

## **Specialized Trial Courts in Patent Litigation: A Review of the Patent Pilot Project at the Five-Year Mark**

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*Do specialized trial court judges make more accurate decisions in patent law cases? In 2011, Congress passed a law setting up a ten-year patent law pilot program to enhance expertise in patent litigation by funneling more trial court decisions to fourteen selected district courts. Now that the five-year mark has passed, has the program had its intended effect of increasing accuracy, as measured by less reversals by the appellate court? In this Article, I analyze over 20,000 patent cases filed from late 2011 to 2016, focusing specifically on whether cases heard by district court judges participating in the patent law pilot program differ from those before non-pilot judges. The types of cases heard before pilot judges differ. Pilot judges are less likely to rule in favor of the patentee and they are more likely to take cases to trial. Pilot judges also make different kinds of “mistakes” than non-pilot judges. On appeal, my results indicate that even controlling for other factors, judges that are part of the pilot program are not less likely to be overturned on appeal by the Federal Circuit. I find, however, that judges who previously sat by designation at the Federal Circuit are less likely to be reversed on appeal, regardless of their status as a pilot judge and their experience in patent cases. After discussing the empirical results, the Article proposes suggestions for reform. Patent law is unique in that it is one of the only areas of law where Congress delegates policymaking to the courts. The current piecemeal approach to patent reform by changing institutions in isolation to solve specific problems is misplaced. Multi-institutional reform of the patent system — focused on giving policymaking power to the bureaucracy to allow for less biased and more expert decision making — is needed in order to properly position courts as interpreters of the law rather than as being the vehicle primarily responsible for fashioning policy on an ad hoc basis.*

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## INTRODUCTION

Patent law stands out as an area of law that is more arcane and esoteric than other areas, raising questions about the capabilities of generalist judges and lay juries to accurately resolve case disputes.<sup>1</sup> Although patent cases comprise less than 1 percent of the overall federal docket, the sheer complexity of patent cases results in trial judges spending a disproportionate amount of time both learning the law as well as taking the time to appreciate the technical aspects of the case.<sup>2</sup> In recent years, scholars have increasingly turned to analyze statistically whether judges with more experience differ in the way they decide patent cases.<sup>3</sup> After years of debate, in 2011, the U.S. Congress passed a law establishing a patent law pilot program to leverage federal judge expertise in patent law cases.<sup>4</sup> The new system assumes that judges with more experience will make better decisions and will adjudicate cases faster because the learning curve will be shorter.<sup>5</sup> Volunteers for the program, scheduled to run 10 years, were selected from the fourteen judicial district courts that heard the greatest number of patent cases in 2010.

This Article examines the workings of the program at the halfway mark to uncover how the pilot program is faring and whether specialized judges render more correct decisions that are less likely to be disturbed on appeal. Already by the time the pilot program was established, several district courts, including the Eastern District of Texas and the District of Delaware, historically heard a disproportionate number of patent cases, given litigants' preference to file or transfer cases to district courts with more experienced judges. The fact that different district court judges have varying levels of experience and expertise in patent cases lets us empirically test the hypothesis that specialized judges make more correct decisions based on whether they are more or less likely to be reversed on appeal.

In Part I, I set forth some of the basics of patent law as well as the history of patent law jurisprudence, noting the formation of the specialized appellate court in the United States Court of Appeals for the Federal Circuit ("CAFC") and the *de facto* specialization of district courts in general in patent litigation. In Part II, I discuss some of the scholarly works with respect to patent law specialization and I dissect some of the empirical findings of

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<sup>1</sup> See Lawrence Sung, *Strangers in a Strange Land: Specialized Courts Resolving Patent Disputes*, BUS. L. TODAY, Mar/Apr. 2008, at 27, 27.

<sup>2</sup> 110 CONG. REC. H1430-31 (daily ed. Feb. 12, 2007) (statement of Rep. Berman).

<sup>3</sup> See Jay P. Kesan & Gwendolyn G. Ball, *Judicial Experience and the Efficiency and Accuracy of Patent Adjudication; An Empirical Analysis of the Case for a Specialized Patent Trial Court*, 24 HARVARD J. OF LAW & TECH. 394 (2011).

<sup>4</sup> H.R. 628, 111<sup>th</sup> Cong. (2011).

<sup>5</sup> 110 CONG. REC. H.1430, 1432 (daily ed. Feb. 12, 2007) (statement of Rep. Coble).

earlier research. Then in Part III, I discuss this empirical project, describing the data, the data collection as well as some of the summary findings. Next, I undertake a statistical analysis in Part IV to test the hypothesis of whether judges designated as pilot judges perform “better” if and when the case reaches the Federal Circuit by being reversed less. In particular, I discuss the significant methodological difficulties one encounters in undertaking this analysis, including a discussion of the selection effects that lead the researcher to urge caution in stating definitive findings on the workings of the pilot program. Finally, in Part V, I discuss the results as well as proffer proposals for reform of the current system.

Overall, I do not find that the pilot program thus far has resulted in pilot judges being reversed less on appeal once one accounts for other factors. Experience influences reversal rates but it does so in an unexpected way. Mark Lemley and Shawn Miller previously found that judges who sat by designation saw their reversal rates decline by up to 50 percent.<sup>6</sup> My results support this conclusion as I find that judges who previously sat by designation at the Federal Circuit were reversed less once all other factors were analyzed. Moreover, overall, I found that pilot judge fared no better than non-pilot judges even accounting for legal issue, procedural posture and experience, among other variables. But cases are not necessarily decided the same way in pilot and non-pilot districts. Rather, pilot judges — who often have more patent-law experience — are less likely to rule in favor of the patentee and are somewhat better at encouraging settlement, though these differences vary based on technology, issue and procedural posture.<sup>7</sup> Pilot judges also make different kinds of mistakes than non-pilot judges.

The results here call into question whether other alternatives in addition to the pilot program are necessary in order to increase certainty and efficiency in patent litigation. The shift in recent years to allow for *inter partes* review of patents — a procedure where parties can challenge the validity of a patent at the Patent and Trademark Office (“PTO”) — may be a good first step in giving more power to the PTO. Unlike any other area of law, courts — even specialized courts — do not have the resources or background to effectively engage in making patent policy and devising rules that balance property rights versus innovation. While specialized patent trial courts may be a needed first step in reform, the time is ripe to also start thinking about whether the patent system needs to be fundamentally re-allocated to give greater rulemaking authority and responsibility back to the PTO or some other expert administrative agency.

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<sup>6</sup> Mark A. Lemley & Shawn P. Miller, *If You Can't Beat 'Em, Join 'EM? How Sitting by Designation Affects Judicial Behaviour*, 94 TEX. L. REV. 451, 452 (2016).

<sup>7</sup> See Mark A. Lemley, Su Li & Jennifer A. Urban, *Does Familiarity Breed Contempt Among Judges Deciding Patent Cases?*, 66 STAN. L. REV. 1121, 1151 (2014).

## I. Patent Law Specialization

### A. Basics of Patent Law

Patents confer a right on patentees to prevent others from making, using or selling the patented invention in question. To determine patent rights, adjudicators engage in a process called claim construction where a judge determines the meaning of the patent's terms as defined by the patent's claims.<sup>8</sup> In interpreting a patent's claims, judges consider the intrinsic evidence such as the language of the claims, the specification (which includes the written description of the claimed invention and its preferred embodiment), as well as the prosecution history, which consists of the written record of exchanges between the patentee and his or her lawyers and that of the PTO during the patent registration process.<sup>9</sup> If the intrinsic evidence is unclear, courts may then consider the extrinsic evidence, such as dictionary definitions, treatises, expert testimony or other evidence that the court believes relevant to the job of interpreting the claims.<sup>10</sup> Patent claims are reviewed by the trial court as a matter of law and are reviewed *de novo* on appeal.<sup>11</sup> Terms are to be construed by their plain and ordinary meaning to those skilled in the art unless the intrinsic evidence dictates otherwise.<sup>12</sup>

The Patent Act of 1952 is written broadly, allowing patentees to have inventions on any "new and useful process, machine, manufacture, or composition of matter." Many of the disputes in patent litigation concern whether another party infringed another's patents, and in turn whether those patents are invalid due to being anticipated or made obvious by prior inventions of others or whether they should be rendered unenforceable due to the patentee's fraud before the PTO during prosecution, an allegation known as "inequitable conduct." Patentees also often seek preliminary injunctions to prevent alleged infringers from continuing their alleged infringing conduct. Such an analysis requires that the judge not only consider the likelihood of success on the merits but it also requires the judge to consider irreparable harm. As such, motions for preliminary injunctions can quickly escalate into "mini-trials" where courts are forced to construe the claims and opine on

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<sup>8</sup> *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1380-81 (Fed. Cir. 2008).

<sup>9</sup> See Kimberly A. Moore, *Are District Court Judges Equipped to Resolve Patent Cases?*, 15 HARVARD J. L. & TECH. 1, 2 (2001) [hereinafter, Moore, *District Courts*].

<sup>10</sup> *Vitronics Corp.*, 90 F.3d at 1584.

<sup>11</sup> *Markman, Inc. v. Westview Instr., Inc.*, 517 U.S. 370 (1996).

