivalency and Patent Law’s Possession Paradox*, 23 HARV. J.L. & TECH. 1, 46 (2009) (discussing uncertainty about patent scope resulting from the doctrine of equivalents); Jason Rantanen, *The Federal Circuit’s New Obviousness Jurisprudence: An Empirical Study*, 16 STAN. TECH. L. REV. 709, 717 (2013) (discussing “the real challenge” involved in assessing an invention’s nonobviousness).

²⁰⁰ Lemley & Melamed, *supra* note 190, at 2126 (defining “bottom-feeder trolls” as patent holders that “rely on the high cost of patent litigation . . . to induce the parties they sue to settle for small amounts of money rather than pay millions to their lawyers”).

²⁰¹ Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors: IP Privateering and Modern Letters of Marque and Reprisal*, 4 HASTINGS SCI. & TECH. L.J. 1, 70 (2012) (explaining how “the prospective investor itself [can] bring the litigation as a means for lowering the investment target’s valuation price”).

²⁰² See Edward Wyatt, *Obama Orders Regulators to Root Out ‘Patent Trolls,’* N.Y. TIMES (June 4, 2013), <http://www.nytimes.com/2013/06/05/business/president-moves-to-curb-patent-suits.html> (noting that one PAE “threatened to sue 8,000 coffee shops, hotels and retailers for patent infringement because they had set up Wi-Fi networks for their customers”); see also Paul R. Gugliuzza, *Patent Litigation Reform: The Courts, Congress, and the Federal Rules of Civil Procedure*, 95 B.U. L. REV. 279, 280 (2015).

²⁰³ See AIPLA 2015 SURVEY, *supra* note 18, at 29 (reporting a median estimated per-patent charge of \$15,000 for an attorney opinion on patent validity and infringement).

competitors of Nokia and Sony soon after acquiring over a hundred patents and patent applications in which those companies had ownership interests.²⁰⁴

These storylines provide plausible bases for worrying about the proliferation of PAE activity, but the net social costs of PAE activity remain subject to heated debate.²⁰⁵ This Article does not attempt to resolve this debate. For this Article's purposes, it seems enough to note two generally accepted facts. First, PAE suits and the number of PAE-suit targets have grown substantially over the last two decades, with annual numbers of new PAE suits and PAE-suit defendants now tending to be in the thousands.²⁰⁶ Second, concerns about PAE activities highlight systemic weaknesses that would be worrisome even without PAEs,²⁰⁷ including (1) limited USPTO review that leaves substantial doubt about the validity and scope of many patents;²⁰⁸ (2) high litigation costs that impede access to the courts and can foster nuisance suits and settlements;²⁰⁹ and (3) vagaries in litigation outcomes that, from a social standpoint, can (a) excessively deter risk-averse parties from suit or defense, (b) frustrate desirable settlement efforts, and (c) encourage patent-holder rent seeking in a "litigation lottery."

²⁰⁴ Ewing, *supra* note 201, at 63.

²⁰⁵ In March 2015, members of Congress received two letters, each signed by dozens of scholars. The first pointed substantially to PAE activity in support of its assertion that "a large and increasing body of evidence indicates that the net effect of patent litigation is to raise the cost of innovation and inhibit technological progress." Letter from 51 Legal and Economic Scholars Who Study Innovation, to Congress (Mar. 2, 2015), http://www.utdallas.edu/~ugg041000/IPScholarsLettertoCongress_March_2_2015.pdf [<https://perma.cc/GAW9-6BZQ>]. The second questioned many claims of the first letter and warned that "tinkering with the engine of innovation—the U.S. patent system—on the basis of flawed and incomplete evidence threatens to impede this country's economic growth." Letter from 40 Economists and Law Professors Who Conduct Research in Patent Law and Policy, to Chuck Grassley et al., Chairman, Comm. on the Judiciary (Mar. 10, 2015), <https://sls.gmu.edu/cpip/wp-content/uploads/sites/31/2015/03/Economists-Law-Profes-Letter-re-Patent-Reform.pdf> [<https://perma.cc/HL85-BW3U>].

²⁰⁶ See, e.g., James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 390-91 (2014) (reporting that, "over the last few years, NPE litigation has reached a wholly unprecedented scale and scope"); Cotropia, Kesan & Schwartz, *supra* note 133, at 649 (observing that, "[i]n the last decade, the landscape of patent litigation has radically shifted" toward enforcement by PAEs).

²⁰⁷ Cf. David S. Olson, *On NPEs, Holdups, and Underlying Faults in the Patent System*, 99 CORNELL L. REV. ONLINE 140, 150 (2014) ("[I]n some ways, patent assertions by NPEs do not raise unique problems . . . so much as they increase the severity of pre-existing problems.").

²⁰⁸ See *supra* text accompanying notes 73-81.

²⁰⁹ See *supra* text accompanying notes 176-78. AIPLA survey data indicates that the costs of defending patent-infringement suits brought by PAEs are generally roughly comparable to, albeit often somewhat less than, those of defending against suits by other forms of patentees. See AIPLA 2015 SURVEY, *supra* note 18, at 37-38.

Without need for reference to PAEs, these weaknesses of the patent system by themselves justify this Article's proposal for patent litigation administrative review. After all, as early as 1813, Thomas Jefferson proposed that, to "better guard our citizens against harassment by lawsuits," questions about the validity of patents might best be turned over to "a board of Academical professors" instead of the courts.²¹⁰ The later institution of pre-issuance examination by professional patent examiners was a step toward realization of Jefferson's vision but a far from complete one. This Article's proposal can be understood as taking a further step toward that vision.

III. PROPOSAL FOR ADMINISTRATIVE REVIEW

This Part of the Article motivates and describes a proposed framework for early-stage administrative review of patent suits by an expert body that we call the Patent Litigation Review Board ("PLRB"). We begin our discussion by outlining the proposed PLRB process. Upon filing, district court cases would be automatically stayed pending preliminary review by the PLRB. Parties to the case could present arguments to the PLRB based on information available to them prior to discovery. These arguments could involve questions of claim construction, infringement, and enforceability as well as questions of validity. In addressing such questions, the PLRB would take an approach to patent claim construction identical to that of the district courts. Under a variant of a clear-and-convincing evidence standard, the PLRB would determine whether, with respect to any of the issues raised for preliminary review, a party sufficiently proved its case. The PLRB's ruling would not be binding on the courts but would be admissible in court and, we believe, likely influential. Further details regarding the framework for early-stage administrative review appear in Section III.B.

Section III.A makes the case for developing the PLRB framework by discussing how PLRB review can promote improved dispute resolution and help screen out weak claims and arguments. Section III.A uses general economic arguments and two economic models to support the contention that PLRB review would likely have these effects. First, a high-level model shows that even an only roughly accurate preliminary review process can systematically increase the expected value of higher-quality claims and decrease the expected value of lower-quality claims. Second, a more detailed model for patent assertion and defense demonstrates that these high-level results hold even when one accounts for expected real-world costs of PLRB review. The two models thereby show that PLRB review should improve patent system performance by discouraging weaker suits and encouraging stronger suits. Further, the models are conservative in the sense that they show PLRB review has this positive effect

²¹⁰ Letter from Thomas Jefferson to Isaac McPherson (Aug. 13, 1813), in 6 THOMAS JEFFERSON, THE PAPERS OF THOMAS JEFFERSON: RETIREMENT SERIES 384 (J. Jefferson Looney ed., 2009).

even when one assumes parties have symmetric information and beliefs. To the extent asymmetric information is a cause of problematic patent litigation or patent-assertion behavior, these models most likely underestimate the benefits of PLRB review because the models do not reflect the fact that, by inducing valuable information exchanges and providing early administrative feedback on party arguments, PLRB review can significantly reduce information asymmetries before parties undertake the costly process of litigation-related discovery.²¹¹

Sections III.B and III.C close the case for PLRB review. In addition to laying out a specific legal framework for PLRB review, Section III.B presents a third economic model to respond to concerns that private parties could dissipate the social value of PLRB review by flooding the PLRB with claims and arguments. This model shows that parties' own interests in limiting private costs will likely cause them to be selective in assertions before the PLRB, thereby helping to preserve the PLRB's capacity to have a net positive effect on social welfare. Section III.C follows by explaining how other recently implemented or proposed adjustments to the patent system do not undermine the case for early-stage administrative review.

A. *Economic Analysis of Administrative Review*

1. Basic Economic Theory

As discussed in Part II, key problems with U.S. patent litigation are high costs, delay, and uncertainty. In this environment, many patent holders likely experience undue difficulty in vindicating valid claims of infringement. At the same time, many innovators and technology users likely experience excessive difficulty in clearing others' patents and defeating unjustified charges of infringement.

The informational and cost advantages of a patent system with early-stage administrative review can cause it to function better, generally speaking, for both meritorious patent enforcers and technology users. If PLRB review meets at least relatively minimal standards of substantive accuracy, the alteration of private-party incentives that it effects can substantially reduce socially harmful effects of high litigation costs, delay, and uncertainty. PLRB review can facilitate parties' early exchange of relatively high "diagnosticity/cost" information.²¹² Such review can also provide parties with a relatively quick, cheap, and

²¹¹ See *infra* text accompanying notes 223-29 (describing the process of PLRB review).

²¹² See Louis Kaplow, *Multistage Adjudication*, 126 HARV. L. REV. 1179, 1225 (2013) (suggesting that, "[a]s an initial, rough cut at the problem [of ordering steps in multistage adjudication], it seems that the step with a higher diagnosticity/cost ratio should be earlier"); cf. Reilly, *supra* note 7, at 239 (advocating "staged litigation" in which "[d]iscovery is limited . . . until the plaintiff demonstrates a meritorious case by prevailing on the initial issue(s)").

informative preview of potential results of court adjudication. The result can include earlier convergence of parties' assessments of a suit's economic potential; earlier identification of weak suits or party positions by an impartial, third-party adjudicator; and thus earlier termination of a suit through voluntary dismissal or settlement.²¹³ Further, beyond simply previewing what a court might do, the expert judgments and opinions of the PLRB can alter the balance of post-review incentives by informing later judicial decisionmaking, helping both to limit vagaries that might result from district court inexpertise and to streamline later court proceedings by encouraging parties to drop at least a subset of arguments or claims.

Of course, there can be concerns that the social costs of PLRB review will swamp its social benefits. But even with the imperfect alignment of private and social interests, the fact that parties must pay for that review can cause them to restrain their use of administrative review so that, generally speaking, its social benefits outweigh its costs. Substantial PLRB control over its procedures can enable the agency to tailor proceedings to ensure sufficient private and social alignment, and Subsection III.C.4 shows how sufficient alignment can be expected under reasonable assumptions.

2. A First Economic Model for Administrative Review

A high-level economic model highlights the potentially large benefits of preliminary administrative review even when parties are assumed to have symmetric information but their information is incomplete in the sense that they are uncertain about how a third-party adjudicator will rule. For such parties, PLRB review has the value of sorting out at least some stronger and weaker legal positions by generally increasing the party-perceived likelihood that some stronger positions will prevail and that some weaker positions will lose. Moreover, this high-level model suggests that benefits from PLRB review are likely to be substantially robust against the natural fallibility of human decision-making institutions. PLRB decisionmaking will generally increase the expected value of stronger legal claims relative to that for weaker legal claims.

