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Response

Some Realism About the Resiliency of the Patent System

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In *The Surprising Resilience of the Patent System*,¹ Professor Mark Lemley presents an intriguing puzzle: despite significant doctrinal fluctuation over the past decade or so, the real-world outputs of the patent system—measured according to a wide variety of metrics such as patentee win rates, patent filing rates, and R&D spending—have not followed this fluctuation. Lemley interprets this finding as supporting the hypothesis that patent law fundamentally has little effect on the real world. As Lemley explains, if this hypothesis is true, it has several implications, some sunnier than others. On the bright side, if changing patent law has little effect on the real world, then even if Congress or the courts mess up patent law (and many people think that has happened, is happening, or may happen soon), that won't really be so bad. On the dark side, the whole purpose of having a patent system in the first place is to affect the real world—to incentivize more innovation than would occur without a patent system—and if patent law fundamentally doesn't affect the real world, then that calls the entire premise of having patent law into question.

Empirically minded scholars will find a lot to mine in Lemley's data, and I think there is truth to the claim that patent doctrine has less effect on real-world outcomes than classical legal theory would have us believe. On the other hand, the precise nature of Lemley's findings needs to be clarified,

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1. Mark A. Lemley, *The Surprising Resilience of the Patent System*, 95 TEXAS L. REV. 1 (2016).

and once clarified, I will argue that Lemley's conclusions are premature.

I. Reconstructing Lemley's Argument

As an initial matter, I should lay out my understanding of Lemley's argument, especially because Lemley disagrees with some of my interpretations. As I see it, Lemley's argument has three parts. First, patent law fluctuated a great deal between the late 1970s and 2016. From its creation in 1982 to the late 1990s, the Court of Appeals for the Federal Circuit moved patent doctrine in a direction that was generally favorable to patent holders, across a wide swath of areas such as patentable subject-matter,² obviousness,³ and remedies.⁴ Conversely, a flurry of Supreme Court cases in the first decade of this century and legislative change in the form of the America Invents Act of 2011 moved patent doctrine generally in a direction favorable to patent defendants.⁵ The result is that we have seen a doctrinal pendulum swing in both directions: first toward patent holders and then toward patent defendants. Although different people are likely to disagree about the precise details—such as whether or how much a particular decision moved doctrine and whether the pendulum has swung far enough in any particular direction—few people who are familiar with patent doctrine are likely to dispute the overall account.

Second, if we followed what might be called the “classical” theory of the legal system, we should see some real-world effects from legal change in either direction.⁶ Changes favorable to patent holders should result in higher patentee win rates in litigation and induce more patent application filings and grants; changes favorable to patent defendants should cause the opposite.⁷ What Lemley finds is that the first effect is somewhat observed but the second is not: patentee win rates on validity did rise from approximately 35% to approximately 55% after the creation of the Federal Circuit (though it seems to be a one-off increase rather than a graduated one in response to actual doctrinal change),⁸ and patent application filings and grants have increased steadily since 1982,⁹ but subsequent defendant-friendly interventions by the Supreme Court and Congress have not

2. *State St. Bank & Trust Co. v. Signature Fin. Grp. Inc.*, 149 F.3d 1368, 1377 (Fed. Cir. 1998).

3. *In re Dembiczak*, 175 F.3d 994, 1003 (Fed. Cir. 1999).

4. *Richardson v. Suzuki Motor Co., Ltd.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989).

5. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014); *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398 (2007); *eBay Inc. v. MercExchange*, 547 U.S. 388 (2006).

6. *See* George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 3 (1984) (“[I]t is very common to infer the influence of a legal standard . . . by observing the proportion of cases in which plaintiffs recover verdicts.”).

7. *See* Lemley, *supra* note 1, at 2.

8. *Id.* at 8.

9. *Id.* at 16–19.

reversed those numbers.¹⁰ The overall win rate for patentees has consistently hovered around 25%; the patentee win rate on validity is still approximately 55%; and patent application filings and grants are still increasing.