<sup>12</sup> Moore, *District Courts*, *supra* note 9, at 6.

validity and/or infringement.<sup>13</sup> In addition to injunctive relief,<sup>14</sup> a patentee who prevails in an infringement action can recover “damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention made by the inventor, together with interest and costs as fixed by the court.”<sup>15</sup>

The adjudicatory structure for patent law disputes is unique in American law. Trial-level cases are decided by the regional generalist courts, while appellate jurisdiction rests in the specialized Court of Appeals for the Federal Circuit (“CAFC”), housed in Washington D.C. In 1982, the Court of Customs and Patent Appeals combined with the Court of Claims to form the modern day CAFC with exclusive jurisdiction over appellate patent disputes.<sup>16</sup> The CAFC’s founders wanted a unique appellate court forum to ensure uniform application of the nation’s patent laws as regional appellate courts greatly differed in how they ruled in patent cases, causing alarm in the business community.<sup>17</sup> Congress was particularly concerned that small businesses could not make accurate decisions when they owned patents for fear that they would be tied up in litigation across the country, with courts in different regions giving different judgments on validity.<sup>18</sup> Today, one-third of the CAFC’s docket concerns patent law cases, taking up a disproportionate share of the court’s time relative to other cases due to the complexity posed by such cases,<sup>19</sup> as well as the increased interrelation with other areas of law that touch on patent issues such as antitrust.<sup>20</sup>

Scholarly studies offer differing opinions on whether the CAFC has achieved its goals of fostering uniformity and discouraging forum shopping.<sup>21</sup>

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<sup>13</sup> See Adam Shartzer, *Patent Litigation 101: Empirical Support for the Patent Pilot Program’s Solution to Increase Judicial Experience in Patent Law*, 18 FED. CIR. B.J. 200, 221 (2009).

<sup>14</sup> 35 U.S.C. § 283.

<sup>15</sup> 35 U.S.C. § 284.

<sup>16</sup> See Pauline Newman, *The Federal Circuit- A Reminiscence*, 14 GEO. MASON L. REV. 513, 521 (1992). In addition, the CAFC took over the appellate docket of the Court of Customs and Patent Appeals and the Court of Claims. *See id.* at 520-21.

<sup>17</sup> As Judge Pauline Newman wrote, “the fate of duly examined and issued patents had become so uncertain in the courts as to place a cloud on patent-based investment.” *Id.* at 516.

<sup>18</sup> *See id.*

<sup>19</sup> See Paul R. Michel, *The Court of Appeals for the Federal Circuit Must Evolve to Meet the Challenges Ahead*, 48 AMER. U. L. REV. 1177, 1194 (1999) (noting that about 1/3 of the CAFC’s docket consists of patent cases).

<sup>20</sup> See James B. Gambrell, *The Evolving Interplay of Patent Rights and Antitrust Restraints in the Federal Circuit*, 9 TEX. INTELL. PROP. L. J. 137, 139 (2001) (noting the “fear” that the CAFC will take on too many antitrust cases where the line between patent law and antitrust is less clear).

<sup>21</sup> See, e.g., Richard H. Seamon, *The Provenance of the Federal Courts Improvement Act of 1982*, 71 GEO. WASH. L. REV. 543, 545 (2003) (“By most accounts, the [CAFC] seems to have achieved its purposes. The Federal Circuit has clarified many aspects of patent law

Judge Kimberly Moore found forum shopping to be a continued problem with the top ten district court jurisdictions hearing almost half of all patent cases between 1995 and 1999.<sup>22</sup> In particular, she found that litigants chose districts based on favorable procedural or substantive law.<sup>23</sup> Others complain that the CAFC's tendency to withhold publication precludes it from being an effective mechanism to translate precedent to lower courts.<sup>24</sup> Other scholars offer a more positive assessment of the Federal Circuit. Rochelle Dreyfuss concluded that the CAFC contributed greatly to the evolution of patent law, leading to both greater accuracy and precision.<sup>25</sup> She also concluded that many of the critiques of the CAFC were overblown. For instance, while some argued that the CAFC would become too insular, Dreyfuss found that the "percolation" that some feared that would be lost was replaced by "percolation" among the judges themselves.<sup>26</sup>

Scholars are also split on whether the expertise of the CAFC impacts results at the district court level. Some scholars found that decision making at the trial court level changed remarkably after the CAFC came into existence. Using data from 1989 to 1996, John Allison and Mark Lemley found that decisions on validity favorable to patentees were higher after the CAFC was created.<sup>27</sup> Glynn Lunney's study echoed these results; he found that the percent of patents held invalid decreased from 50% before the CAFC

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and made it more coherent as a whole."); the Honorable Richard Linn, *The Future Role of the United States Court of Appeals for the Federal Circuit Now That It Has Turned 21*, 53 AM. U. L. REV. 731, 732 (2004) (arguing that the CAFC assisted in achieving uniformity, certainty and clarity to patent law); John F. Duffy, *Comment: Experiments After the Federal Circuit*, 54 CASE W. RES. L. REV. 803, 804 (2004); Craig Allen Nard & John F. Duffy, *Rethinking Patent Law's Uniformity Principle*, 101 N.W. U. L. REV. 1619, 1620-21 (2007) (arguing that the CAFC is constrained by its own "isolated and sterile" jurisprudence; Paul M. Janicke, *Two Unsettled Aspects of the Federal Circuit's Patent Jurisdiction*, 11 VA. J. L. & TECH. 3 (2006); see also William M. Landes & Richard A. Posner, *An Empirical Analysis of the Patent Court*, 71 U. CHI. L. REV. 111, 112 (2004) (noting that the CAFC had a "positive and significant impact on the number of patent applications, the number of patents issued, the success rates of patent applications, the amount of patent litigation, and possibly, the level of research and development expenditures.").

<sup>22</sup> Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation?*, 83 J. PAT. & TRADEMARK OFF. SOC'Y, 557, 571 (2001) [hereinafter, *Forum*].

<sup>23</sup> *Id.* at 574-85.

<sup>24</sup> See Erica U. Budwell, Note: *Published and Unpublished Federal Circuit Patent Decisions: A Comparison*, 30 IDEA 233, 233 (1990) (noting that the CAFC often does not issue a decision when it affirms the district court).

<sup>25</sup> Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1, 8 (1989) [hereinafter, *Federal Circuit*].

<sup>26</sup> Dreyfuss, 10<sup>th</sup> Circuit Conference, *supra* note 17, at 238.

<sup>27</sup> John H. Allison & Mark A. Lemley, *How Federal Circuit Judges Vote in Patent Validity Cases*, 27 FLA. ST. L. REV. 200, 205-06 (1999).

to about 25% in the period 1994-1995.<sup>28</sup> Atkinson, Marco and Turner also examined the rate at which trial courts marked patents “not invalid,” finding there to be less variability across districts after the creation of the CAFC.<sup>29</sup>

## B. Call for More Expertise

Beginning in the 1990s, attention soon shifted into whether the Federal Circuit experiment should be translated to the lower trial courts with the twin aims of bringing uniformity to patent law and encouraging greater innovation and growth by protecting patent rights.<sup>30</sup> Despite the CAFC’s emergence, problems remained with the system. In particular, compared to other areas of law where only 10% of cases are appealed, a majority (50%) of patent cases are appealed to the CAFC.<sup>31</sup> Moreover, many scholars expressed skepticism that lay juries could reliably decide patent cases. As Judge Moore found, patent juries are more likely to hold for the patentee in terms of infringement, validity and willfulness determinations, though the differences between juries and bench trials were less than what she anticipated.<sup>32</sup> Further, juries tend to decide cases on an “all or nothing” basis more so than judges who may decide each issue separately, ruling for both the patentee and the competitor.<sup>33</sup> Scholars, the patent bar and industry alike were also upset about the high rate by which the CAFC reversed lower courts decisions — particularly on claim construction, one of the most important areas in patent law.

Concerns about accuracy became especially acute after the United States Supreme Court decision in *Markman v. Westview Instruments, Inc.*,<sup>34</sup> the seminal case where the Court ruled that courts must review the patent claims as a matter of law and apply a *de novo* standard of review on appeal.<sup>35</sup> In a so-called “Markman” hearing, judges decide the scope of the claims at issue, hearing from experts and the parties on how narrow or wide a given

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<sup>28</sup> Glynn S. Lunney, Jr., *E-Obviousness*, 7 MICH. TELECOMM. & TECH. L. REV. 363, 371 & fig. 1 (2001).

<sup>29</sup> See Scott Atkinson et al., *The Economics of a Centralized Judiciary: Uniformity, Forum Shopping and the Federal Circuit*, 52 J. L. & ECON. 411 (2009).

<sup>30</sup> See H.R. 34, 110<sup>th</sup> Cong. (2007).

<sup>31</sup> See Michel, *supra* note 19, at 1193.

<sup>32</sup> See Kimberly A. Moore, *Judges, Juries and Patent Cases – An Empirical Peek Inside the Black Box*, 99 MICH. L. REV. 365, 408 (2000) (hereinafter Moore, *Judges*). She found no difference with respect to enforceability findings, and that there were no statistically significant differences between patent and lay juries on appeal. *See id.* at 408-09. The latter finding, Judge Moore notes, however, could be due to the deferential standard of appellate review. *See id.*

<sup>33</sup> *See id.* at 408-09.