The model operates as follows:

- 1) A plaintiff P considers suing a defendant D .
- 2) The true underlying suit quality is represented by θ , a quantity having a value between 0 and 1 that is known to P and D but that is not directly

²¹³ See Robert G. Bone, *Modeling Frivolous Suits*, 145 U. PA. L. REV. 519, 593 (1997) (suggesting a process of "early judicial screening of frivolous suits based on a preliminary review of the merits"); Bert I. Huang, *Trial by Preview*, 113 COLUM. L. REV. 1323, 1335 (2013) (discussing "the familiar economic model, in which an increase in information sharing leads to convergence in the parties' forecasts about the outcome—and hence to a greater chance of settlement").

verifiable by a court. The probability that the court finds for P is $\pi(\theta)$, and this probability is increasing in θ . If the court finds for P , it awards damages of $\delta > 0$ to P ; otherwise, it enforces a "penalty" $\gamma \geq 0$ on P that is transferred to D by a court award of attorney fees. P faces an administrative review cost c_P^1 and incurs an additional cost c_P^2 for litigating through a full court decision. D must pay c_D to see the suit through a decision by the court.

- 3) If P files suit, then D expects to receive

$$-\pi(\theta)\delta + (1 - \pi(\theta))\gamma - c_D = -\pi(\theta)(\delta + \gamma) - (c_D - \gamma)$$

if it pursues a court decision. We assume that D settles for δ' otherwise. Hence, D pursues a decision if and only if

$$\delta' \geq \pi(\theta)(\delta + \gamma) + (c_D - \gamma).$$

- 4) P will choose the settlement amount

$$\delta' = \pi(\theta)(\delta + \gamma) + (c_D - \gamma),$$

so that D is indifferent between settling and going to court. Assuming for simplicity that a party chooses against continued litigation when it is a matter of such economic indifference, we see that P will bring suit if and only if

$$0 < \pi(\theta)(\delta + \gamma) + (c_D - \gamma) - c_P^1 = \pi(\theta)(\delta + \gamma) - (c_P^1 + \gamma - c_D).$$

Note that if the cost to D , c_D , is higher than $c_P^1 + \gamma$, then P will always bring suit.

Suppose that, after suit is announced (i.e., after the payment of c_P^1 , but before settlement negotiations), PLRB review yields a signal σ that is informative about the probability that the court will find for P . Specifically, assume that the probability density of σ for a given value of θ , $f(\sigma | \theta)$, has the monotone likelihood ratio property in θ . The quantity $\pi(\sigma, \theta)$ is the probability of a win for P as a function of σ and θ , increasing in both arguments. We assume that $\pi(\sigma, \theta)$ and $\pi(\theta)$ are equally responsive to θ , in the sense that their derivatives with respect to θ are equal: $\pi_\theta(\sigma, \theta) = \pi_\theta(\theta)$.²¹⁴ D then expects to receive

²¹⁴ This equality of derivatives with respect to θ generally corresponds to $\pi(\sigma, \theta)$ equaling $\pi(\theta) + g(\sigma)$, where $\pi(\theta)$ and $g(\sigma)$ fall within a range of values such that $0 \leq \pi(\theta) + g(\sigma) \leq 1$ for all pertinent values of θ and σ .

$$-E_{\sigma}[\pi(\sigma, \theta) | \theta]\delta + (1 - E_{\sigma}[\pi(\sigma, \theta) | \theta])\gamma - c_D =$$

$$-E_{\sigma}[\pi(\sigma, \theta) | \theta](\delta + \gamma) - (c_D - \gamma)$$

if it pursues a court decision. Consequently, P brings suit if and only if

$$0 < E_{\sigma}[\pi(\sigma, \theta) | \theta](\delta + \gamma) - (c_P^1 + \gamma - c_D).$$

Under the above model, between a situation with early-stage administrative review and a situation without it, the difference in expected return for P is

$$(E_{\sigma}[\pi(\sigma, \theta) | \theta] - \pi(\theta))(\delta + \gamma) = E_{\sigma}[\pi(\sigma, \theta) - \pi(\theta) | \theta](\delta + \gamma) \quad (1)$$

$$= (\delta + \gamma) \int [\pi(\sigma, \theta) - \pi(\theta)] f(\sigma | \theta) d\sigma \quad (2)$$

where we have used the fact that $\int f(\sigma | \theta) d\sigma = 1$.

Now, we note that, as $\pi_{\theta}(\sigma, \theta) = \pi_{\theta}(\theta)$, for fixed σ we must have $\pi(\sigma, \theta) - \pi(\theta) = \pi(\sigma, \theta') - \pi(\theta')$ for all θ, θ' . Suppose that $\theta > \theta'$. It follows that

$$\int [\pi(\sigma, \theta) - \pi(\theta)] f(\sigma | \theta) d\sigma = \int [\pi(\sigma, \theta') - \pi(\theta')] f(\sigma | \theta) d\sigma \quad (3)$$

$$\geq \int [\pi(\sigma, \theta') - \pi(\theta')] f(\sigma | \theta') d\sigma, \quad (4)$$

where the inequality (4) follows from first-order stochastic dominance (a consequence of the monotone likelihood ratio property) and the fact that the quantity $[\pi(\sigma, \theta') - \pi(\theta')]$ is increasing in σ .

Thus, we see that PLRB review generates a difference in expected return for P that is increasing in θ . As long as administrative review increases the likelihood of P winning when its case is absolutely ironclad ($\theta = 1$) and reduces that likelihood when P 's case is truly meritless ($\theta = 0$), it follows that there is some case-quality value θ^* such that all P s with cases stronger than θ^* return more (in expectation) after the addition of the review stage, while all P s with cases weaker than θ^* do worse. Given the fixed costs of filing, c_P^1 , this means that P s with cases of quality higher than θ^* are more likely to file (in equilibrium) given the review, and P s with cases of quality lower than θ^* are less likely to file. Moreover, even for suits that are brought under both regimes, the higher-quality suits return more in expectation in the presence of PLRB review, and the lower-quality suits return less.

The results are strengthened if PLRB review reduces court costs for the side that prevails in review, as this further increases the gains that the prevailing side receives upon pursuing suit. The results are qualitatively unchanged if settlement is not possible as, in that case, the comparison across litigation regimes also hinges on the sign of equation (1) above.

3. A Second, Calibrated Model for Administrative Review

We now use a discrete-time patent-assertion model to assess the potential costs and benefits of PLRB review in greater detail. Within the model, parties are assumed to be rational profit maximizers subject to the limitations on options for litigation and settlement that the model imposes in order to make investigation manageable. In the illustrative examples featured here, parameter values for use in the model are calibrated to be plausible but conservative real-world figures corresponding to values suggested by pre-existing data as well as reasonably moderate estimates of the degree to which PLRB decisions will shift subsequent district court results. By a conservative figure, we mean one that likely errs on the side on making the case for PLRB review more difficult. For example, the choice of relatively low values for the stakes in our examples presents a greater challenge for our policy proposal because it makes the parties’ litigation costs for PLRB review loom comparatively larger relative to the value of any PLRB-provided clarification of the odds of winning or losing those stakes. By using such conservative figures in our illustrative examples, we hope to strengthen their overall persuasive force.

a. Model Structure

Consider a discrete-time, three-period setup where patent assertion and litigation decisions occur as indicated in Figure 1 and Table 1.

Figure 1. Discrete-Time Assertion Model with Parameters

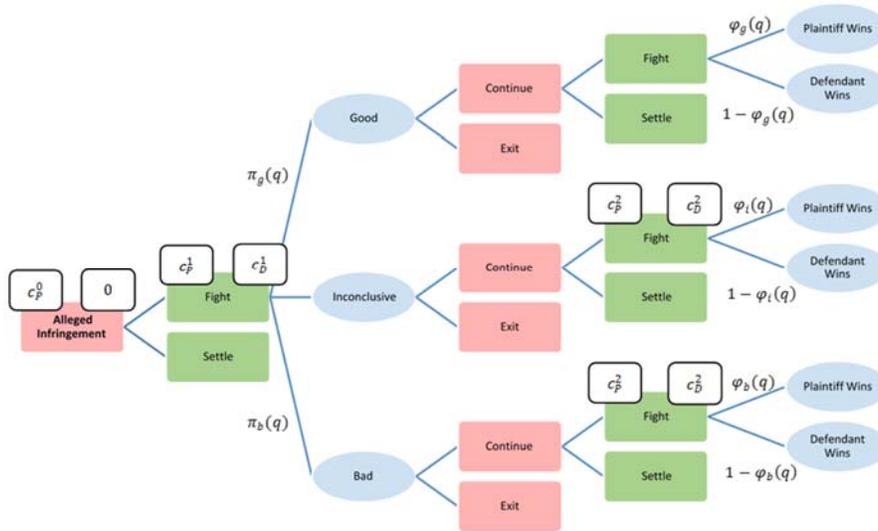


Table 1. Model Parameters

Symbol	Explanation
c_p^0	cost to plaintiff of pre-filing preparation
c_p^1	PLRB administrative fee plus plaintiff contestation costs
c_D^1	PLRB defendant contestation costs
c_p^2	district court plaintiff litigation costs
c_D^2	district court defendant litigation costs
$\pi_g(q)$	probability as function of patent claim quality q that PLRB rules substantially in plaintiff's favor overall
$\pi_b(q)$	probability as function of patent claim quality q that PLRB rules substantially in defendant's favor overall
$1 - \pi_g(q) - \pi_b(q)$	probability as function of patent claim quality q that PLRB does not rule substantially in either party's favor overall
$\varphi_g(q)$	probability as function of patent claim quality q that court rules substantially in plaintiff's favor overall after PLRB does the same
$\varphi_i(q)$	probability as function of patent claim quality q that court rules substantially in plaintiff's favor overall after PLRB does not rule substantially in either party's favor overall
$\varphi_b(q)$	probability as function of patent claim quality q that court rules substantially in plaintiff's favor overall after PLRB rules substantially in defendant's favor overall
δ	transfer from defendant to plaintiff if plaintiff substantially wins in district court
γ	transfer from plaintiff to defendant if defendant substantially wins in district court
s	share of an expected litigation value V that plaintiff receives in a settlement

The choice of assertion occurs at time T_0 . If assertion is chosen by the patent holder P after incurring a cost c_p^0 , the alleged infringer D then decides at the immediately following time T_e whether to settle with P or to fight the infringement allegation. If D settles, it will pay out a quantity set by the model, which can be conceived as equaling the product sV_e , where V is an expected value associated with the litigation (e.g., the expected value to P of any payment from D to P if the case proceeds) and s is the fraction of that value that D pays to P in a settlement. If, instead of settling at T_e , D fights the infringement allegation, the PLRB will review the case. This will cost D the amount c_D^1 , which, assuming this proceeding is decided on papers only, is the cost to D of collecting and providing the limited supporting documentation, including appropriate briefing, to make its arguments. The PLRB process will cost P the amount c_p^1 , which includes not only the cost of collecting and providing the limited supporting documentation to make its case for infringement to the PLRB,

but also an additional fixed fee to at least partially cover administrative expenses.