Third, from these observations, Lemley infers that patent law doesn't actually affect real world outcomes and real world decisions, at least not in any predictable fashion. And if patent law doesn't actually affect the real world, then this calls into question "what good it is doing for society to have the [patent] system at all."¹¹ Put another way, if all inventors care about is the *idea* of patents—without reacting to the fine details of what the patent system actually does in terms of enforcement—then from an instrumental perspective it follows that we should exploit this ignorance by engaging in what Meir Dan-Cohen has termed "acoustic separation": we should give inventors pieces of paper called "patents" to motivate them, but we should make those pieces of paper legally unenforceable to reduce the monopoly costs of patent protection.¹² Lemley backs off at the last step from advocating that all or nearly all patents be made entirely unenforceable, and he does not expressly make the case for acoustic separation, but this logic seems to undergird his argument that "changes that reduce the social cost of patent litigation can probably be made at little or no cost to innovation incentives"¹³ and "[w]e may also want to take some cases out of the litigation system altogether."¹⁴

I have two critiques of Lemley's argument. The first is a technical one: as a matter of econometric analysis, the data that Lemley presents is only suggestive of his claim that real-world outputs are resilient against legal change; it is far from definitive proof of it. The second is a deeper conceptual critique: even if we accept the data as demonstrating that the real-world outputs of the patent system have not varied in response to swings in the doctrinal pendulum, what this proves is that the real-world outputs are resilient against *formal doctrinal* change. It does not prove that the real-world outputs of the patent system are resilient against changes in patent *law* more broadly conceived. And once we differentiate between "formal doctrine" and "law," some alternative theories for the resilience of patent outcomes emerge.

10. *See id.* at 25 ("Over the past two decades, even as we have seen dramatic changes in the substantive law, first in one direction and then another, the outcome of litigated cases has essentially remained unchanged.").

11. *Id.* at 53.

12. *Id.* at 54 (arguing "the market values patents for patents' sake, using them as markers of innovation or trading chits"). *See generally* Meir Dan-Cohen, *Decision Rules and Conduct Rules: On Acoustic Separation in Criminal Law*, 97 HARV. L. REV. 625 (1984) (exploring the concept of "acoustic separation" between conduct rules and decision rules).

13. Lemley, *supra* note 1, at 56.

14. *Id.* (arguing that patents held by non-practicing entities are not "necessary to facilitate patent markets" and "impose a substantial cost on innovation").

II. How Resilient are the Outputs of the Patent System?

On a technical econometric level, my critique of Lemley's argument is that it fails to sufficiently control for confounding variables, most importantly the problem of selection effects. That is, Lemley places great emphasis on the fact that "even as we have seen dramatic changes in the substantive law . . . , the outcome of litigated cases has essentially remained unchanged."¹⁵ But this observation is consistent with two possible hypotheses: (1) changes in patent doctrine *do not* affect a patentee's ex ante expected chance of winning, or the expected payoff of litigation, or anything else that the patent system is supposed to affect (the resiliency hypothesis), or (2) changes in patent doctrine *do* affect a patentee's ex ante chances of winning, the expected payoffs of litigation, and ultimately patent incentives, but parties account for this in settlement decisions—including licensing before litigation is filed—so the outcomes of *litigated cases* don't change (the Priest–Klein hypothesis).¹⁶

Lemley acknowledges the possibility of selection effects, but he "question[s] how much weight we can put on the Priest-Klein hypothesis."¹⁷ His articulated reasons for this questioning are too thin, however.

As an initial matter, it is important to clarify what I mean by "the Priest-Klein hypothesis," because Priest and Klein actually make several distinct claims in their article.¹⁸ Their most famous claim is that selection effects will cause the observed plaintiff win rate to converge on 50%.¹⁹ This "50% hypothesis" is *not* what I mean by "the Priest-Klein hypothesis." Rather, I mean a more general claim that "litigants will take . . . differing legal standards into account in their settlement negotiations so that the proportion of observed plaintiff recoveries will tend to *remain constant over time regardless of changes in the underlying standards applied*."²⁰

Thus clarified, many of the arguments that Lemley makes against the Priest–Klein hypothesis fall away. For example, he cites Steven Shavell's argument that any plaintiff win rate is possible,²¹ but this is only a refutation of the 50% hypothesis. Similarly, Lemley's observation that "[t]here are systematic variations from 50% in win rates overall and in win rates

15. *Id.* at 25.