<sup>34</sup> 517 U.S. §370 (1996).

<sup>35</sup> *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998).

claim should be interpreted.<sup>36</sup> How the claims are construed forms the basis for any subsequent infringement or validity analysis. Indeed, in some cases, the parties even stipulate to infringement or non-infringement on the basis of the claim construction, thus underscoring how important this pre-trial proceeding is to the case outcome in patent cases.

Scholars studying the issue have found varying results with respect to whether district courts are doing an accurate job of claim construction. Because district courts receive no deference on their claim constructions, there is some level of unpredictability.<sup>37</sup> Analyzing cases from 1996 to 2000, in the first years of district courts holding *Markman* hearings, Judge Moore found that district courts interpreted the claims wrongly 33% of the time, resulting in cases being either vacated or reversed 81% of the time.<sup>38</sup> This high rate of reversal contrasts with the 10% rate of reversal in most appeals.<sup>39</sup> Similarly, in his study of the slightly later period between 1998 and 2000, Christian Chu found that almost a majority (44%) of claim constructions were modified on appeal.<sup>40</sup> David Schwartz's 2008 study also found that about 40% of all claim constructions are wrong in part.<sup>41</sup> Combined with the fact that claim construction decisions are reviewed *de novo* on appeal,<sup>42</sup> as Jay Kesan and Gwendolyn Ball argue, this "high rate of both claim construction modifications and claim-construction based reversals in CAFC decisions may be unraveling many of the gains in predictability and uniformity resulting from the creation of the CAFC."<sup>43</sup> While some scholars contend that claim construction is no different than other issues in inspiring difference,<sup>44</sup>

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<sup>36</sup> See Andrew T. Zindel, Comment: *Patent Claim Construction in the Trial Courts: A Study Showing the Need for Clear Guidance from the Federal Circuit*, 33 SETON HALL L. REV. 711, 712 (2003).

<sup>37</sup> Moore, *District Courts*, *supra* note 9, at 27-28.

<sup>38</sup> *Id.* at 2.

<sup>39</sup> H.R. Rep. No. 109-673, at 5 (2006).

<sup>40</sup> Christian A. Chu, *Empirical Analysis of the Federal Circuit's Claim Construction Trends*, 16 BERKELEY TECH. L. J. 1075, 1104 (2001).

<sup>41</sup> David Schwartz, *Practice Makes Perfect? An Empirical Study of Claim Construction Reversal Rates in Patent Cases*, 107 MICH. L. REV. 223, 248 (2008) [hereinafter, Schwartz, *Practice*].

<sup>42</sup> See *Cybor Corp. v. FAS Technologies, Inc.*, 138 F.3d 1448 (Fed. Cir. 1998).

<sup>43</sup> Kesan & Ball, *supra* note 3, at 416; Chu, *supra* note 40, at 1143. These differences may be compounded by the fact the some scholars have found that the CAFC does not speak in a single voice on claim construction. See R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1101 (2004) (arguing that the CAFC is divided into two distinct methodological camps in how it interprets claims).

<sup>44</sup> See, e.g., Jeffrey A. Lefstin, *The Measure of the Doubt: Dissent, Indeterminacy, and Interpretation at the Federal Circuit*, 58 HASTINGS L. J., 1025, 1092 (2007) (arguing that "claim construction has been no less determinate than" other "interpretive regimes," such as contract interpretation).



the high rate of reversal on claim construction calls into question whether specialized expertise could solve the problem and lead to greater predictability and accuracy.

### C. *De Facto* Specialization in Trial Courts

Even prior to the onset of the pilot program, district courts have *de facto* specialized in the years since the emergence of the CAFC.<sup>45</sup> In her study of close to 10,000 cases terminated between 1995 and 1999, Judge Moore found that patent litigation was geographically disperse, with the top five districts accounting for almost a third of patent cases, with the next five districts accounting for an additional 15% of the total.<sup>46</sup> Later studies confirmed these results. In their analysis of trial courts decisions from 1995 through 2003, Kesan and Ball found that the top ten district courts heard over half of all the nations' patent law cases, with the next ten districts covering about a third.<sup>47</sup> The remaining seventy districts — nearly 80% of all districts — heard only 20% of patent cases.<sup>48</sup> Likewise, a select group of judges hears most patent law cases, with the top 20% of judges hearing almost two-thirds of all patent cases in the United States, with 40% of judges hearing only one patent cases over the eight year period.<sup>49</sup>

Yet, despite the high concentration of cases before only a few judges, Kesan and Ball do not find that the majority of cases are heard by judges with significant patent experience.<sup>50</sup> To the contrary, they find that on average, judges even in the top tier heard only eleven cases in the entire period under study.<sup>51</sup> In turn, slightly less than a majority (40%) of all cases were heard by judges with less than twenty cases of experience and 16% of the cases were heard by judges with less than ten patent law cases on their docket.<sup>52</sup>

Litigants favor certain districts for their reputation, ease of case management and efficiency. There has been a noticeable shift in recent years as patentees try to resolve their cases in the Eastern District of Texas, due to having plaintiff-friendly rules (resulting in patentee win rates of 90% in jury

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<sup>45</sup> Moore, *Forum Shopping*, *supra* note 22, at 561 (noting that there is *de facto* specialization due to the forum selection choices made by litigants).

<sup>46</sup> *See id.*

<sup>47</sup> Kesan & Ball, *supra* note 3, at 421.

<sup>48</sup> *Id.* at 421. The districts comprising the top third of cases adjusted each year as some districts moved in and out of the top groups. *See id.* For example, the Eastern District of Virginia made the top ten in two of the years but not the others. *Id.* at 421 n.175.

<sup>49</sup> *Id.* at 422.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.* at 423.

<sup>52</sup> *Id.* By contrast, judges on the CAFC hears on average 40 patent law cases per year. *Id.*

trials between 1998 and 2006 compared to the national average of 68%) and its juries being perceived as pro-patentee.<sup>53</sup> Some believe that Texas juries view property rights differently and have greater respect for government and less trust for large patent-holding corporations.<sup>54</sup> Local rules in Texas also shorten discovery time periods to only nine months, making it quicker to resolve cases.<sup>55</sup> Judges strictly enforce deadlines and only grant extensions in the rarest of circumstances in an attempt to “clear the docket.”<sup>56</sup> Moreover, as Dan Klerman and Greg Reilly argue, judges in the Eastern District actually have affirmatively targeted getting plaintiffs to file more cases by “distorting” normal rules regarding case assignment, joinder, discovery, transfer and summary judgment.<sup>57</sup>

Indeed, judicial practice in the Eastern District has “institutionalized” a pro-patentee bias, some argue. For instance, judges in the Eastern District rarely grant summary judgment motions, thus contributing to more cases being heard before patentee-favoring juries.<sup>58</sup> Finding patents invalid is also rare; it was not until 18 years after the founding of the district that the first jury in the Eastern District found a patent claim invalid.<sup>59</sup> However, the factors that make the Eastern District attractive to patentees also likewise make it attractive to patent trolls.<sup>60</sup> Cases filed by so-called “patent trolls” or nonpracticing entities who are holding companies that exist solely to license a patent — patentees who own the patent but do not practice the invention themselves — are more common than ever, particularly in the Eastern District of Texas.<sup>61</sup>

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<sup>53</sup> See 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, 205 (2007) (noting that the E.D.TX doubled its caseload from 2004 to 2006). In addition, due to demographics, the Eastern District has a low criminal docket, thus clearing the way for patent cases to have greater priority. *Id.* at 209. Moreover, recent changes in Texas law limited damages in malpractice cases, resulting in a proportionate decline in medical malpractice cases being filed in Texas federal courts, easing the congestion. *Id.*

<sup>54</sup> *Id.* at 213.

<sup>55</sup> See Shartzer, *supra* note 13, at 216.

<sup>56</sup> Leychkis, *supra* note 53, at 209.

<sup>57</sup> Dan Klerman & Greg Reilly, *Forum Selling*, 89 SOUTHERN CAL. L. REV. 101, 102 (2016).

<sup>58</sup> *Id.* at 216. In addition, judges in the Eastern District grant transfer motions at a lower rate than other districts, thus contributing to an environment where defendants may be forced to settle. *Id.* at 217.

<sup>59</sup> *Id.* at 211.

<sup>60</sup> See Leychkis, *supra* note 53, at 211.