The PLRB will not provide an extensive preliminary judgment²¹⁵ in every case. Instead, in response to party filings, the PLRB will identify and flag particularly strong or weak positions on either side, delivering one of the following forms of judgment:

- 1) “Bad”: Judgment is predominantly and substantially adverse to the patent holder—e.g., a judgment that one or more assertions made by the patent holder are clearly incorrect (meritless), without substantially countervailing conclusions in favor of the patent holder. A Bad judgment happens with probability $\pi_b(q)$.
- 2) “Good”: Judgment is predominantly and substantially favorable to the patent holder—e.g., a judgment that one or more assertions made by the patent holder are clearly correct, without substantially countervailing conclusions in favor of the patent challenger. A Good judgment happens with probability $\pi_g(q)$.
- 3) “Inconclusive”: Judgment is inconclusive in the sense that either the PLRB draws no conclusions substantially in favor of either side or the PLRB’s conclusions are essentially balanced in giving partial and substantially countervailing victories to each side. An Inconclusive judgment happens with probability $1 - \pi_g(q) - \pi_b(q)$.

At time T_1 following the PLRB’s decision, P decides whether to drop the suit or to continue pursuing charges of infringement. If P chooses to continue, then D decides how to respond at immediately subsequent time $T_{1+\epsilon}$. If D settles with P , the settlement value equals the product $sV_{1+\epsilon}$, where s is again the settlement fraction, this time applied to a base value $V_{1+\epsilon}$, which is an expected value associated with continuing the litigation after the PLRB’s decision. If, instead of settling at $T_{1+\epsilon}$, D fights the infringement allegation in court, D will incur litigation costs c_D^2 , and P will incur litigation costs c_P^2 .

D ’s net expected proceeds from continuing litigation at time $T_{1+\epsilon}$ will depend on both the information revealed by the PLRB’s decision and the underlying claim quality q . For example, if the PLRB issues a plaintiff-disfavoring judgment of Bad, D ’s expected court award (or loss) will equal $((1 - \varphi_b(q)) * \gamma) - (\varphi_b(q) * \delta)$. Subtracting her cost c_D^2 of fighting in court yields net expected proceeds of $-c_D^2 + (1 - \varphi_b(q)) * \gamma - (\varphi_b(q) * \delta)$. The corresponding expected payoff for P of going to court after the PLRB judgment

²¹⁵ Cf. Geoffrey P. Miller, *Preliminary Judgments*, 2010 U. ILL. L. REV. 165, 167 (using the term “preliminary judgment” somewhat differently to refer to a “tentative assessment . . . based on the same sorts of information that the courts already consider on motions for summary judgment”).

of Bad is $-c_p^2 + (\varphi_b(q)) * \delta - ((1 - \varphi_b(q)) * \gamma)$. The expected payoffs in cases of Good and Inconclusive PLRB judgments are constructed similarly using the probabilities $\varphi_g(q)$ and $\varphi_i(q)$ associated with those states.

b. *Illustrative Results*

In this Subsection, we take the model and examine its implications by applying it to eight illustrative “calibrations,” which are scenarios specified by assigned sets of parameter values. An Online Appendix prepared as a supplement to this Article presents additional examples that further indicate the robustness of this Article’s conclusions.²¹⁶ Interested readers can explore the dynamics of the model and use it in follow-on work. The Online Appendix also includes the Mathematica code used to run calibrations.²¹⁷

Generally in our examples, P will choose not to file at time T_0 or not to continue the patent-infringement suit at time T_1 if, without the possibility of settlement at immediately subsequent time T_ε or $T_{1+\varepsilon}$, respectively, the net present value of suit for P is negative. This aspect of the modeled examples corresponds to assuming that, at both of the discrete settlement times T_ε and $T_{1+\varepsilon}$, D will not offer anything above \$0 to settle the case unless P has a credible threat of continuing the case absent a nonzero settlement offer.

For purposes of the examples allowing settlement, we assume that parties settle for the expected value of the end payout in the case (e.g., the expected value of a court award if the parties are at settlement time $T_{1+\varepsilon}$). In other words, for the settlement-based examples, we assume a settlement fraction s of 1 (that is, 100%), and we apply this settlement fraction to values for V_ε and $V_{1+\varepsilon}$ that equal the expected value of the amount, excluding next-stage plaintiff process costs c_p^1 or c_p^2 , that P expects to gain if litigation continues beyond the current settlement stage.²¹⁸ Under this approach, settlement saves each party its expected costs of undertaking the next stage of administrative or court process. Thus, in situations where P has a credible threat of continuing litigation even without immediate settlement, settlement is rationally desired by both parties and always occurs at time T_ε by taking into account the probabilistically weighted settlements that would otherwise occur at time $T_{1+\varepsilon}$.

To demonstrate the expected effects of PLRB review, we separately model circumstances in which settlement is allowed and, under the model, always occurs and in which settlement is not allowed but plaintiffs can still terminate

²¹⁶ Lauren H. Cohen et al., “Troll” Check? A Proposal for Administrative Review of Patent Litigation: Online Appendix (Sept. 18, 2017), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3039106 [<https://perma.cc/R5SB-PEYA>] (featuring additional illustrative “calibrations” under the discrete time patent assertion model).

²¹⁷ *Id.*

²¹⁸ Thus, in a situation in which the PLRB has issued a plaintiff-disfavoring judgment of Bad, the proffered settlement amount $sV_{1+\varepsilon}$ will equal the expected court award to the P after such a PLRB judgment: $(\varphi_b(q) * \delta) - ((1 - \varphi_b(q)) * \gamma)$.

negative net present value suits at times T_0 and T_1 . Within these two basic sets of circumstances, we analyze four subclasses of scenarios involving:

- I. Weak Suits—without PLRB
- II. Weak Suits—with PLRB
- III. Strong Suits—without PLRB
- IV. Strong Suits—with PLRB

Eight tables for the calibrated scenarios appear as Tables 2 through 9 below. Each set of calibration results ends by reporting a value $E(\text{Ex Ante Plaintiff Payoff})$ that equals the ex ante expected value for P of pursuing the relevant claim of patent infringement against D . Because P will drop the suit at T_0 if the net present value ("NPV") of filing the suit is less than zero and because P will have incurred costs of no more than c_P^0 before arriving at time T_0 , the minimum value of $E(\text{Ex Ante Plaintiff Payoff})$ in our modeled results will be $-c_P^0$. Further discussion of the calibrations and their implications follows.

Table 2. Calibration Is: Weak Suits without the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	0
c_D^1	0
c_P^2	200,000
c_D^2	400,000
$\pi_g(q)$	0%
$\pi_b(q)$	0%
$1 - \pi_g(q) - \pi_b(q)$	100%
$\varphi_g(q)$	0%
$\varphi_i(q)$	15%
$\varphi_b(q)$	0%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
Settlement Fraction	100%
$E(\text{Ex Ante Plaintiff Payoff}) = \\$188,000$	

Table 3. Calibration IIs: Weak Suits with the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	90,000
c_D^1	60,000
c_P^2	180,000
c_D^2	380,000
$\pi_g(q)$	1%
$\pi_b(q)$	60%
$1 - \pi_g(q) - \pi_b(q)$	39%
$\varphi_g(q)$	50%
$\varphi_i(q)$	15%
$\varphi_b(q)$	5%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
Settlement Fraction	100%
$E(\text{Ex Ante Plaintiff Payoff}) = -\\$20,000$	

Table 4. Calibration IIIs: Strong Suits without the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	0
c_D^1	0
c_P^2	800,000
c_D^2	800,000
$\pi_g(q)$	0%
$\pi_b(q)$	0%
$1 - \pi_g(q) - \pi_b(q)$	100%
$\varphi_g(q)$	0%
$\varphi_i(q)$	75%
$\varphi_b(q)$	0%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
Settlement Fraction	100%
$E(\text{Ex Ante Plaintiff Payoff}) = \\$1,095,000$	

Table 5. Calibration IVs: Strong Suits with the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	90,000
c_D^1	60,000
c_P^2	780,000
c_D^2	780,000
$\pi_g(q)$	50%
$\pi_b(q)$	1%
$1 - \pi_g(q) - \pi_b(q)$	49%
$\varphi_g(q)$	90%
$\varphi_i(q)$	75%
$\varphi_b(q)$	25%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
Settlement Fraction	100%
$E(\text{Ex Ante Plaintiff Payoff}) = \\$1,199,000$	

Table 6. Calibration INS: Weak Suits without the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	0
c_D^1	0
c_P^2	200,000
c_D^2	400,000
$\pi_g(q)$	0%
$\pi_b(q)$	0%
$1 - \pi_g(q) - \pi_b(q)$	100%
$\varphi_g(q)$	0%
$\varphi_i(q)$	15%
$\varphi_b(q)$	0%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
$E(\text{Ex Ante Plaintiff Payoff}) = -\\$12,000$	

Table 7. Calibration II_{NS}: Weak Suits with the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	90,000
c_D^1	60,000
c_P^2	180,000
c_D^2	380,000
$\pi_g(q)$	1%
$\pi_b(q)$	60%
$1 - \pi_g(q) - \pi_b(q)$	39%
$\varphi_g(q)$	50%
$\varphi_i(q)$	15%
$\varphi_b(q)$	5%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
$E(\text{Ex Ante Plaintiff Payoff}) = -\\$20,000$	

Table 8. Calibration III_{NS}: Strong Suits without the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	0
c_D^1	0
c_P^2	800,000
c_D^2	800,000
$\pi_g(q)$	0%
$\pi_b(q)$	0%
$1 - \pi_g(q) - \pi_b(q)$	100%
$\varphi_g(q)$	0%
$\varphi_i(q)$	75%
$\varphi_b(q)$	0%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
$E(\text{Ex Ante Plaintiff Payoff}) = \\$295,000$	

Table 9. Calibration IV_{NS}: Strong Suits with the PLRB

Model Parameter	Calibration Value
c_P^0	20,000
c_P^1	90,000
c_D^1	60,000
c_P^2	780,000
c_D^2	780,000
$\pi_g(q)$	50%
$\pi_b(q)$	1%
$1 - \pi_g(q) - \pi_b(q)$	49%
$\varphi_g(q)$	90%
$\varphi_i(q)$	75%
$\varphi_b(q)$	25%
δ	1,500,000
γ	$0.05 * (c_D^1 + c_D^2)$
$E(\text{Ex Ante Plaintiff Payoff}) = \\$336,805$	

c. Analysis of Results

In this Subsection, we analyze the calibration examples of Tables 2 through 9. These examples show the effects of PLRB review on “Weak” and “Strong” suits. The “Weak Suits” are comparatively low-merit cases modeled as having a plaintiff-win probability of 15% in the absence of the PLRB.²¹⁹ The “Strong Suits” are comparatively high-merit cases modeled as having a plaintiff-win probability of 75% in the absence of the PLRB. For purposes of assigning illustrative parameter values, P is assumed to be a patent holder and D is assumed to be an accused infringer. Likewise, for simplicity, D does not threaten a countersuit, whether for patent infringement, an antitrust violation, or otherwise.

Both Weak and Strong Suits are assumed for purposes of the examples to involve relatively low stakes by patent litigation standards—namely, a plaintiff’s claim for an overall monetary award of \$1.5 million.²²⁰ We view this

²¹⁹ The Weak Suits’ combination of low plaintiff-win probability and relatively low stakes compared to typical litigation costs might earn them designation as “nuisance suits.” See *supra* notes 131, 178 and accompanying text.