16. See Priest & Klein, *supra* note 6, at 4 (proposing that disputes selected for litigation do not constitute a random sample of all disputes, but rather is the product of the parties' choices).

17. Lemley, *supra* note 1, at 28.

18. See Yoon-Ho Alex Lee & Daniel Klerman, *The Priest-Klein Hypotheses: Proofs and Generality*, 48 INT'L REV. L. ECON. 59 (2016) (distinguishing between six different claims that could plausibly be attributed to Priest and Klein).

19. Priest & Klein, *supra* note 6, at 5.

20. *Id.* at 31.

21. Lemley, *supra* note 1, at 28 (citing Steven Shavell, *Any Frequency of Plaintiff Victory at Trial Is Possible*, 25 J. LEGAL STUD. 493 (1996)).

measured by technology or the nature of the plaintiff²² is consistent with the Priest–Klein hypothesis as I’ve formulated it. And his citation to Jason Rantanen’s argument that the Priest–Klein hypothesis applies only to overall win rates (and not to individual issues) does not seem particularly relevant when Lemley is relying on overall win rates as part of his argument.²³

My concern here is technical. In the end, I believe that selection effects are unlikely to be so strong as to produce a constant observed win rate regardless of changes in underlying *ex ante* chances of winning. But this is an intuition based on my own experience; it is not rigorous theoretical or empirical proof.²⁴ If Lemley is going to reject the Priest–Klein hypothesis—and his argument is predicated on rejecting the hypothesis, not merely “questioning” it—then he needs more rigorous evidence.

III. Patent Outputs Are Resilient Against *What*?

Let us put aside the technical critique and accept Lemley’s implicit assumption that, *contra* Priest–Klein, observed litigation outcomes generally correlate to the underlying real outputs of a legal system. That is, let us assume that the evidence of a mostly constant patentee win rate in litigated cases between 2002 to 2013²⁵ proves that the *ex ante* chance of winning, the expected payoff from litigation, and other outputs of the patent system were also constant during that time. Lemley would draw the inference that such a finding proves “the merits don’t matter (or at least don’t matter much) to the underlying dynamics of the patent system.”²⁶ That is, “patent prosecution and patent litigation have their own internal dynamics and justifications, and the reasons people file patents or patent

22. Lemley, *supra* note 1, at 28.

23. *Id.* at 28 (citing Jason Rantanen, *Why Priest-Klein Cannot Apply to Individual Issues in Patent Cases* (Univ. of Iowa Legal Studies Research Paper No. 12-15, 2012), <http://ssrn.com/abstract=2132810> [<http://perma.cc/X994-NSRJ>]). Rantanen’s article also undermines Lemley’s further argument that the increase in validity rates after the Federal Circuit’s creation in 1982 is inconsistent with Priest–Klein. Lemley, *supra* note 1, at 28 & n.132. As Rantanen explains, the Priest–Klein hypothesis only predicts a constant *overall* win rate, not a constant win rate for individual issues like validity.

24. The most rigorous refutation of the “constant win rate” version of the Priest–Klein hypothesis that I am aware of is Daniel Klerman & Yoon-Ho Alex Lee, *Inferences from Litigated Cases*, 43 J. LEGAL STUD. 209 (2014). But the effect that Klerman and Lee posit is quite small, and Lemley is not relying on their argument.

25. One additional difficulty in interpreting the data is that the statistics on outcomes of interest span different time periods. For example, Lemley cites the number of litigation filings from 1980 to 2012 but cites patentee litigation win rates from 2002–04 and 2009–13. The lack of any consistent study time period makes it difficult to make an apples-to-apples comparison or to draw any rigorous inferences by combining variables.