<sup>61</sup> See Margaret S. Williams, Rebecca Eyre and Joe Cecil, Federal Judicial Center, *Patent Pilot Program: Five Year Report*, Prepared for the Court Administration and Case Management Committee of the Judicial Conference of the United States 29 (Sept. 2016) [hereinafter, *Federal Judicial Center*]; see also Leychkis, *supra* note 53, at 211 (“The

In addition, district courts have self-segregated themselves and developed different reputations for speed as well as for having more cases of a certain technological type. Some district courts, such as the Northern District of California, have patent local rules to allow for the efficient management of patent cases.<sup>62</sup> The Eastern District of Virginia is commonly referred to as the “rocket docket” due to cases — not just patent cases — being resolved in a timely manner.<sup>63</sup> Trials are more common in the District of Delaware, with nearly a quarter of case going to trial.<sup>64</sup> By contrast, cases filed in the Central or Northern District of California tend to have earlier resolutions.<sup>65</sup> District courts also have developed *de facto* a reputation for expertise in certain fields. We see many medical cases in the District of New Jersey, the home of many of the largest pharmaceutical companies and the site where many cases under the Abbreviated New Drug Application (“ANDA”) are filed, whereas many computer and software cases are filed in the Northern District of California, the home of Silicon Valley.<sup>66</sup> These differences have led to patentee win rates to vary among the districts. While patentees won over two-thirds of the time in the Northern District of California, they prevailed less than half the time in Delaware or in the Northern District of Illinois.<sup>67</sup>

The trend toward *de facto* specialization combined with the high rate of reversal caused alarm among the patent bar. Does the system foster too much opportunity to forum shop? Does the lack of specialization at the trial court level prevent the CAFC from accomplishing its purpose of setting uniform patent law? It is to these questions that the next section turns.

## II. Scholarly Literature on Specialized Courts

### A. Arguments For and Against Specialized Trial Courts

In recent years, advocates of patent reform have increasingly bemoaned the rampant forum shopping in patent law as well as the fact that patent cases are frequently overturned on appeal. While across all appellate courts cases are overturned on appeal about 10% of the time, at the CAFC, the rate of overturn can approach 50% for some patent law issues. To lessen

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combination of the local juries’ respect for personal property rights and government agencies and their distrust of large corporate defendants makes the Eastern District of Texas an ideal venue for “patent trolls.””).

<sup>62</sup> See Shartzter, *supra* note 13, at 216.

<sup>63</sup> See Yeychkis, *supra* note 53, at 202.

<sup>64</sup> See *id.*

<sup>65</sup> See *id.*

<sup>66</sup> Federal Judicial Center, *supra* note 61, at 9.

<sup>67</sup> See Yeychkis, *supra* note 53, at 203.

the intensity of this problem, proponents of reform have advocated for greater expertise at the trial level. Scholars have argued that there is greater necessity for a specialized trial courts as opposed to a specialized appellate court due to the fact the trial courts deal mainly with facts, and can thus leverage their expertise on technical matters to better understand how to apply patent law.<sup>68</sup> An experienced trial court, some argue, is even more needed than a specialized appellate court as it would be better able to dispose of cases in a more efficient manner with greater accuracy.<sup>69</sup>

There are a few theories as to why specialization is thought to enhance decision making, especially in patent cases. As Kesan & Ball argue, there are four main arguments as to why one may want to specialize: 1) development of “judicial human capital,”; 2) fostering of uniformity and consistent precedent; 3) the impact specialization has on the “political economy of the legal system” and 4) increasing the efficiency of trial court management.<sup>70</sup> The argument for specialization may be especially strong with respect to complex matters like patent litigation, where, as Rochelle Dreyfuss notes, “[t]he more intricate the law, the more likely it is that a generalist will get things wrong, confuse matters and encourage additional litigation.”<sup>71</sup> A specialist court may be better able to gauge the nuances behind bright line rules and thus better understand the circumstances under which correctness subsumes to convenience.<sup>72</sup> They may also in turn be able to devise precedent that is uniform and consistent across time and fact pattern.<sup>73</sup> The need for a specialized forum may be especially felt where the subject matter of the cases are national, Supreme Court oversight is a rarity and where forum shopping encourages parties to “game the system” — all attributes of the modern patent system.<sup>74</sup> Moreover, specialized judges may act less ideologically and be less

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<sup>68</sup> See Arti Rai, *Specialized Trial Courts; Concentrating Expertise on Fact*, 17 BERKELEY TECH. L. J. (2002) (arguing that appellate courts are best for setting a vision while trial courts have expertise); see also Arti Rai, *Engaging Facts and Policy: A Multi-Dimensional Approach to Patent System Reform*, 103 COLUM. L. REV. 1035 (2000); Paul R. Gugliuzza, *Rethinking Federal Court Jurisdiction*, 100 GEO. L. J. 1437, 1476 (2012).

<sup>69</sup> See, e.g., Jeanne C. Fromer, *Patentography*, 85 N.Y.U. L. REV. 1444, 1447-93 (2010) (arguing for changing venue rules to encourage specialization among district court judges); John B. Pegram, *Should There Be a U.S. Trial Court with a Specialization in Patent Litigation?*, 82 J. PAT. & TRADEMARK OFF. SOC’Y 765, 767 (2000); Gregory J. Wallace, Note: *Toward Certainty and Uniformity in Patent Infringement Cases After Festo and Markman: A Proposal for a Specialized Patent Trial Court with a Rule of Greater Deference*, 77 S. CAL. L. REV. 1383, 1384 (2004).

<sup>70</sup> Kesan & Ball, *supra* note 3, at 401.

<sup>71</sup> Rochelle Cooper Dreyfuss, *Specialized Adjudication*, 1990 BYU L. REV. 377, 409 (1990).

<sup>72</sup> See *id.* at 378.

<sup>73</sup> See Dreyfuss, *Federal Circuit*, *supra* note 25, at 8.

<sup>74</sup> See Kesan & Ball, *supra* note 3, at 403-04.

subject to rule in line with “ideological fads.”<sup>75</sup> Specialized judges may also be able to decide cases faster as they do not have to familiarize themselves with new areas of law.<sup>76</sup> Specialization can also aid in combating forum shopping.<sup>77</sup> If specialized judges decide law in a more consistent fashion, forum shopping could decline, reducing administrative costs.<sup>78</sup>

Scholars also advance arguments opposing patent law specialization. Generalist judges may be more adept at linking patent law with widespread economic and social concerns.<sup>79</sup> Most of the judges on the Federal Circuit, itself a specialized court with limited jurisdiction, do not have science backgrounds, and many of the most “distinguished” judicial opinions have been written by generalist judges, some with little to no technical training or experience in patent law.<sup>80</sup> Further, many patent law cases concern routine procedural matters, like jurisdiction or standing or concern areas of law like contract interpretation, antitrust, libel or state-law trade secret claims so a specialized patent trial can offer no special insight into those issues.<sup>81</sup> Moreover, the lack of diversity in the case mixture could lead to “tunnel vision” stagnating the development of precedent consistent with changing times.<sup>82</sup> Specialized judges, especially those sitting in administrative agencies, may be subject to capture by the very interest they are being asked to oversee and to “enforce[e] the law in a vigorous rather than a temperate fashion.”<sup>83</sup> In particular, a specialized court like the Federal Circuit may be biased toward the federal government and hence in favor of patent validity.<sup>84</sup>

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<sup>75</sup> Jeffrey W. Stempel, *Two Cheers for Specialization*, 61 BROOK. L. REV. 67, 104 (1995).

<sup>76</sup> See Kesan & Ball, *supra* note 3, at 408.

<sup>77</sup> See *id.* at 403.

<sup>78</sup> See *id.* at 408; see also Charles W. Adams, *The Court of Appeals for the Federal Circuit: More than a National Patent Court*, 49 MO. L. REV. 43, 45-46 (1984) (same). More efficient administration of cases also aids in reducing the costs of litigation. See Kesan & Ball, *supra* note 3, at 409.

<sup>79</sup> See Simon Rifkind, *A Special Court for Patent Litigation? The Danger of a Specialized Judiciary*, 37 A.B.A. 425, 425-26 (1951); Sarang Vijay Damie, Note, *Specialized the Judge, Not the Court: A Lesson from the German Constitutional Court*, 91 VA. L. REV. 1267, 1269 (2005).

<sup>80</sup> See Dreyfuss, *Federal Circuit*, *supra* note 25, at 24-25.

<sup>81</sup> See Ellen Jordon, *Specialized Courts: A Choice?*, 76 N.W. U. L. REV. 745, 748-49 (1981) (noting the “boundary” issues raised by specialized courts).

<sup>82</sup> See Dreyfuss, *supra* note 71, at 381.

<sup>83</sup> Richard Posner, *Will the Federal Courts of Appeals Survive Until 1984? An Essay on Delegation and Specialization of the Judicial Function*, 56 S. CAL. L. REV. 761, 785 (1983); see also Lawrence Baum, *Specializing the Federal Courts: Neutral Reforms or Efforts to Shape Judicial Policy*, 74 JUDICATURE 217, 224 (1991) (noting that specialized courts represent “efforts [by] interest groups to secure advantages for themselves”).

<sup>84</sup> See Paul R. Gugliuzza, *Rethinking Federal Court Jurisdiction*, 100 GEO. L. J. 1437, 1448 (2012).