²²⁰ According to a litigation study by PricewaterhouseCoopers, median court-awarded damages in patent suits “ranged from \$2.0 million to \$17.0 million” for the twenty-year period from 1997 through 2016, and the median damages award for the five-year period from 2012 through 2016 was \$5.8 million. PRICEWATERHOUSECOOPERS, 2017 PATENT LITIGATION STUDY: CHANGE ON THE HORIZON? 9 (May 2017), <https://www.pwc.com/us/en/forensic->

conservative estimate of stakes as an assumption against interest. The lower stakes make the provision of a net economic benefit to patent holders with Strong Suits more difficult for a combination of reasons: (1) under the model, the value added to a Strong Suit by PLRB review generally becomes smaller with smaller stakes; and (2) for there to be a net economic benefit to a patent holder from PLRB review, the value added by that review must be greater than the additional expenses for the patent holder that PLRB review generates. The \$1.5 million value for *P*'s claim, like other numbers in the calibration, can be varied using code such as that in the Online Appendix.

i. PLRB Screening of Cases with Settlement

Calibrations I_S and II_S of Tables 2 and 3 model Weak Suits of relatively low value in situations where settlement always occurs. As the expected value $E(\text{Ex Ante Plaintiff Payoff})$ in Calibration I_S indicates, without the PLRB the illustrative low-merit suit has positive NPV for *P* of \$188,000 despite only a 15% chance of an ultimate court judgment for the plaintiff. *D* is expected to choose to settle the case for \$208,000 in order to avoid a costly and presumably lengthy court battle. In sharp contrast, when we introduce the PLRB in Calibration II_S , the existence and informational contributions of the PLRB help "screen" the Weak Suit, discouraging its development by *P* by giving the case a negative ex ante NPV of -\$20,000 despite *D*'s propensity to settle cases to avoid litigation. This negative NPV illustrates one of the important benefits the PLRB would bring to the patent litigation landscape—namely, reduction in the value of at least some low-merit suits to a point where a rational potential claimant will not pursue them and is unable to make a credible threat of doing so.

Next, we turn to Strong Suits, relatively high-merit assertions of patent infringement illustrated by Calibrations III_S and IV_S of Tables 4 and 5, respectively. As might be expected in scenarios in which the plaintiff has a 75% chance of winning a court judgment of \$1.5 million without PLRB review, *P*'s expected payoffs both with and without the PLRB are positive. Calibration III_S shows that, without the PLRB, the Strong Suit has a positive NPV for *P* of \$1,095,000. Again, this figure reflects the amount for which *D* is expected to choose to settle the case at time T_e . Calibration IV_S calculates the expected payoff when the same suit is subject to PLRB review. Unlike the case of the Weak Suit, the NPV of the Strong Suit is still positive and in fact higher when subject to PLRB review. Indeed, at \$1,199,000, the NPV for the Strong Suit is nearly 10% larger than the NPV without the PLRB.

services/publications/assets/2017-patent-litigation-study.pdf [https://perma.cc/A9VM-TR28]. Further, the median damages award for NPEs was nearly \$11.5 million for the twenty-year period from 1997 through 2016 and \$15.7 million for the five-year period from 2012 through 2016. *Id.* at 16. Although the characteristic values of patent suits in general might differ significantly from that for the subset of patent suits that result in court-awarded damages, these figures provide at least some basis for viewing the assumption of stakes of \$1.5 million as relatively conservative.

The increase in NPV for the Strong Suit when subject to PLRB review highlights the second main benefit the PLRB can bring to the patent litigation landscape. In addition to discouraging a substantial number of low-merit suits, PLRB review should encourage patent-rights enforcement and compliance in a substantial number of cases in which patent holders have high-merit claims. This follows from the expectation that a positive ruling from the PLRB will increase the expected odds of winning in later district court proceedings, thereby generating a rise in patent-infringement suit NPV that can more than pay for the costs to the patent holder of PLRB proceedings.

We concede, however, that there will almost inevitably be patent holders with meritorious claims who do not benefit so substantially from PLRB review. This failure could result because the strengths of their claims are difficult to convey in summary proceedings that precede discovery. The point that Calibrations III_S and IV_S make is that, as a reform designed to make the patent system work better, PLRB review will be balanced in the sense that it will have pro-patentee effects in some situations and anti-patentee effects in others, with pro-patentee effects tending to occur in high-quality lawsuits. The key question for PLRB review is not who is making a claim but how strong or weak that claim can be shown to be at the outset of litigation.

ii. PLRB Screening of Cases Without Settlement

The next four scenarios, Calibrations I_{NS} through IV_{NS} of Tables 6 through 9, respectively, use the same parameter estimates as those in the preceding Subsection. But here we exclude the possibility of settlement. In these scenarios, cases will end short of a final court judgment only if *P* decides unilaterally not to pursue the case further. Examining these variants of the original scenarios not only provides a robustness check, but also enables exploration of the impact of settlement on the value of PLRB review. The results for Calibrations I_{NS} through IV_{NS} point to two primary conclusions. First, the possibility of settlement can highly inflate the NPV of a patent suit relative to a situation in which settlement is impossible. Second, the effect of PLRB review on the NPV of suit for a patent holder follows the same basic pattern regardless of whether settlement is allowed.

On the first point, note that *P*'s NPV for suit is commonly much higher in Tables 2 through 5's settlement scenarios than in Tables 6 through 9's corresponding no-settlement scenarios. The NPV of Table 6's Weak Suit without settlement and without PLRB review is -\$12,000, whereas the NPV for Table 2's corresponding Weak Suit with settlement and without PLRB review is \$188,000. For Tables 4 and 8's Strong Suit without PLRB review, the comparative NPV figures are \$1,095,000 with settlement and \$295,000 without settlement. For Tables 5 and 9's Strong Suit with PLRB review, the comparative figures are \$1,199,000 and \$336,805, respectively. The only comparative situations for which removal of the settlement option does not change the NPV are those for Tables 3 and 7's Weak Suit with PLRB review. Both with and without settlement these scenarios yield NPVs of -\$20,000, the minimum

possible value. In short, the possibility of settlement tends to increase—often greatly—the value of a suit to the plaintiff. PLRB review can curtail and sometimes even prevent this inflationary effect of settlement.

Moreover, just as in scenarios where settlement occurs, PLRB review has the apparently beneficial effect of tending to decrease the value of illustrative low-merit suits and tending to increase the value of illustrative high-merit suits. Tables 6 and 7 show that, in the absence of settlement, the NPV from bringing the Weak Suit is roughly \$8,000 lower with the PLRB than without it. In other words, the PLRB causes a two-thirds decrease in the Weak Suit's NPV. On the other hand, Tables 8 and 9 show that introduction of PLRB review increases the NPV of the Strong Suit by over 14%, from \$295,000 to \$336,805.

d. *General Welfare and Policy Implications*

Comparing the calibrations both with and without the settlement option shows that the option to settle does not alter the basic nature of the expected positive welfare impact of the PLRB. With or without the ability to settle, the PLRB has a positive impact by both decreasing the value of low-merit claims and increasing the value of high-merit claims. The first effect can help to effectively screen out low-merit patent claims not only by causing assertions to be dropped after PLRB review but also by discouraging the initial filing of a suit. The second effect can encourage enforcement of such claims, strengthen the bargaining position of relevant claim holders, and enhance the deterrent force of relevant patents.

Note that the illustrative results reported here cover both situations for which we have assumed 100% settlement and situations for which we have assumed no settlement. Thus, we have investigated two corner solutions with respect to settlement. As the ability to settle can reasonably be expected to lie somewhere in the space between these two corners, we expect that the basic patterns for PLRB effects that we report above—in particular, relative tendencies to encourage high-merit suits and to discourage low-merit suits—will apply quite generally across the spectrum of real-world settlements and assertions.

Moreover, the possibility that PLRB review will affect enforcement and defense strategies suggests that the positive effects of PLRB review could reach substantially beyond improvements in individual case results. By decreasing the value of low-merit claims and increasing the chances of a relatively quick, impartial, and expert signal about the weakness of such claims, PLRB review can embolden defendants to pursue a no-settlement strategy or, at least, an approach to settlement tilted more toward refusal than otherwise. As the comparative numbers for scenarios with and without settlement show, tilting approaches to low-merit claims toward no-settlement strategies can be expected to depress the ex ante expected value of such claims even further than PLRB review does on its own. Likewise, PLRB review's tendency to increase the value of high-merit claims can be expected to increase deterrence from associated patents because this increase in value not only raises the expected cost of being

an enforcement target but also, by encouraging enforcement, increases the likelihood of becoming such a target.

The illustrative examples of Tables 2 through 9 demonstrate why many parties expecting to bring high-quality patent-infringement claims should support a proposal for the PLRB, while many of those expecting to bring low-quality claims should oppose the proposal. In the absence of the PLRB, informational and process limitations of the patent system mean that low-quality claim asserters benefit from their claims being at least partially pooled with—not distinguished from—higher-quality claims. PLRB review reduces the extent and duration of such pooling to the benefit of high-quality claim holders and the detriment of low-quality claim holders. In this way, PLRB review might be particularly valuable for cash-constrained parties such as startups or individuals who might otherwise settle or fail to pursue claims even when their likelihood of prevailing in court is large.

A caveat is that our analysis generally assumes, as Congress commonly appears to assume, that the patent system’s substantive legal standards—the standards that determine whether a claim is of high or low quality—are sufficiently well designed that increased compliance with them tends to increase social welfare. A patent skeptic might argue that a better reform would reduce the value of patents and patent-infringement claims across the board or even abolish them altogether. For the purposes of this Article, we are content to assume that, regardless of whether society would be better off under such comparatively drastic reforms, PLRB review will likely improve social welfare by effectively shifting value from low-merit patent claims to high-merit ones.

B. *Framework for Administrative Review*

The preceding Section shows how PLRB review can counteract the negative effects of cost, delay, and uncertainty in district court litigation by providing relatively quick, cheap, and impartial guidance on a patent suit’s merits. A further advantage of a centralized administrative review process is that it can provide a check on forum shopping as well as an opportunity to gather centralized information on the patent litigation system’s performance. This Section provides details on the nature of the proposed review process and how it can be implemented.

1. Proceedings Before the PLRB

The proposed administrative review would be an automatic process that would occur immediately after the filing of a patent suit in district court. This automatic review might be viewed as a variant of the required review of a qui tam False Claims Act complaint by the Department of Justice²²¹ or the

²²¹ See *False Claims Act Cases: Government Intervention in Qui Tam (Whistleblower) Suits*, U.S. DEP’T OF JUST., www.justice.gov/sites/default/files/usao-edpa/legacy/2011/

requirement of filing employment discrimination claims with the Equal Employment Opportunity Commission before resorting to the courts.²²² One can imagine a number of ways of structuring preliminary administrative review, but this Article proposes a specific framework as a starting point for discussion.