26. Lemley, *supra* note 1, at 40.

lawsuits may not depend very heavily on the strength of patent rights.”²⁷ Strong patents do not incentivize more patenting or more research; weak patents do not discourage them. And if the enforcement strength of patents has little effect on how people behave, then weaker patents—at the extreme, completely unenforceable patents—would lower monopoly costs without sacrificing innovation incentives.²⁸

It is important to clarify here, however, what precisely one means by “the merits” or changes in patent “law.” For Lemley does not find that nothing about the patent system affects its outputs. Lemley is not presenting a picture of patent system outputs being always constant over time—the outputs are in fact changing all the time, such as damages awards showing tremendous variation.²⁹ Nor are the outputs completely insensitive to legal change in a broad sense: as Lemley acknowledges, the creation of the Federal Circuit clearly had an effect on validity rates, and the passage of the AIA had an effect on the number of lawsuits filed.³⁰ Rather, the phenomenon that Lemley argues to require explanation is that patent system outputs have not shown a clear pattern of variation in response to *doctrinal change* at the Supreme Court and in Congress.

Thus clarified, the question becomes not why “litigation outcomes [haven’t] change[d] over the past thirty years”³¹—patent system outputs, including litigation outcomes such as the amount of damages, *have* changed during that time—but a more focused question of why patent system outputs have not changed *in the same pattern as changes in formal patent doctrine*. Lemley’s inference from this lack of a strong easily observed correlation between formal doctrine and patent system outputs is that patent law simply does not matter for real-world behavior, at least within very broad limits.³² This is one possible hypothesis but not the only one.³³ Another hypothesis is what I will call the legal realist hypothesis: patent *doctrine* does not matter, but that is because (in the most extreme form of the realist hypothesis) all doctrine is just post-hoc rationalization that judges use to disguise their real reasons for decisions.³⁴ Within the realist view,

27. *Id.*

28. Again, this seems to be the obvious logical implication of Lemley’s argument, but he backs off from this implication at the last step. Lemley, *supra* note 1, at 52–56.

29. *Id.* at 25–26.

30. *Id.* at 5–6, 8, 49.

31. *Id.* at 28.

32. *Id.* at 49–50.

33. Yet another hypothesis, which I have assumed away by stipulation here, is that the variation reflects a great deal of statistical noise, so that whatever the real relationship between patent law and patent system outputs is, we simply don’t have the data to isolate the effects. In other words, Lemley is making an absence-of-evidence argument, and the absence of evidence of a correlation between patent law and patent system outputs is only weak evidence that there is in fact no correlation.

34. Brian Leiter, *American Legal Realism*, in THE BLACKWELL GUIDE TO PHILOSOPHY OF

saying that patent doctrine does not matter is very different from saying that patent *law*—defined as an *ex ante* prediction about how courts would rule in a dispute³⁵—has no effect on real-world behavior. Legal doctrine may not matter, but legal decisions—and the judges who make those decisions³⁶—do.

Lemley does not consider the realist hypothesis, but it fits his data better than his own hypothesis does. Consider one important data point: validity rates increased from 35% to 55% after the creation of the Court of Appeals for the Federal Circuit. Lemley acknowledges this data point but has no explanation for it,³⁷ he seems to treat it simply as an aberration from the bigger picture of resiliency in the face of Supreme Court doctrinal change.³⁸ The realist hypothesis, by contrast, provides an easy explanation for why the creation of the Federal Circuit affected validity rates but more recent Supreme Court doctrinal change did not. The creation of the Federal Circuit changed the judges even as it had no formal effect on doctrine; the post-2000 Supreme Court decisions changed the formal doctrine but did not change the judges who actually made decisions on the ground. The realist hypothesis predicts that one will have an effect while the other will not; the actual observed outcomes line up almost perfectly with the theoretical prediction.³⁹

LAW AND LEGAL THEORY 50, 50 (Martin P. Golding & William A. Edmundson eds., 2005).