The judicial appointment process may also be more partisan, as special interests clamor to get their favored candidate appointed.<sup>85</sup> Judges in turn may be more ideological or less qualified, thus lending less stability to decision making in general.<sup>86</sup> Further, there is also the risk that error actually increases along with specialization as appellate courts may be more likely to defer to specialized expertise.<sup>87</sup> Judges may also be less likely to set forth their reasoning in clear, well-reasoned decisions if the universe of judicial decision makers is small and specialized.<sup>88</sup>

## B. Empirical Studies of Specialized Patent Trial Courts

Several scholars have studied how expertise impacts decision making in patent law at the trial court level, with most work embarking on a non-statistical analysis looking simply at the reversal rate by the appellate courts. Donna Gutter argued that reversal rates in claim construction in England are less than the United States because England hears cases through a specialized patent tribunal.<sup>89</sup> Similarly, David Schwartz looked at how reversals varied depending on judicial experience, finding it of little relevance.<sup>90</sup> Specifically, Schwartz found that claim construction reversal rates did not fall with an increase in the number of cases appealed to the Federal Circuit or with more experience overall in patent litigation or with experience on the bench.<sup>91</sup> Indeed, he found that the highest reversal rate was for judges with multiple claim construction appeals.<sup>92</sup> In another study, Schwartz analyzed whether specialized judges at the International Trade Commission (“ITC”) do “better”

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<sup>85</sup> Andrew P. Morriss, *A Public Choice Perspective on the Federal Circuit*, 54 CASE W. RES. L. REV. 811, 816 (2004) (“[W]e would expect that repeat players concerned with [specialized issues] to invest in the judicial selection process to gain appointments of candidates they thought would favor their position.”); *see also* Posner, *supra* note 81, at 784 (noting that “an independent judiciary will tend on balance to reduce the scope of special interests in American life... and a generalist judiciary will be more independent than a specialized one.”).

<sup>86</sup> Posner, *supra* note 81, at 781; Gugliuzza, *supra* note 84, at 1468-70.

<sup>87</sup> *See* Revesz, *supra* note 76, at 1169 (noting that compared to district courts, appellate courts give greater deference to the Tax Court).

<sup>88</sup> Case & Miller, *supra* note 46, at 311-12.

<sup>89</sup> *See* Donna M. Gitter, *Should the United States Designate Specialist Patent Trial Judges? An Empirical ANALYSIS OF H.R. 628 IN LIGHT OF THE ENGLISH EXPERIENCE AND THE WORK OF PROFESSOR MOORE*, 10 COLUM. SCI. & TECH. L. REV. 169, 183-194 (2009).

<sup>90</sup> David Schwartz, *Courting Specialization: An Empirical Study of Claim Construction Comparing Patent Litigation Before Federal District Courts and the International Trade Commission*, 50 WM. & MARY L. REV. 1699 (2009); *see also* Schwartz, *Practice*, *supra* note 41.

<sup>91</sup> *Id.* at 252, 256.

<sup>92</sup> *Id.* at 252.

in terms of being less likely to be reduced on appeal.<sup>93</sup> He found that administrative judges at the ITC were not more accurate than generalist judges, at least in terms of claim construction.<sup>94</sup> In another study, Nancy Olson discerned no difference in claim construction rulings across varying tiers of judicial experience.<sup>95</sup> In her data Judge Moore as well failed to see an increase in affirmance rates over time.<sup>96</sup> These studies, however, concerned only one issue — claim construction — and were not designed to be robust statistical tests of the subject in question, calling into question whether omitted variable bias cloud the results.<sup>97</sup>

Other studies have found somewhat contrary findings, though the studies were not meant to cover identical ground or employ robust statistical techniques. Looking at cases over a two-year period between 1998 and 2000, Chu opined that there was a lower reversal rate among courts emanating from “more active” districts (those where more than 10 cases were reviewed in the time period under study) compared to less active districts, though his results were not statistically significant and were more descriptive than statistically-grounded.<sup>98</sup> His analysis also left out Rule 36 summary affirmances, however, which biased the results toward showing higher claim construction reversal rates in general.<sup>99</sup> In analyzing whether the pilot program would work back in 2009, Adam Shartzter concluded the when looking at all patent cases — not just claim construction cases — the judge’s experience in patent litigation influenced higher affirmance rates on appeal.<sup>100</sup> He found that while the reversal rate for all judges was 15%, the rate was 11% for judges slated to be pilot judges.<sup>101</sup> Shartzter’s analysis only included the judges slated to

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<sup>93</sup> Schwartz, *Courting*, *supra* note 90, at 1704.

<sup>94</sup> *Id.* at 1704.

<sup>95</sup> Nancy Olson, Comment: *DOES PRACTICE MAKE PERFECT? AN EXAMINATION OF CONGRESS’S PROPOSED DISTRICT COURT PATENT PILOT PROGRAM*, 55 UCLA L. REV. 745 (2008)

<sup>96</sup> Moore, *District Courts*, *supra* note 9, at 29 (“affirmance rates have not improved substantially over the five years since *Markman*”).

<sup>97</sup> Kesan & Ball, *supra* note 3, at 418-19.

<sup>98</sup> Chu, *supra* note 40, at 1122. Chu included the Central District of California, the District of Delaware, the District of Massachusetts, the District of Minnesota, the District of New Jersey, the Eastern District of Michigan, the Eastern District of Virginia, the Northern District of California, the Northern District of Illinois, the Southern District of Florida and the Southern District of New York as “active” districts. *Id.* He also included appeals from the Board of Patent Appeals and Interferences, the Court of Federal Claims and the International Trade Commission as being in the “active” category. *Id.* Chu only included cases where the CAFC made express that it was reviewing the court’s claim construction. *Id.* at 1094, 1100 n.121. He also excluded Rule 36 judgments. *Id.*

<sup>99</sup> Moore, *Eight Years Later*, at 235 n.15, 236; Schwartz, *Practice*, *supra* note 41, at 235.

<sup>100</sup> Shartzter, *supra* note 13, at 221.

<sup>101</sup> *Id.* at 233.

become part of the pilot program so he did not make any comparative statement about how non-pilot judges fared compared to pilot judges.

Other scholars have found a relationship between judicial ideology and specialization. Banks Miller and Brett Curry found that ideology impacts judicial decision making in obviousness determinations when the judge is highly trained and specialized.<sup>102</sup> They argue that judges with more technical experience may be more likely to view patent cases as salient than non-specialists, thus magnifying the influence that ideology has in impacting vote choice at least for “expert” judges.<sup>103</sup> Miller and Curry, found, however, that experience at the CAFC had no effect on decision making for obviousness determinations.<sup>104</sup>

More recently, Kesan and Ball expanded on these studies by analyzing in a robust statistical fashion how varying levels of experience conditions both the speed by which a trial court decides a patent case as well as the proclivity to overturn the case on appeal. They find that judicial experience reduces case duration and that specialization increases the accuracy of decision making in terms of whether or not the CAFC totally or partially reverses the trial court on appeal.<sup>105</sup> Their results apply to not only claim construction issues but to other areas of patent law as well, including validity, infringement, inequitable conduct, damages and preliminary injunctions.<sup>106</sup> While they find that general experience in terms of years on the bench did not affect the results, they discovered that specialized patent law experience reduced the chance of the judge being overturned on appeal in full and in part for rulings on infringement (where the issue concerned claim construction), preliminary injunctions and judgment as a matter of law.<sup>107</sup> Indeed, they find a 60% spread between experienced and unexperienced judges in terms of whether or not an infringement ruling would “lose” at the CAFC.<sup>108</sup>

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<sup>102</sup> See Banks Miller & Brett Curry, *Expertise, Experience, and Ideology on Specialized Courts: The Case of the Court of Appeals for the Federal Circuit*, 43 LAW & SOC’Y REV. 839, 840 (2009) (finding that Clinton CAFC judges who were considered experts (having science degrees and members of the PTO) invalidated patents at a rate of 55% compared to 25% for Reagan-nominated expert appointees). Banks & Curry found that ideology had no impact for nonexpert judges. *Id.* at 857. Political scientists have long theorized that individuals with greater knowledge or expertise have greater levels of ideological constraint. See, e.g., Paul Converse THE NATURE OF BELIEF SYSTEMS AMONG MASS PUBLICS, in D. Apter., ed., *Ideology and Discontent*, New York: Free Press 1964 (those possessing greater political knowledge have more ideologically consistent opinions).

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 857.

<sup>105</sup> Kesan & Ball, *supra* note 3, at 420.

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* at 439.

<sup>108</sup> *Id.* Specifically, they found that the probability of an infringement ruling being



In addition, Mark Lemley, Su Li and Jennifer Urban find that judges with more experience are less likely to rule for the patentee in infringement cases.<sup>109</sup> By contrast, they find experience to be of no moment when ruling on validity.<sup>110</sup> The experience effect, however, was not strong; only judges who rarely hear patent cases (measured as less than one ruling every three years) were more likely to rule in favor of the patentee.<sup>111</sup> These results, Lemley et al. contend, rebut the conventional wisdom that plaintiff forum shopping is driven in part by a perception that some district courts are more friendly to certain kinds of parties.<sup>112</sup> While they found that patentees holding patents in the biotechnology and mechanics area were more likely to win, they find no support for the popular perception that plaintiffs have an easier time of winning in the Eastern District of Texas.<sup>113</sup> Lemley et al. conclude that judges with more experience differ in their outcomes, but whether such a result is desirable is in the “eye of the beholder.”<sup>114</sup> They postulate several reasons for the results, contending that the effect could be due to evolutions in attitude, greater familiarity and/or confidence in patent law or just greater exposure to the unique procedures incident to patent law.<sup>115</sup> A judge less versed in patent law may not feel as comfortable ruling on summary judgment for instance.<sup>116</sup> In addition, more experienced judges may feel that patentees overclaim their inventions, becoming more skeptical once that see patentee after patentee claiming that their invention is very broad.<sup>117</sup> As such, Lemley et al. reason that any specialized trial court could likely help accused infringers as opposed to patentees.<sup>118</sup>

More recently, Mark Lemley and Shawn Miller analyzed what factors impact reversal rates.<sup>119</sup> Accounting for judicial tenure, they found that personal relationships between the CAFC and district court judges impact reversal rates in claim construction cases with district court judges who previously sat by designation having lessened reversal rates.<sup>120</sup> They

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overruled for a judge of low patent experience was 45% compared to a high experience judge whose rulings were overturned 15%. *Id.*

<sup>109</sup> Lemley et al, *supra* note 7, at 1151 (arguing that “[f]amiliarity breeds contempt”).