The proposed process would work as follows. Upon the filing of a patent-infringement suit in a district court,²²³ the PLRB would be notified. Unless all parties to the district court suit opted out, the PLRB would conduct a paper hearing in which parties would be allowed to file documentary arguments and evidence relating to questions of patent claim construction, infringement, validity, and enforceability. The PLRB's approach to claim construction during this hearing would follow that of the district courts. Although attorney representation would be advised, PLRB proceedings would improve access to justice by allowing parties to present relevant materials either pro se or through qualified non-attorney representatives such as, in a business entity's case, their chief officers or owners.²²⁴

Including time for party filings, the PLRB would have one hundred eighty days from notification of suit to issue its determinations.²²⁵ With consent from all parties, however, the PLRB would be able to extend this time for review. The district court would automatically stay proceedings during the administrative review process although, on a showing of good cause, the district court would have power to lift the automatic stay in order to consider a motion for a preliminary injunction, temporary restraining order, or dismissal under Federal Rule of Civil Procedure 12(b)(6). Under existing law, the PLRB might trigger a further stay of district court proceedings by causing the initiation of post-issuance review at the USPTO.²²⁶

04/18/fcaprocess2_0.pdf [https://perma.cc/BVA9-YNB3] (last visited on Sept. 18, 2017) (noting that a complaint under the False Claims Act is filed under seal for "at least sixty days" to permit investigation by the Department of Justice).

²²² See *Filing a Charge of Discrimination*, EQUAL EMP. OPPORTUNITY COMMISSION, <http://www.eeoc.gov/employees/charge.cfm> [https://perma.cc/M8QB-9QKA] (last visited Sept. 18, 2017) ("All of the laws enforced by EEOC, except for the Equal Pay Act, require you to file a Charge of Discrimination with us before you can file a job discrimination lawsuit against your employer.").

²²³ Suits triggering administrative review would include declaratory judgment actions in which a party seeks a ruling of non-infringement or patent invalidity or unenforceability.

²²⁴ See *supra* text accompanying note 42; cf. 5 U.S.C. § 555(b) (2012) ("A person compelled to appear in person before an agency or representative thereof is entitled to be accompanied, represented, and advised by counsel or, if permitted by the agency, by other qualified representative.").

²²⁵ The 180-day time period is modeled on the roughly six-month period currently allowed for patent owner response and USPTO decision on a request for inter partes or post-grant review. See 35 U.S.C. §§ 314(b), 324(c) (2012); 37 C.F.R. §§ 42.107(b), 42.207(b) (2016).

²²⁶ Jonathan Stroud, Linda Thayer & Jeffrey C. Totten, *Stay Awhile: The Evolving Law of District Court Stays in Light of Inter Partes Review, Post-Grant Review, and Covered*

For purposes of PLRB review, the parties would be expected to focus on issues with respect to which they believe they can establish a decisive case through already available documentary evidence, affidavits, and written argument. There would be no provision for discovery. In this way, the hope is that PLRB review can prioritize the presentation of what parties believe to be crucial and already available evidence on potentially decisive issues, rather than wait to present such evidence and associated argument after discovery.²²⁷

Within the original or extended stay period, the PLRB would register an affirmative conclusion or lack thereof in accordance with a "clear and convincing plus" standard. The PLRB would rule either that limits on time and evidence do not permit a substantive determination in favor of either side or, alternatively, that, on at least one pertinent question, the evidence at hand clearly and convincingly establishes the correctness of one particular position and there is no substantial likelihood that additional evidence will lead to a different conclusion.²²⁸ For example, a patent holder might produce documentary evidence of the workings of an accused infringing device that, in the absence of any suggestion of potentially contradictory evidence from the accused infringer, the PLRB would hold clearly and convincingly establishes that the device infringes—or at least satisfies one or more key elements of relevant patent claims. In another case, an accused infringer might produce documentary evidence that, in the absence of any suggestion of potentially contradictory evidence from the patent holder, the PLRB would hold establishes clearly and convincingly that an accused infringing device does not infringe because it does not satisfy at least one requirement of relevant patent claims.²²⁹

With respect to many disputable issues, the PLRB would likely register a lack of any affirmative conclusion if asked for its opinion. Consequently, to avoid wasted effort and to maximize chances of an overall favorable PLRB judgment, a party would have an incentive to be selective in asserting its best arguments. The PLRB could encourage efficiency-promoting prioritization by regulating the length of filings presented to it.

Business Method Post-Grant Review, 11 BUFF. INTELL. PROP. L.J. 226, 237-38 (2015) (discussing statutory provisions and judicial practices with respect to stays of district court litigation pending inter partes or post-grant review).

²²⁷ Cf. Kaplow, *supra* note 212, at 1227 (arguing that "it often may make sense to organize staging by type of evidence," perhaps "begin[ning] with key documents or only a few central witnesses").

²²⁸ The standard for a substantive determination is a variant of the standard for assessing whether a patentee has a sufficient likelihood of success in a patent suit to justify a preliminary injunction. *Trebro Mfg., Inc. v. Firefly Equip., LLC*, 748 F.3d 1159, 1165 (Fed. Cir. 2014) ("An accused infringer can defeat a showing of likelihood of success on the merits by demonstrating a substantial question of validity or infringement.").

²²⁹ *Lemelson v. United States*, 752 F.2d 1538, 1551 (Fed. Cir. 1985) ("[I]n order for a court to find infringement, the plaintiff must show the presence of every element or its substantial equivalent in the accused device.").

The PLRB would generally publish its reasoning and determinations,²³⁰ and the PLRB's opinions and judgments would be admissible in court. On the other hand, to avoid constitutional concerns with jury rights and the prerogatives of Article III courts,²³¹ the PLRB's determinations on substantive matters would only be advisory. There would be no judicial review of the PLRB's determination independent of continuation of the original district court action or analogous proceeding. The trial court would conduct a trial de novo, but the courts would give the PLRB's determinations weight in the manner prescribed by *Skidmore v. Swift & Co.*²³² for agency statutory interpretations. In other words, the trial court would give those determinations weight in accordance with the PLRB's expertise, its care in deliberation, the unanimity or consistency of its judgments, and the quality of evidence before it.²³³ The provisions for trial de novo and restriction of judicial review otherwise would be statutorily specified, thus overriding any otherwise applicable default provisions on judicial review under the Administrative Procedure Act.²³⁴

PLRB determinations would have effects beyond their ability to influence later court decisions. First, if the PLRB found that, under the "clear and convincing plus" standard, a patent claim is invalid based on grounds that are a permissible basis for USPTO post-issuance review, the PLRB's determination would give the successful challenger a right to post-issuance review, as opposed to the mere opportunity to petition for such review. Even if the challenger does not exercise this right, the USPTO would automatically receive notice of the PLRB's determination and could decide sua sponte to launch an ex parte reexamination.²³⁵ Second, if a party uses court proceedings to challenge an adverse PLRB determination and if the party loses that challenge on grounds identical to those invoked by the PLRB, that party would presumptively have to pay the opposing side's associated additional court costs and reasonable attorney

²³⁰ As with court opinions, confidential information might be redacted from publicly available versions of PLRB opinions.

²³¹ RICHARD J. PIERCE, JR., SIDNEY A. SHAPIRO & PAUL R. VERKUIL, ADMINISTRATIVE LAW AND PROCESS § 3.7 (5th ed. 2009) ("[T]he [Supreme] Court has established some boundaries beyond which Congress cannot go concerning Article III and the Seventh Amendment."); *cf.* *Oil States Energy Servs. v. Greene's Energy Grp.*, 85 U.S.L.W. 3575 (U.S. June 12, 2017) (granting writ of certiorari for question about the constitutionality of an administrative process for reviewing the validity of issued patents).

²³² 323 U.S. 134, 140 (1944).

²³³ *Cf. id.* (describing bases for deference to administrative opinions even when "not controlling upon the courts").

²³⁴ *See* 5 U.S.C. § 559 (2012) (stating that the Administrative Procedure Act's chapter 7, which includes its provisions on standards for review, does "not limit or repeal additional requirements imposed by statute or otherwise recognized by law").

²³⁵ 35 U.S.C. §§ 303-304 (2012) (setting forth the Director's power to initiate reexamination of a patent "[o]n his own initiative, and any time").

fees. Third, and relatedly, if a party loses before the PLRB, the party might need to pay costs and, in exceptional cases, reasonable attorney fees associated with the PLRB proceedings. Fourth, PLRB determinations could factor into later assessments of whether district court litigation involves a violation of Federal Rule of Civil Procedure 11 or whether a court should enhance patent-infringement damages because of egregious infringing behavior.²³⁶ Finally, if the PLRB rules in favor of a party that lacks the capacity to appear in court to defend itself, the PLRB would intervene in associated district court proceedings to make its reasoning and determination part of the record and, thus, a potential basis for denying judgment against the non-appearing party.

How would the PLRB obtain funding to cover its administrative costs? Generally speaking, complainants who initiate the relevant suits in district court would pay for the PLRB's preliminary review through administrative fees determined by rule.²³⁷ As with various USPTO fees, there would be substantially reduced fees for small entities and micro-entities that are not stand-ins for better-monetized entities.²³⁸ Further, by request, parties, including business entities, might qualify for in forma pauperis treatment, under which the PLRB would waive fees and cover relevant costs through surplus from PLRB fees collected from others or through a "patent system cost" added to USPTO patent issuance and maintenance fees. If there remains concern that the fees required to pay for PLRB review would be too high to serve interests in access to justice, PLRB review could be supported more generally through increases to preexisting fees associated with the obtaining and maintenance of patent rights. If USPTO fees for post-issuance review proceedings are a reasonable guide, administrative costs associated with the operation of the PLRB might be expected to be in the nature of \$10,000 to \$30,000 per case, or about \$50 million to \$150 million per

²³⁶ *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932 (2016) ("Awards of enhanced damages under the Patent Act . . . are . . . designed as a 'punitive' or 'vindictive' sanction for egregious infringement behavior.").

²³⁷ If fees for inter partes and post-grant review serve as guides, standard administrative costs might be in the nature of \$10,000 to \$30,000. *America Invents Act (AIA) Frequently Asked Questions*, U.S. PATENT & TRADEMARK OFFICE, <http://www.uspto.gov/patent/laws-and-regulations/america-invents-act-aia/america-invents-act-aia-frequently-asked> [<https://perma.cc/3Y2G-M8UZ>] (last visited Sept. 18, 2017). In fact, average administrative costs for PLRB review might tend to be lower than this range suggests. Because PLRB review would involve nonbinding assessment according to a clear and convincing plus standard as opposed to binding judgments according to a preponderance of evidence standard, costs for preliminary review might be significantly lower than USPTO fees for inter partes and post-grant review. Moreover, if neither party raised any issues for review by the PLRB, there would be no need for PLRB review and the PLRB might then waive the complainant's administrative fees.

²³⁸ Michael D. Frakes & Melissa F. Wasserman, *Does Agency Funding Affect Decisionmaking?: An Empirical Assessment of the PTO's Granting Patterns*, 66 VAND. L. REV. 67, 120 (2013).

year if we assume approximately five thousand lawsuits per year.²³⁹ Consequently, given that the USPTO grants about three hundred thousand new patents each year,²⁴⁰ an increase of about \$500 in total fees associated with patent issuance would likely suffice to cover PLRB administrative costs.²⁴¹

2. Reporting Responsibilities and Sunset Provision

For the PLRB to bring immediately significant clarification to the strength of party positions in patent cases, there must be a substantial number of patent-infringement disputes in which parties will raise issues for which the PLRB can deliver a judgment for one party or another. Nonetheless, even if the PLRB makes such an affirmative determination only rarely, the PLRB could make an important contribution to policymaking by helping to clarify the state of U.S. patent litigation and, in particular, whether courts are awash in clearly frivolous claims. Under current conditions, assessment of the relative quality of individual patent-infringement suits is complicated by differences between trial fora, the common confidentiality of settlement terms,²⁴² and selection effects associated with settlement, which leaves only a relatively small and likely unrepresentative subset of disputes subject to decisive court judgments.²⁴³ The PLRB will be in a centralized, start-of-litigation position uniquely suited for gathering information on the full cross-section of patent-infringement suits filed in district courts each year. Thus, at worst, experience with the PLRB should provide substantial insight into the nature of the patent litigation landscape, insight that might help point the way toward fact-based common ground in policy debates. With a view toward exploiting this information-gathering potential of the PLRB, Congress could require that the PLRB provide an annual report on the state of U.S. patent litigation as seen from the PLRB's perspective.