35. Oliver Wendell Holmes, Jr., *The Path of the Law*, 10 HARV. L. REV. 457, 458 (1897) (“[A] legal duty so called is nothing but a prediction . . .”). There are philosophical problems with using this prediction-based definition as one’s exclusive conception of what constitutes “law.” H.L.A. HART, *THE CONCEPT OF LAW* 138–44 (1961); Michael C. Dorf, *Prediction and the Rule of Law*, 42 UCLA L. REV. 651, 656–660 (1995). But those problems are not relevant here, so I will put them aside.

36. Cf. Mark A. Lemley & Shawn P. Miller, *If You Can’t Beat ‘Em, Join ‘Em? How Sitting by Designation Affects Judicial Behavior*, 94 TEXAS L. REV. 451, 452 (2016) (finding that the identity of a district court judge matters for reversal rates independent of any learning or experience effects).

37. This makes it rather problematic that he earlier uses this data point as a criticism of the Priest–Klein hypothesis. Lemley, *supra* note 1, at 28 & n.132. As the saying goes, “it takes a theory to beat a theory.” Richard A. Epstein, *Common Law, Labor Law, and Reality: A Rejoinder to Professors Getman and Kohler*, 92 YALE L.J. 1435, 1435 (1983).

38. Lemley, *supra* note 1, at 49.

39. The AIA also changed the decision maker by providing new mechanisms of inter-partes and post-grant review. Lemley cites a 42.5% invalidity rate from these procedures, but that number seems to count all failures to institute as a decision in favor of validity on the merits. A PTO failure to institute is not a decision on the merits, 35 U.S.C. § 315(e), and can occur for a number of reasons, only one of which is related to a judgment about validity. Where the PTO does institute and the case is litigated to final decision, only 11.5% of cases find validity on all claims. BRIAN C. HOWARD, LEX MACHINA PATENT TRIAL AND APPEAL BOARD (PTAB) 2015 REPORT (2016), <http://pages.lexmachina.com/rs/098-SHZ-498/images/Lex%20Machina%20PTAB%202015%20Report.pdf> [<https://perma.cc/62A7-7X5S>]. Looking at final decisions seems to be a more apples-to-apples comparison of statistics given that all of Lemley’s other figures on validity rates are about cases litigated to a decision on the merits. Lemley, *supra* note 1, at 25 nn.79–81.

What are the implications of the realist hypothesis? In other words, how can we distinguish the realist hypothesis from Lemley's? The realist hypothesis posits that doctrinal change will have little effect, but changing the ideological predispositions of the decision makers should have an effect on patent system outputs. So here are a few predictions: moving cases out of the Eastern District of Texas to less plaintiff-friendly forums should have an effect.⁴⁰ Eliminating the Federal Circuit's appellate jurisdiction over patent cases should have an effect.⁴¹ Eliminating jury trials for patent validity should have an effect.⁴² If I am right that legal change of this type has an effect, then Lemley's conclusions are premature, because legal change can then potentially affect real-world outcomes in significant ways. The question of whether the effects are good, bad, or ugly would remain, but one cannot easily conclude that weakening patent law is costless and we can have free lunches that "avoid traditional tradeoffs between the benefits of stronger and weaker protection."⁴³

Of course, the data that would differentiate between the two hypotheses is not yet in. It is thus also premature to definitively conclude that patent law does matter. But with many proposals on the horizon that involve changing not only formal doctrine but also the decision-makers who make the call, we can hopefully get better data soon on whether the patent system is in fact resilient against legal change, or only against doctrinal change.

40. See generally *TC Heartland LLC v. Kraft Food Brands Group LLC*, 137 S. Ct. 614 (2016) (granting petition for certiorari).

41. See generally Diane P. Wood, *Keynote Address: Is It Time to Abolish the Federal Circuit's Exclusive Jurisdiction in Patent Cases?*, 13 CHI.-KENT J. OF INTELL. PROP. 1 (2014).

42. See Mark A. Lemley, *Why Do Juries Decide if Patents Are Valid?*, 99 VA. L. REV. 1673, 1674 (2013).

43. Lemley, *supra* note 1, at 56.