<sup>110</sup> *Id.* at 1125.

<sup>111</sup> *Id.* at 1143 (“Even a modest volume of cases ... is enough to drive a significantly higher rate of noninfringement findings. Once a judge has even a modest volume of cases, the effect levels off and further specialization does not appear to affect outcomes.”).

<sup>112</sup> *Id.* at 1125.

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

<sup>116</sup> *Id.* at 1151

<sup>117</sup> *Id.* at 1151-52.

<sup>118</sup> *Id.* at 1125.

<sup>119</sup> See Lemley & Miller, *supra* note 6, at 451.

<sup>120</sup> *Id.* at 452.

conclude this result is not a function of experience but rather reflects the personal connection between the district judge and the appellate judge influencing the end result.<sup>121</sup>

### III. Reviewing the Patent Law Pilot Program

#### A. Description of the Patent Pilot Program

First introduced by California Representative Darrell Issa in 2007, the patent pilot program sought to encourage greater specialization within the federal district patent judiciary.<sup>122</sup> With an authorized funding of \$5 million, the intent of the program is to mitigate some of the problems inherent in patent litigation, such as high CAFC reversal rates, forum shopping and the high cost of patent litigation in general.<sup>123</sup> The bill's sponsors argued that the high rate by which district court decisions are overturned was due to "judicial inexperience and misunderstanding of patent law," with the hope that increased experience would mitigate these problems.<sup>124</sup> Any district court within the top fifteen district courts in the year 2010 had the chance to participate in the program, with district courts that opt in having at least three judges in their district designated as "patent judges."<sup>125</sup> If a non-designated generalist judge receives a patent law case within the confines of the district court's normal random allocation of cases, the district court could then randomly reassign the case to a patent judge within the district participating in the program.<sup>126</sup> To discourage forum shopping, the legislation required that at least five districts in three circuits participate.<sup>127</sup> In addition, only districts with at least ten judgeships could be selected, thus leaving out popular patent forums such as the District of Delaware.<sup>128</sup> This provision was subsequently altered to allow patent popular districts like the Eastern District of Texas to participate. The program got increased funding in order for judges to hire additional law clerks with technical training as well as to increase training for judges participating in the program.<sup>129</sup> Participants in the program remain generalist judges; they are free to take on cases of other subject matters as their schedule allows.<sup>130</sup> The program is designed to last for ten years and

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<sup>121</sup> *Id.* at 453.

<sup>122</sup> Shartzter, *supra* note 13, at 192.

<sup>123</sup> *See id.* at 193.

<sup>124</sup> 153 CONG. REC. H. 1430, 1431 (daily ed. Feb. 12, 2007) (statement of Rep. Berman).

<sup>125</sup> H.R. 34, § 1(a)(1)(A)(2).

<sup>126</sup> *Id.* § 1(a)(1)(c).

<sup>127</sup> *See* H.R. 34, 110<sup>th</sup> Cong. § 1(b) (2007).

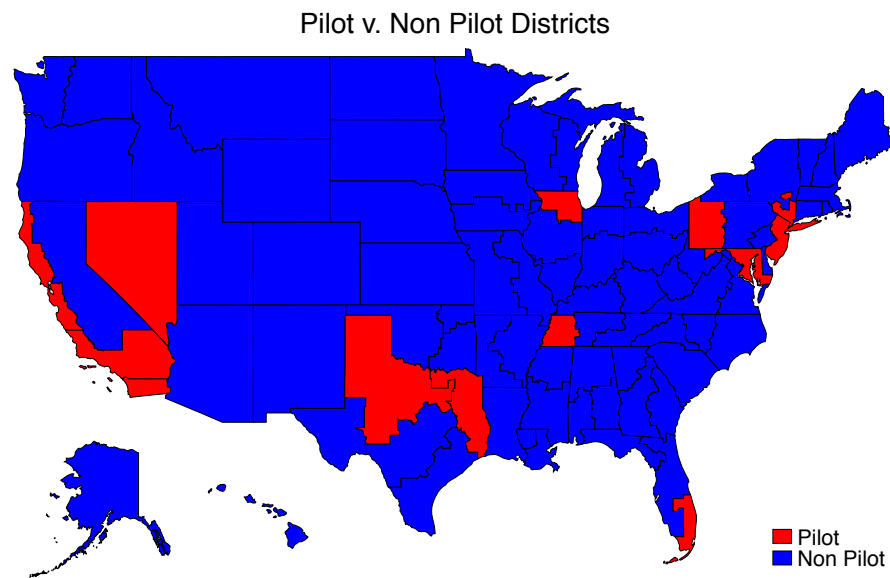
<sup>128</sup> 153 CONG. REC. H. 1430, 1431 (statement of Rep. Berman).

<sup>129</sup> H.R. 34, § 1(f).

<sup>130</sup> *Id.* In addition, senior judges may opt in as participants if there is likewise an active

requires that periodic reports be made to Congress.<sup>131</sup> The bill was widely popular and supported by a vast array of industry groups as well as the patent bar.<sup>132</sup> It passed the House several times with unanimous bipartisan support — a rarity in the current political climate. The program went into operation in September 2011. Figure 1 below details the district courts participating in the pilot program and Table 1 displays the number of judges participating in each of the pilot districts.

**Figure 1: Pilot v. Non-pilot Districts**




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judge. *See* H.R. § 34(1)(a)(2).

<sup>131</sup> H.R. § 1(c).

<sup>132</sup> *See* Marius Meland, *Special IP Trial Courts a Bad Idea, Lawyers Say*, LAW 360 (Feb. 1, 2006).

**Table 1: Pilot Program Patent Cases and Judgeships**

<b>District</b>	<b>Cases Filed from Sept 2011</b>	<b>Pilot Program Judgeships</b>	<b>Percent of District's Judges</b>
Northern District of California	1,001	5 District Judges, 7 Magistrate Judges	24%
Southern District of California	432	5	25%
Central District of California	1,655	6	15%
District of Nevada	114	4	30%
Eastern District of Texas	6,478	6	50%
Northern District of Texas	323	3	21%
Northern District of Illinois	799	13	30%
Southern District of New York	543	10	18%
Eastern District of New York	130	6 District Judges, 9 Magistrate Judges	20%
District of New Jersey	777	11	40%
Western District of Pennsylvania	66	6	38%
District of Maryland	102	3	14%
Western District of Tennessee	33	2	25%
Southern District of Florida	622	3	13%

**B. Patent Pilot Program 2016 Update**

The Federal Judicial Center (“FJC”) produced a report on the patent pilot program at the five-year mark in September 2016.<sup>133</sup> They found that 24% of all active judgeships (a total of sixty-six judges) participated in the pilot program and that more than 76% of patent cases in the designated pilot districts were heard before a designated pilot judge.<sup>134</sup> This figure varies among districts, ranging from a low of 14% in the District of Maryland to a high of 50% in the Eastern District of Texas.<sup>135</sup> As a whole, pilot judges had more patent experience than non-pilot judges, with judges in the Eastern

<sup>133</sup> *Federal Judicial Center, supra* note 61, at i.

<sup>134</sup> *Id.* at v.

<sup>135</sup> *Id.* at 2.

District of Texas having substantially more patent experience than other districts.<sup>136</sup> Overall, the FJC concluded that pilot judges worked more expeditiously in terminating cases, with the differences in total duration time being statistically significant.<sup>137</sup> Controlling for the number of transfers and the judge's experience, the FJC found that pilot cases are disposed of 8% faster than non-pilot cases.<sup>138</sup> The number of pilot patent varied by district, with pilot cases making up only 23% of the Northern District of California's patent cases, while about 90% of patent cases in the Eastern District of Texas, the Western District of Tennessee and the Western District of Pennsylvania were part of the pilot.<sup>139</sup> The FTC also found that the rate of appeal did not differ between pilot and non-pilot judges, and that most cases — no matter who presided over them — resulted in affirmances on appeal.<sup>140</sup> The study also found a great deal of variation among districts in the rates of appeal. For instance, as a portion of their overall case docket, appeals from the Eastern District of Texas were relatively rare while there was a larger than expected number of appeals from the three California districts and the Southern District of New York.<sup>141</sup> Appeals from the Eastern District of Texas may be low because only 1% of cases from that district result in judgment, while other districts have a greater percentage of their cases resulting in final judgment.<sup>142</sup>

Regarding the outcome on appeal, although the FJC looked only at bare statistics, they found no statistically significant difference in results between pilot and non-pilot judges. In all, they found that both pilot and non-pilot cases are “correct” at the same rate with 72% of cases being upheld on appeal in full.<sup>143</sup> Loosening the definition of “correct” to include partial affirmances, they found that the CAFC affirms the lower court 91% in pilot cases and 88% for non-pilot cases, a result that is not statistically significant.<sup>144</sup>

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<sup>136</sup> *Id.* at 5-6.