Particularly given that out-of-pocket litigation costs in individual patent disputes tend to run from several hundred thousand dollars to \$10 million or more for the parties involved,²⁴⁴ investing as much as \$30,000 per suit in PLRB

²³⁹ See *supra* note 132 and accompanying text.

²⁴⁰ CALENDAR YEAR PATENT STATISTICS, *supra* note 73.

²⁴¹ If PLRB proceedings cost about \$10,000 to \$30,000 each, see *supra* note 237 and accompanying text, and there are still about five thousand patent suits filed in district courts each year, see *supra* note 132 and accompanying text, PLRB administrative costs would total to about \$50 million to \$150 million per year, an amount that could be raised by obtaining \$170 to \$500 in additional fees for each of three hundred thousand issued patents.

²⁴² Golden, *supra* note 49, at 550 (observing that “the terms of patent-licensing agreements . . . are generally confidential”).

²⁴³ See *supra* text accompanying note 86 (observing that “litigation-based invalidation rates do not provide a great indication of the underlying percentage of issued patent claims that are invalid”).

²⁴⁴ See AIPLA 2015 SURVEY, *supra* note 18, at 37 (reporting median estimated attorney fees of \$600,000 per side for patent-infringement suits with “Less than \$1 Million at Risk” and \$5 million per side with “More than \$25 Million at Risk”).

review appears justified by the benefits that such review promises. Direct benefits from PLRB review, such as reduced overall litigation costs, increased accuracy in dispute resolution, and enhanced access to justice, might themselves justify the investment. Even if these direct benefits are not as large as expected, the systemic benefits of at least a few years of PLRB information-gathering could make the investment more than worthwhile.

PLRB information-gathering could have diminishing returns over time, however, and the information gathered could itself suggest there are better ways to improve the patent litigation landscape. Thus, Congress might be wise to consider terminating an experiment with PLRB review after a few years. Even if termination of the PLRB is not advisable, Congress might need to tweak statutory provisions for PLRB review to respond to private parties' success in "gaming" the system as originally devised.

Consequently, this Article proposes that Congress initially adopt PLRB review on a pilot basis. Absent additional congressional action, the PLRB pilot would terminate after a specified period, perhaps three years, that allows a reasonable time for both the maturation of PLRB practice and the gathering of information to aid future policymaking. If Congress wishes to restrict the impact and burden of PLRB review further, it might apply such review only to a subset of patent cases—for example, a sample of randomly selected cases or a subset of cases involving particular types of subject matter such as software or business methods.

3. Agency Location for the PLRB

There are at least two main candidates for the PLRB's location within the administrative state. First, the PLRB could be folded into the USPTO, either as a new division or as a branch of an expanded Patent Trial and Appeal Board ("PTAB"). The PTAB already handles appeals from examiner rejections and post-issuance trials on patent validity.²⁴⁵ Thus, the PTAB already has within its jurisdiction essentially the full range of validity questions that could face the PLRB.²⁴⁶ Because literal-infringement analysis parallels the novelty analysis used in checking patent validity,²⁴⁷ many infringement questions would not be a major leap from the sorts of questions the PTAB already faces. Further, the most prominent basis for charging patent unenforceability has tended to be inequitable conduct in the process of obtaining the patent from the USPTO,²⁴⁸ an issue that

²⁴⁵ Benjamin J. Christoff, Comment, *Blurring the Boundaries: How the Additional Grounds for Post-Grant Review in the America Invents Act Raise Issues with Separation of Powers and the Administrative Procedure Act*, 39 U. DAYTON L. REV. 111, 126 (2013).

²⁴⁶ *Id.*

²⁴⁷ See *Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc.*, 246 F.3d 1368, 1378 (Fed. Cir. 2001) ("[I]t is axiomatic that that which would literally infringe if later anticipates if earlier.")

²⁴⁸ Tun-Jen Chiang, *The Upside-Down Inequitable Conduct Defense*, 107 NW. U. L. REV. 1243, 1244 (2013).

USPTO judges might be particularly competent to handle. Additionally, the USPTO's general administrative structure, including its experience in recruiting and training administrative judges and in setting fees for associated processes, would likely ease the startup costs for PLRB implementation. Location of the PLRB within the USPTO might also facilitate coordination of PLRB review with parallel USPTO proceedings and could simplify funding arrangements if the PLRB is at least partly funded by patent application or maintenance fees.

On the other hand, there are compelling reasons to resist the upfront convenience of folding the PLRB into the USPTO. First, there is the concern that the USPTO already strains to perform its current missions.²⁴⁹ The generally increasing inflow of new patent applications²⁵⁰ suggests that this strain will not let up soon. Second, the PLRB's job would be to preview likely outcomes in proceedings in district courts, rather than before the USPTO. A PLRB located within the USPTO might have more difficulty acting as an accurate previewer of court outcomes as opposed to a follower of USPTO positions that courts have not yet embraced. Third, the USPTO has traditionally (and explicitly) viewed patent applicants and owners as its "customers."²⁵¹ Despite the USPTO's now substantial docket of adversarial proceedings,²⁵² this fact, along with the USPTO's reliance on application and maintenance fees for its funding,²⁵³ might justify establishing the PLRB as an independent check on the USPTO's work. Finally, USPTO-based administrative judges already number in the hundreds, and, for purposes of both recruiting and oversight, there might be value in the PLRB existing as a separate, compact body focused on issues relating to patent litigation.

If the PLRB were such a separate body, it could follow either the model of adjudicative agencies such as the ITC or that of formally private, non-profit corporations such as the Public Company Accounting Oversight Board

²⁴⁹ See, e.g., Eric B. Chen, *Conflicting Objectives: The Patent Office's Quality Review Initiative and the Examiner Count System*, 10 N.C. J.L. & TECH. ONLINE EDITION 28, 30 (2008) ("[S]everal challenges continue to plague the USPTO, namely the backlog of unexamined patent applications, concerns over examiner attrition, and the increasing volume of continuing applications and *ex parte* appeals" (footnotes omitted)).

²⁵⁰ See CALENDAR YEAR PATENT STATISTICS, *supra* note 73 (showing that the number of U.S. utility patent applications grew from 117,006 in 1985 to 589,410 in 2015); cf. Golden, *supra* note 75, at 463 (noting that, "at least for . . . utility and design patents, the general long-term trend has been for the number of patents issued each year to increase at an accelerating pace.").

²⁵¹ Golden, *supra* note 38, at 1098.

²⁵² See PTAB STATISTICS 2016, *supra* note 37, at 3 (noting that the USPTO received 1894 and 1683 petitions for inter partes, covered business method, or post-grant review in fiscal years 2015 and 2016, respectively).

²⁵³ See Frakes & Wasserman, *supra* note 238, at 69.

("PCAOB").²⁵⁴ The latter model would permit the PLRB to avoid standard federal pay scales, thereby enhancing its ability to recruit highly qualified professionals.²⁵⁵ In either case, members of the PLRB could be appointed by the President for a statutorily set term of years, subject to removal by the President only for cause.²⁵⁶

4. Defusing the "Flood of Claims" Concern

A major concern with the addition of any early-stage review process is that it might add complication, expense, and delay that outweigh any of its social benefits. In the case of the PLRB, this concern has at least two prongs. First, there is the basic concern that PLRB review adds a new stage to patent litigation that necessarily entails some costs. Section III.A's economic models indicate that countervailing social gains can justify such costs as long as PLRB review leads to quicker or more accurate resolution of a sufficient number of cases. A second concern, however, threatens to undermine this response. This second concern is that, from a social standpoint, parties might spend excessively on argument before the PLRB and thus dissipate any social value that the PLRB would otherwise generate. Most troublingly here, the PLRB could conceivably encourage more filings of weak claims if patent holders come to view the PLRB either as a useful forum for "trial balloon" tests of litigation prospects or as a source of potential lottery-style windfalls in the form of occasional mistaken judgments in favor of otherwise weak claims. The possibility of lottery-style windfalls from PLRB errors seems substantially limited because of both the high clear-and-convincing-plus standard for affirmative judgments and the non-binding nature of these judgments. At least on the face of things, cause for concern that parties will flood the PLRB with litigation trial balloons is more fundamental.

This Subsection grapples with the possibility of a flood of trial balloons or other overinvestment in PLRB processes by modeling individual parties' incentives to make arguments before the PLRB. The model suggests that, in a broad range of circumstances, the private costs of making such arguments will

²⁵⁴ See *Free Enter. Fund v. Pub. Co. Accounting Oversight Bd.*, 561 U.S. 477, 484 (2010) (describing the PCAOB as "modeled on private self-regulatory organizations in the securities industry—such as the New York Stock Exchange"); Mick Bordonaro, Recent Development, *The Public Accounting Oversight Board After Dodd-Frank*, 30 REV. BANKING & FIN. L. 474, 475 (2011) ("[T]he PCAOB is a non-profit corporation under the supervision and control of the [Securities and Exchange Commission].").

²⁵⁵ See *Free Enter. Fund*, 561 U.S. at 484-85 (noting that the PCAOB's technically private status enables it to "recruit its members and employees from the private sector by paying salaries far above the standard Government pay scale"); Bordonaro, *supra* note 254, at 476 ("[T]he PCAOB does not follow the standard federal pay scale.").

²⁵⁶ Cf. *Free Enter. Fund*, 561 U.S. at 487 (accepting the belief "that the Commissioners cannot themselves be removed by the President except under the *Humphrey's Executor* standard").

cause costs of PLRB review to be self-regulating in the sense that rational parties' self-interest will motivate them to restrain investments in PLRB processes enough to preserve the PLRB's promise as a means for improving social welfare. Admittedly, however, the model also suggests that, under a limited set of circumstances, private parties' use of PLRB proceedings would, if otherwise unchecked, drive the social costs of those proceedings above their social benefits. This possibility provides reason to empower the PLRB to regulate its proceedings in ways at least comparable to those available to district courts or the USPTO. For example, by imposing page limits on filings, demanding that parties make assertions with particularity, or limiting the number of issues a party can present for review, the PLRB can do much to counter private tendencies toward socially excessive argument.

This Subsection's model for PLRB review works as follows. First, in light of the clear-and-convincing-plus standard for PLRB review, we model two basic ways that the PLRB can rule on an issue raised by a party petitioner: (1) the PLRB can agree that the petitioner should prevail based on the information at hand (an agreement hereinafter described as an "affirmative" ruling); or (2) the PLRB can rule that existing evidence is inconclusive. Let us assume that the probability of the PLRB agreeing that the petitioner should prevail is given by the nonnegative value p . For simplicity, let us also assume that an inconclusive ruling by the PLRB does not generate any information that adds or destroys value for society or the individual parties.²⁵⁷ On the other hand, if the petitioner obtains a favorable ruling, the petitioner will effectively win an amount equal to V_{petr} because of an increase in the expected value of the petitioner's side of the litigation. There are at least two potential channels for contributions to V_{petr} : (1) an increase in the petitioner's likelihood of at least partially prevailing in any subsequent district court litigation, and (2) an increase in the likelihood of settlement on terms relatively favorable to the petitioner.

Of course, there is also a price for the possibility of winning in the PLRB proceeding: the cost to the petitioner C_{petr} of raising the issue in question and then litigating it before the PLRB. Under the model, parties act as rational profit-maximizers in the sense that they raise an issue for PLRB review only when the probability of winning times the value of winning exceeds or equals the cost of making and pursuing the relevant petition—i.e., only when $pV_{\text{petr}} \geq C_{\text{petr}}$ or, alternatively stated, $p \geq C_{\text{petr}}/V_{\text{petr}}$.

The model assumes that society gains from the clarification that an affirmative PLRB ruling brings. The value of that gain is V_{soc} , and the probability

²⁵⁷ One might expect that an inconclusive ruling by the PLRB will have a negative effect on the expected value of the litigation for the petitioner: the case will thereby become one in which the petitioner has failed to prevail before the PLRB, rather than one in which the petitioner only had a probability of failing to prevail before the PLRB. But because the standard for prevailing before the PLRB is intended to be very demanding, we assume any such negative effect to be negligible to a first approximation.

of that gain is p , the previously indicated probability of an affirmative ruling. This gain will come at a cost to society C_{soc} , however. This cost C_{soc} is modeled as including the cost to the petitioner C_{petr} of engaging in PLRB proceedings, the total cost C_{resp} to any other parties of responding, and any cost C_{pub} to the public of conducting the proceedings that the parties do not bear.²⁵⁸ The net social benefit as a result of the petitioner's pursuit of an issue before the PLRB is $\Delta = pV_{\text{soc}} - C_{\text{soc}}$. Thus, under this analysis, society only loses from PLRB proceedings if, for an appropriately representative petition, $pV_{\text{soc}} < C_{\text{soc}}$ or, alternatively stated, $p < C_{\text{soc}}/V_{\text{soc}}$.

Hence, under the model, for the raising of an issue before the PLRB to be rationally in a party's interest but contrary to society's interest, the value of p , the probability of the petitioning party's prevailing before the PLRB, must lie within a doubly restricted range: $C_{\text{petr}}/V_{\text{petr}} \leq p < C_{\text{soc}}/V_{\text{soc}}$. Under some circumstances, $C_{\text{soc}}/V_{\text{soc}}$ could be less than or equal to $C_{\text{petr}}/V_{\text{petr}}$, with the result that there are no values of p that satisfy the twin conditions. This situation can arise when there are strong positive externalities to the PLRB's providing a preliminary judgment on a particular point—for example, the invalidity or limited scope of a patent claim whose validity and breadth have significant implications for competitors of the petitioner as well as the petitioner itself.²⁵⁹

On the other hand, one can also anticipate that, when a party chooses to pursue litigation before the PLRB, the party will often be litigating an issue that, if the party prevails, will produce disproportionate benefit, relative to the rest of society, for that individual party—for example, by effecting a wealth transfer between the parties to the case without significantly benefiting society at large. Consequently, given that the cost to society of PLRB proceedings C_{soc} includes and therefore generally exceeds C_{petr} , one can imagine situations where V_{petr} is so sizable relative to V_{soc} that $C_{\text{soc}}/V_{\text{soc}} > C_{\text{petr}}/V_{\text{petr}}$. Under such circumstances, there is a range of p values that leads to PLRB review having a net negative value for society.

But it is important to recall that, under the model, p values that can lead to net negative social welfare effects are always capped by the value $C_{\text{soc}}/V_{\text{soc}}$, the ratio

²⁵⁸ One could argue that payments to individuals such as attorneys, expert witnesses, and PLRB employees are fundamentally just wealth transfers that presumptively lack a first-order effect on overall social welfare. See Herbert Hovenkamp, *Antitrust's Protected Classes*, 88 MICH. L. REV. 1, 14 (1989). But for purposes here, policymakers can be viewed as primarily seeking to assess whether PLRB review can achieve net value through cost savings relative to district court litigation costs or other process costs that will be incurred without PLRB review. In substantial part because such cost savings form the most readily estimable and, likely, surest benefit of PLRB review, assessing when and whether the analogous costs of PLRB review outweigh the expected benefit of PLRB review seems a reasonable approach for first-cut cost-benefit analysis.

²⁵⁹ Golden, *supra* note 191, at 616 (“[A] patent challenge can generate significant positive externalities that are not positively reflected in a challenger's incentives.”).

of the cost to society of PLRB proceedings divided by the social value added by those proceedings. If we assume that a PLRB ruling declaring a party's position to be weak or strong will often lead to the associated issue dropping out of further litigation and that the ratio between the costs of PLRB proceedings and the costs of litigation before the district courts will roughly track the ratio of costs associated with current USPTO inter partes review proceedings and the costs of litigation before the district courts, then we have reason to believe that the ratio $C_{\text{soc}}/V_{\text{soc}}$ will equate to a value of 10% or lower. In other words, because district court patent litigation seems, generally speaking, to result in litigation costs that are at least about ten times higher than those characteristic of administrative proceedings,²⁶⁰ litigation cost savings alone appear likely to cause the ratio $C_{\text{soc}}/V_{\text{soc}}$ to take a value that is no more than about 10%. In short, there is reason to believe that PLRB proceedings will produce net positive value for society as long as parties restrain themselves—or are restrained through appropriate rules governing proceedings—such that the overall success rate of their filings is at least about 10%.

Such private-party discretion in raising issues in preliminary proceedings is more than theoretically plausible. In the face of an arguably more demanding standard for success than the PLRB's proposed clear-and-convincing-plus standard, patentees already restrain their filing of motions for preliminary injunctions so that such motions have a success rate of nearly 20%.²⁶¹ This real-world example suggests that, as long as PLRB policies and the PLRB's decision-making record make clear that a petitioner has only a very limited chance of obtaining a favorable affirmative judgment, parties are likely to restrict their use of PLRB proceedings sufficiently to make PLRB review socially worthwhile. The PLRB could adjust procedure to encourage or effectively force further restraint as needed. Hence, worries about private parties overinvesting in PLRB processes do not appear to provide a strong basis for rejecting this Article's proposed reform.

C. *Complement or Substitute for Other Reforms*

A different potential objection to this Article's proposal is that other already-adopted reforms or reform proposals render institution of PLRB review unnecessary.²⁶² In response, this Section discusses such alternatives and the work that they leave for a PLRB.

²⁶⁰ See AIPLA 2015 SURVEY, *supra* note 18, at 37-38.

²⁶¹ Kirti Gupta & Jay P. Kesan, *Studying the Impact of eBay on Injunctive Relief in Patent Cases* 12 tbl.2 (Univ. of Ill. Coll. of Law Legal Studies Research, Paper No. 17-03, 2015) <http://ssrn.com/abstract=2629399> [<https://perma.cc/4UFK-VBQP>] (reporting that over 17% (115 of 663) of preliminary injunction motions in patent cases have been granted since *eBay* was decided in 2006).

²⁶² Cf. F. Scott Kieff & Henry E. Smith, *How Not to Invent a Patent Crisis*, in REACTING TO THE SPENDING SPREE: POLICY CHANGES WE CAN AFFORD 55, 55 (Terry L. Anderson &

In 2011, Congress made multiple adjustments to the patent system's mechanisms for dispute resolution. Early in that year, Congress launched a Patent Pilot Program that, in certain districts, cultivates judicial expertise by preferential assignment of patent cases to a subset of district judges.²⁶³ Later that same year, Congress passed the AIA, which, as noted earlier, both expanded opportunities for USPTO post-issuance review of patent validity and tightened joinder rules to limit the number of defendants that a patent holder may sue in a single case.²⁶⁴

The courts have also been active in making adjustments. The Supreme Court and Federal Circuit have issued decisions that, among other things, have (1) tightened enforcement of the patentability requirements of subject-matter eligibility,²⁶⁵ nonobviousness,²⁶⁶ claim definiteness,²⁶⁷ and adequate disclosure;²⁶⁸ (2) emphasized district courts' discretion to deny injunctive relief;²⁶⁹ (3) tightened or re-emphasized requirements for proving patent-infringement damages²⁷⁰ and, on the other side of a patent-infringement suit, inequitable conduct before the USPTO;²⁷¹ (4) increased opportunities for

Richard Sousa eds., 2009) (noting "rapid, and we would argue excessive, changes that have already occurred in the courts").

²⁶³ See Patent Cases Pilot Program, Pub. L. No. 111-349, 124 Stat. 3674, 3674 (2011); Anderson, *supra* note 159, at 691.

²⁶⁴ See *supra* text accompanying notes 30-31.

²⁶⁵ See John M. Golden, *Flook Says One Thing, Diehr Says Another: A Need for Housecleaning in the Law of Patentable Subject Matter*, 82 GEO. WASH. L. REV. 1765, 1768-74 (2014).

²⁶⁶ See Jason Rantanen, *The Federal Circuit's New Obviousness Jurisprudence: An Empirical Study*, 16 STAN. TECH. L. REV. 709, 764 (2013) (concluding that appellate case law on nonobviousness has effectively tightened the nonobviousness requirement).

²⁶⁷ *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2130 (2014) (abrogating an apparently loose standard for patent claim definiteness that had appeared in Federal Circuit case law).

²⁶⁸ *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1340 (Fed. Cir. 2010) (en banc) ("We now reaffirm that [35 U.S.C.] § 112, first paragraph, contains a written description requirement separate from enablement . . .").

²⁶⁹ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 394 (2006) (emphasizing that "the decision whether to grant or deny injunctive relief rests within the equitable discretion of the district courts").

²⁷⁰ See, e.g., *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 78 (Fed. Cir. 2012) (finding abuse of discretion in the district court's admission of certain evidence on reasonable royalty damages); Douglas G. Smith, *The Increasing Use of Challenges to Expert Evidence Under Daubert and Rule 702 in Patent Litigation*, 22 J. INTELL. PROP. L. 345, 350-73 (2015) (discussing developments in the admissibility of expert testimony in patent cases).

²⁷¹ John M. Golden, *Patent Law's Falstaff: Inequitable Conduct, the Federal Circuit, and Therasense*, 7 WASH. J.L. TECH. & ARTS 353, 371-72 (2012) (discussing a shift "toward a leaner doctrine of inequitable conduct").

attorney fee shifting;²⁷² (5) broadened application of a statutory rule of construction to effectively require narrower interpretations of many existing patent claims;²⁷³ (6) overruled decisions erecting hurdles to bringing or triumphing in declaratory judgment actions challenging patent validity or scope;²⁷⁴ and (7) used writs of mandamus to order transfer of patent cases to new districts, particularly in cases in which the original district was the Eastern District of Texas.²⁷⁵ Trial courts have taken additional measures. Starting in 2000 with the Northern District of California,²⁷⁶ various district courts and judges have adopted local rules or standing orders specifically directed toward managing patent litigation.²⁷⁷

States have also taken measures to regulate patent assertion. A majority of states have passed laws specifically targeting patent demand letters, typically by criminalizing patent-infringement allegations made in bad faith and by requiring alleged violators to post a bond for potential penalties.²⁷⁸ Even in states without

²⁷² *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1755 (2014) (holding that a Federal Circuit framework for when attorney fees may be awarded was “unduly rigid”).