<sup>137</sup> *Id.* at v, 22.

<sup>138</sup> *Id.* at 23.

<sup>139</sup> *Id.* at 7.

<sup>140</sup> *Id.*

<sup>141</sup> *Id.* at 32.

<sup>142</sup> *Id.* at 39.

<sup>143</sup> *Id.* at 36.

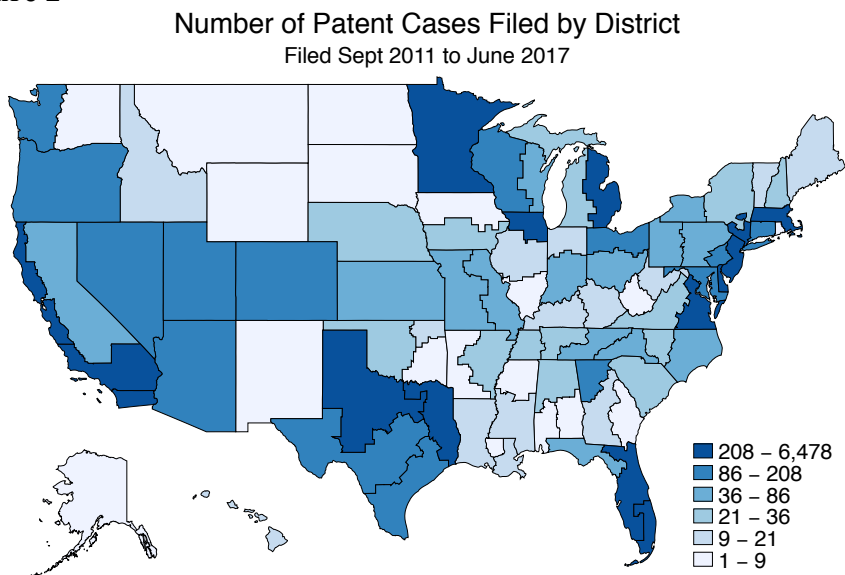
<sup>144</sup> *Id.*

### C. Data Collection

#### 1. Differences in Cases Across Pilot v. Non-pilot Districts Overall

Using the database Lexmachina, I collected the 21,315 cases filed from September 19, 2011 in district courts that had a termination date of no later than June 30, 2017. Figure 2 shows a map detailing the number of cases filed per district. The most popular district not surprisingly was the Eastern District of Texas, with 6,473 cases filed during this period, with the District of Delaware trailing in second place with 3,521 filed cases. In Delaware, about a fifth of its entire docket was allocated to patent cases.<sup>145</sup> Other districts had comparably few cases filed; for example, the District of Wyoming and the District of Alaska only had one filed case. Overall more cases are filed or transferred to the pilot districts, though certain pilot districts hear few cases. For instance, the Western District of Pennsylvania and the Western District of Tennessee had only sixty-six and thirty-three cases filed, respectively, during the period under study.

**Figure 2**



Overall, like the Federal Judicial Center found, although some cases are transferred to be part of the pilot, the average number of transfers is zero.<sup>146</sup> Cases are transferred internally within a district for many reasons, such as

<sup>145</sup> See Shartzer, *supra* note 13, at 234 (noting that about 17% of cases in Delaware are patent cases).

<sup>146</sup> *Id.* at 10.

recusal or because the case is closely connected to another case. The FJC reported that 72% of transfers were because of the pilot program.<sup>147</sup> While there are intradistrict transfers because of the pilot program, they are probably less than what the program's developers anticipated. For the most part, few judges are kicking the case back into the patent pool. As of 2013, for instance, only about 10% of judges in the Southern District of New York were declining an initial patent assignment.<sup>148</sup> Transfers are more common in the Southern District of Florida, the Central District of California and the Eastern District of Texas, while transfers are less common in the Northern District of California and the Southern District of New York.

I then looked at the data by patent, reasoning that some districts may be more popular among either repeat plaintiffs filing on the same patent (i.e., a pharmaceutical company filing multiple infringement cases against generic manufacturers) or so-called patent "trolls" filing multiple cases. The same general pattern persists, with more cases being filed in the pilot districts. However, once one controls for repeat filers, the number of cases in some districts dramatically declines. For instance, using this more limited definition of case type limited by patent, only 1,022 unique patent cases are filed in the Eastern District of Texas, a near six-fold decline, indicating that there are probably a lot of patent troll cases filed in that particular district and that the Eastern District is a popular forum for serial filers. Overall, the median number of cases filed per district is thirty-six overall, with a mean of 234 cases over the near five-year period.

Figure 3 details the technology of patents filed, accounting for both repeat litigants and patent trolls, by pilot district. Overall, computer and communication cases comprise about 44% of all patent cases, with medical/drug cases and "other" cases each comprising about 16% of all cases. If one looks at the data by case rather than by patent, over two-thirds of all filed cases concern computers and communications, suggesting that a lot of the repeat litigants and patent troll cases must concern computer and technology patents. Figure 4 displays a comparison by pilot and non-pilot district. Overall, about half of the patents in the pilot districts concern computers and communications, compared to just 37% in the non-pilot districts, a figure statistically significant.<sup>149</sup> In addition, more medical/drug cases are filed in the non-pilot districts, probably due to the fact that so many medical and drug cases are filed in the District of Delaware (16% v. 12% in pilot districts), a non-pilot district. Overall, non-pilot districts see more

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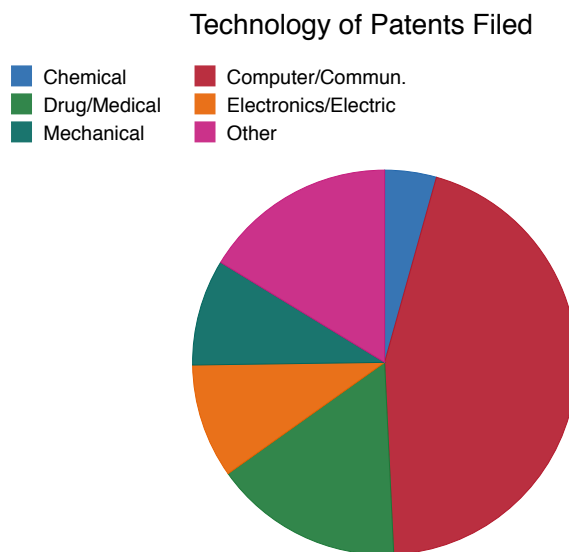
<sup>147</sup> *Id.*

<sup>148</sup> Robert Gunther & Omar Khan, *Patent Pilot Program: One Year Later*, N.Y. L. J., Jan. 7, 2013, at S6.

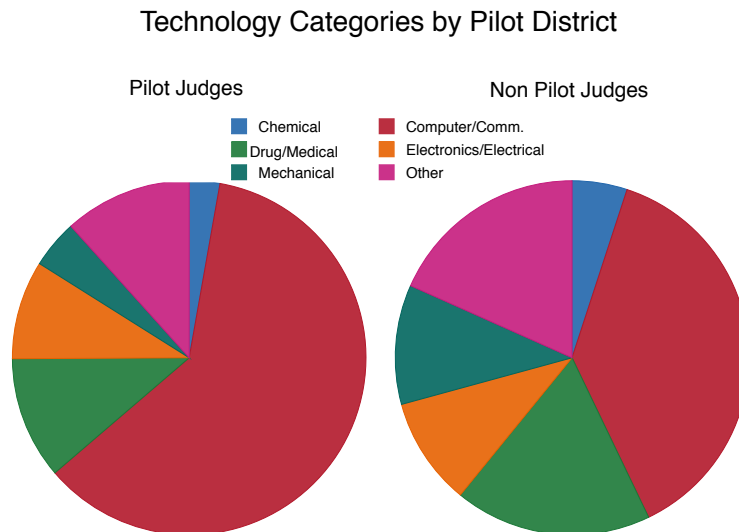
<sup>149</sup> Looking at it by case instead of by patent, 72% of all cases filed in the pilot districts concern computers and communications compared to 57% in the non-pilot districts.

chemical, medical/drug, mechanical and “other” cases as a percent of its docket than those categories comprise of pilot dockets, with electrical and electronic cases comprising about 10% of the docket for both pilot and non-pilot districts. In particular, almost a fifth of cases filed in the non-pilot districts concern “catch all” or other technology. These differences between pilot and non-pilot districts persist if we eliminate the Eastern District of Texas from our analysis, though the differences between the pilot and non-pilot districts are not as stark. Eliminating the Eastern District of Texas, the number of computer and communications cases filed in the pilot districts falls to 43% instead of half, and we see that there is a greater percentage of drug/medical cases filed in the pilot districts, owing to the fact that the District of New Jersey is a popular district in which to file drug patent cases. Looking at the issue by pilot judge versus non-pilot judge rather than pilot versus non-pilot district, the percentages are similar, mirroring that of the district analysis overall.