²⁷³ *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc in relevant part) (overruling precedent “characterizing as ‘strong’ the presumption that a [patent claim] limitation lacking the word ‘means’ is not subject to [35 U.S.C.] § 112, para. 6”).

²⁷⁴ *Medtronic, Inc. v. Mirowski Family Ventures, LLC*, 134 S. Ct. 843, 846 (2014) (reversing a Federal Circuit holding that a licensee bears the burden of proving non-infringement in a declaratory judgment action); *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 137 (2007) (holding that a patent licensee “was not required . . . to break or terminate its 1997 license agreement” before challenging the patent in a declaratory judgment action).

²⁷⁵ Paul R. Gugliuzza, *The New Federal Circuit Mandamus*, 45 *IND. L. REV.* 343, 346 (2012) (“[T]he Federal Circuit has, on ten occasions since December 2008, granted mandamus to order the U.S. District Court for the Eastern District of Texas to transfer a patent case.”).

²⁷⁶ Pelletier, *supra* note 109, at 478 (“[T]he Northern District of California is the acknowledged model and pioneer of local patent rules, having adopted its first version in 2000.”).

²⁷⁷ MENELL ET AL., *supra* note 104, at 2-14 to 2-15 (reporting that patent local rules “were developed to facilitate efficient discovery” and that they “promote efficient case management”); La Belle, *supra* note 173, at 63 (“Today, thirty district courts in twenty different states have comprehensive local patent rules, and many more individual judges have adopted ‘local-local’ rules or standing orders that apply to patent cases in their courts.”).

²⁷⁸ Ryan Davis, *Patent Troll Targets Getting Boost from State Laws*, *LAW360* (Nov. 24, 2015, 8:13 PM), <https://www.law360.com/articles/731287/patent-troll-targets-getting-boost-from-state-laws> (observing that “[d]ozens of states have recently passed laws making it a crime under state law to allege patent infringement in bad faith” and that fifteen states “include a bond provision”).

such laws, alleged infringers have begun invoking state consumer protection laws in counterclaims against patentees.²⁷⁹

But these now relatively longstanding adjustments have proven inadequate to answer continuing concerns that patent assertion has become a drag on innovation. The rate of new patent-suit filings in district courts remains more than double that of the year 2000,²⁸⁰ and these suits are now supplemented by a comparable rate of new filings in USPTO post-issuance proceedings.²⁸¹ Part of the failure of past reforms reflects adjustments by patent holders. For example, patent holders have deployed multiple responses to new joinder limitations, such as "increasing the number of filings against individual defendants who would have previously been named in a single complaint"; "employing multidistrict litigation ("MDL") procedures to bind cases for pre-trial activities"; and incorporating in Delaware to pursue defendants in a forum where consolidation of cases is likely because of the forum's "relatively small" size.²⁸²

More recent changes to the Federal Rules of Civil Procedure offer little assurance of relief. In 2015, the Supreme Court approved new Federal Rules of Civil Procedure that seek to "control[] the expense and time demands of litigation" and to promote "prompt and efficient resolutions of disputes."²⁸³ Steps to these ends include shortening the default deadline for a trial judge's mandatory scheduling order;²⁸⁴ limiting authorized discovery to "nonprivileged matter" "proportional to the needs of the case";²⁸⁵ and apparently tightening patent-suit pleading requirements by eliminating the ability of patentees to rely on Form 18, a model complaint for patent-infringement suits.²⁸⁶ But these

²⁷⁹ *Id.* (noting use of "state consumer protection statutes" by "[s]ome accused infringers").

²⁸⁰ See *supra* note 132 and accompanying text (noting that the number of patent suits filed in district courts rose from about two thousand in the year 2000 to over four thousand five hundred in 2016).

²⁸¹ See PTAB STATISTICS 2015, *supra* note 90, at 3 (reporting that, from fiscal year 2014 to fiscal year 2015, the number of petitions for inter partes review, post-grant review, and covered business method review increased from 1489 to 1897); see also PTAB STATISTICS 2016, *supra* note 37, at 3 (reporting that, in fiscal year 2016, 1683 petitions for inter partes review, post-grant review, and covered business method review were filed).

²⁸² Smith & Transier, *supra* note 15, at 231-32.

²⁸³ CHIEF JUSTICE OF THE SUPREME COURT OF THE UNITED STATES, 2015 YEAR-END REPORT ON THE FEDERAL JUDICIARY 6.

²⁸⁴ *Redline of Civil Rules Amendments* 8 comm. note, U.S. COURTS (Dec. 1, 2015), <http://www.uscourts.gov/file/18905/download> [<https://perma.cc/65CB-F6UY>] ("The time to issue the scheduling order is reduced to the earlier of 90 days (not 120 days) after any defendant has been served, or 60 days (not 90 days) after any defendant has appeared.").

²⁸⁵ CHIEF JUSTICE OF THE SUPREME COURT, *supra* note 283, at 10.

²⁸⁶ *Id.* at 49 (showing abrogation of Rule 84); see Bultman, *supra* note 32 ("The changes, a rewrite of the Federal Rules of Civil Procedure . . . eliminate a rule that allowed filers of patent suits to rely on a bare-bones model complaint.").

changes appear to leave much to trial judges' discretion²⁸⁷ and seem unlikely to have great effects in the many district courts that already have special local rules, standing orders or practices to regulate pretrial processes in patent cases.²⁸⁸

Additional adjustments might be forthcoming from Congress or the courts. In recent years, members of Congress have introduced various bills focused on patent litigation reform²⁸⁹ or the pre-litigation demand letters²⁹⁰ that have attracted the attention of state legislators.²⁹¹ Litigation reform bills have proposed changing aspects of litigation such as pleading requirements, rules for attorney-fee shifting, the rules regulating allowable venues for district court litigation, and the scope of allowable discovery.²⁹² But, so far, efforts to enact such bills have stalled.²⁹³

In contrast, in May 2017, the Supreme Court effectively "enacted" venue reform by overturning longstanding Federal Circuit precedent that had adopted a liberal understanding of the statutory requirements for venue.²⁹⁴ The change

²⁸⁷ See *Alexsam, Inc. v. IDT Corp.*, 715 F.3d 1336, 1342 (Fed. Cir. 2013) ("A district court's decision to sanction a litigant [for a discovery violation] under Rule 37 is reviewed for abuse of discretion."); *Abbott Point of Care Inc. v. Epocal, Inc.*, 666 F.3d 1299, 1302 (Fed. Cir. 2012) ("[T]his court reviews 'the district court's denial of discovery, an issue not unique to patent law, for abuse of discretion, applying the law of the regional circuit'" (quoting *Patent Rights Prot. Grp., LLC v. Video Gaming Techs., Inc.*, 603 F.3d 1364, 1371 (Fed. Cir. 2010))); Kaplow, *supra* note 212, at 1285-86 (suggesting that the plausibility pleading standard might effectively leave much up to the idiosyncratic views of individual district judges).

²⁸⁸ See *supra* notes 276-77 and accompanying text (discussing local rules and standing orders adopted by district courts for patent cases); cf. Robert G. Bone, Twombly, *Pleading Rules, and the Regulation of Court Access*, 94 IOWA L. REV. 873, 878 (2009) (contending that "the Court's plausibility standard marks only a modest departure from notice pleading").

²⁸⁹ See *Gugliuzza, supra* note 202, at 283 ("Of the fourteen patent reform bills introduced in the 113th Congress, five focused specifically on patent litigation.").

²⁹⁰ See *id.* at 283 n.25 (discussing bills that would "mak[e] it illegal to send 'in bad faith' a letter threatening [sic] patent infringement litigation").

²⁹¹ See *supra* text accompanying note 278.

²⁹² See, e.g., *Protecting American Talent and Entrepreneurship Act of 2015*, S. 1137, 114th Cong.; *Innovation Act*, H.R. 9, 114th Cong. § 2 (2015); *Gugliuzza, supra* note 202, at 283.

²⁹³ *Sources Say Patent Bills Not Right-Sized But Goodlatte, Pro-Bill Lobbyists Keep Fighting*, 90 PAT. TRADEMARK & COPYRIGHT J. (B.N.A.) No. 2234, at 3624, 3624 (2015) (reporting indications that patent litigation reform legislation was "unlikely to move forward in its current form").

²⁹⁴ See *TC Heartland LLC v. Kraft Food Brands Grp. LLC*, 137 S. Ct. 1514, 1517 (2017) (concluding that "a domestic corporation 'resides' only in its State of incorporation for purposes of the patent venue statute"); Mark Curriden, *The 'Rocket Docket' Starts to Fizzle: Patent Infringement Cases Filed in East Texas Federal Courts Down for First Time in 3 Years*, HOUS. CHRON., Jan. 30, 2017, at B1, B2 (reporting that, if the Supreme Court reads venue provisions narrowly, "it would likely mean fewer cases filed in East Texas").

will likely have only limited impact on the litigation concerns motivating this Article's proposal, however. Neither this change to the understanding of venue requirements nor other proposed reforms obviate the value promised by PLRB review. Indeed, those reforms would not provide for the sort of automatic and impartial early-stage review of substantive questions in patent litigation that the PLRB would make available—and hence, those other reforms cannot offer the informational advantages for individual parties and society that PLRB review provides. In short, even if various alternative reforms are implemented, this Article's framework for patent litigation administrative review will still promise to substantially improve how the patent system operates.

CONCLUSION

The time has come to take seriously a variant of Jefferson's proposal for a "board of Academical professors" for patents²⁹⁵—here, a proposed Patent Litigation Review Board of experienced patent professionals with broad access to scientific and technical expertise.²⁹⁶ Early-stage PLRB review of patent suits can improve the patent system's immediate economic performance and provide information that enables further improvements. Patent litigation in the United States currently bears many hallmarks of a process ripe for, and indeed marked by, opportunistic behavior. High litigation costs, long delays in obtaining clarifying decisions, and substantial continuing limitations on USPTO review suggest that a robust process of early-stage administrative review can mitigate current problems with patent litigation. Such administrative review seems particularly likely to be justified on a cost-benefit basis to the extent it focuses on the "tails" of party assertions in patent litigation: discouraging the weakest assertions and encouraging the strongest ones. This Article has shown that multiple economic models, using realistic figures for the costs of review, support the argument that early-stage administrative review will improve the patent system.

On the other hand, dramatic litigation reforms such as the institution of PLRB review can sometimes generate unexpected effects. Consequently, this Article recommends adopting the proposed framework on a trial basis. A sunset provision would require policymakers to reevaluate the framework within a few years. Innovative policymaking with a continuing commitment to information gathering and reevaluation are crucial to ensuring the optimal performance of dynamic legal regimes like the patent system. This Article's proposal for PLRB review is an ideal first step along this path.

²⁹⁵ See *supra* text accompanying note 208.

²⁹⁶ Cf. Golden, *supra* note 63, at 327 (arguing that, for claim construction, "the optimal perspective is likely to be that of a patent attorney, albeit one who has not only legal expertise but also access to the technical knowledge of an artisan").