**Figure 3**



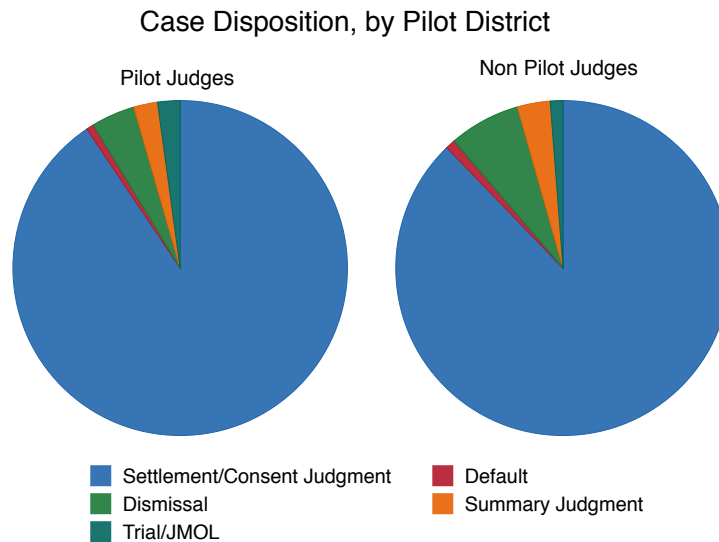


**Figure 4**

Case disposition also varies among the districts. Overall, almost 90% of cases settle in some way, either by stipulated dismissal (52%) or with the plaintiff voluntarily dismissing the case (30%). Another 3% of cases get resolved by consent judgment, and about 1% of cases are default judgments. Only about 1% of cases go to trial, with about 5% of cases dismissed on motion, and 2% of cases resolved by summary judgment. As detailed in Figure 5, these patterns persist comparing pilot and non-pilot districts, though pilot districts see more stipulated dismissals (58% v. 51% based on patent), with plaintiffs voluntarily dismissing cases more before in non-pilot districts (25% v. 20%). Comparing pilot versus non-pilot judges (as opposed to districts), these procedural differences become more stark, as 64% of pilot judges resolve cases by stipulated dismissal, while non-pilot judges do so only 52% of the time. Overall, settlements and consent decrees comprise 94% of pilot judge resolutions compared to 88% in the non-pilot courts. Moreover, non-pilot judges resolve cases more by dismissal motions, with about 7% of cases being disposed by dismissal compared to just under 3% by pilot judges. Excluding the Eastern District of Texas, however, the differences between pilot and non-pilot judges in terms of case disposition become less potent. While pilot judges outside of the Eastern District still resolve more cases by stipulated dismissal than non-pilot judges do, the difference is less apparent (56% v. 52%). Moreover, excluding the Eastern District, pilot judges resolve a greater percentage of cases by summary judgment motion (4%) versus the non-pilot judges (2%), partly due to the fact that summary judgment motions

are disfavored in the Eastern District of Texas.<sup>150</sup>

**Figure 5**



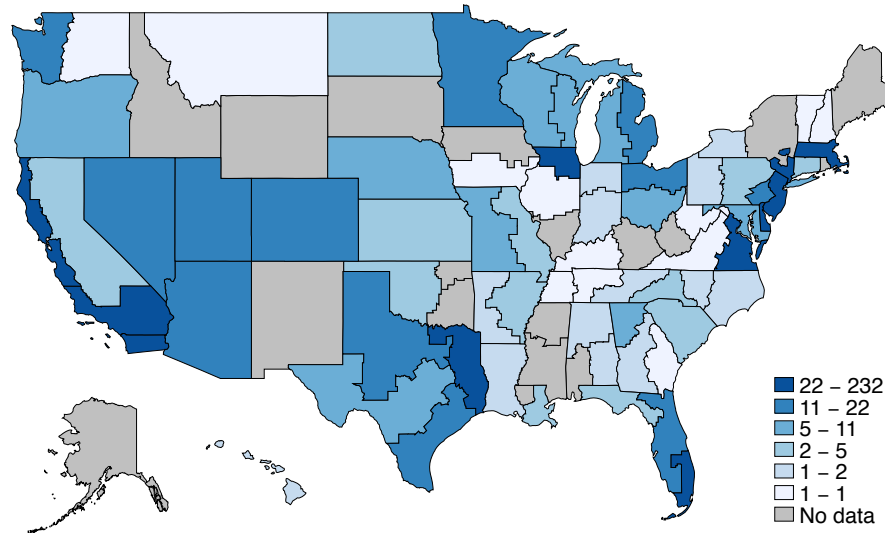
Courts — both pilot and non-pilot — rarely reach the merits of the dispute, but when they do there are some noticeable differences in case outcomes between the pilot and non-pilot judges with non-pilot judges more likely to find infringement and inequitable conduct and less likely to rule the patent invalid. I specifically exclude cases in which the court may have resolved the issue by a procedural motion, such as jurisdiction, standing, or another procedural issue or where the case is settled or dismissed on non-patent law grounds. Figure 6 details a map of the number of substantive patent rulings by district during the period under study. In all, judges reached a decision on the substantive merits of the case in about 1,374 out of the 21,000 or so cases filed and resolved between September 2011 and June 2017. Many districts resolve hardly any substantive patent law cases on the merits, with the median being five cases resolved on the merits per district over the entire near five-year period. Pilot districts resolve significantly more cases on the merits, ruling on the merits a median of thirty cases (twenty-six cases if the Eastern District of Texas is excluded). Some pilot districts, such as the Western Districts of Tennessee and Pennsylvania, resolved only one or two cases, respectively, on the merits, much less than many of the non-pilot districts. In any event, as a percentage of workload, non-pilot judges and non-pilot districts are resolving few substantive patent law cases yearly on patent

<sup>150</sup> Klerman & Reilly, *supra* note, at 113.

grounds, especially once one eliminates the busy non-pilot districts of Delaware, Massachusetts and the Eastern District of Virginia.

**Figure 6**

Substantive Patent Law Rulings, by District

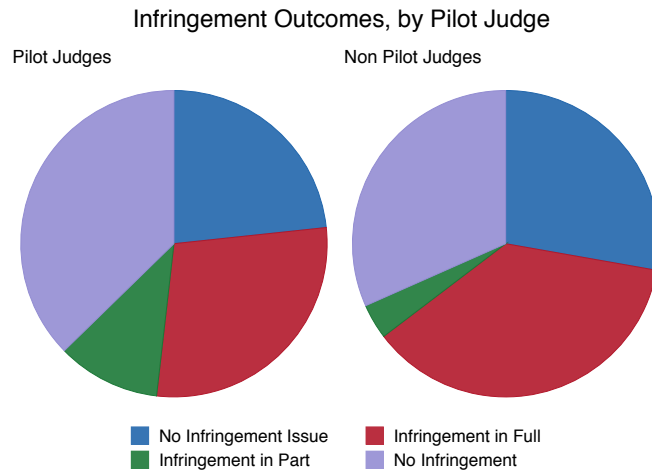


Figures 7 and 8 detail the substantive outcome of cases overall at the patent-level (excluding cases where the judge resolves the case involving the same patent against multiple defendants).<sup>151</sup> When the court rules substantively on a case, in about 75% of the cases the court resolved an infringement issue, at least in part and at least in addition to another substantive issue like validity or inequitable conduct. Courts found the patent infringed about half the time at least in part (48% in full). But the propensity to rule in favor of the infringer differs based on the judge's pilot status, with 51% of non-pilot judges ruling in favor of the patentee while only 37% of pilot judges found infringement in full (55% versus 51% in part). By contrast, in 57% of the cases where the court reached the substantive merits, it ruled on a validity issue, finding against the patentee and ruling all of the asserted claims of the asserted patent invalid in full 39% of the time and 44% in part. As with infringement, non-pilot judges differ from pilot judges, as non-pilot judges made an invalidity ruling just 38% of the time compared to 43% for pilot judges (42% v. 52% in part). Finally, in about 20% of cases the court resolved an inequitable conduct matter at least in part. Non-pilot judges were more likely to find inequitable conduct (22% versus 11% for pilot judges). These differences between pilot and non-pilot judges persist even if one

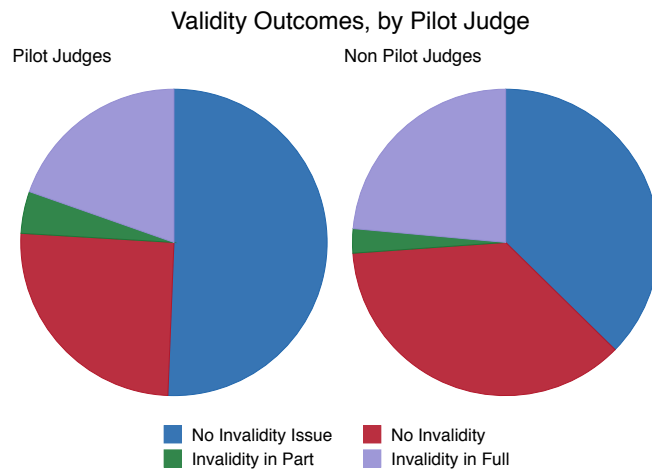
<sup>151</sup> Except where noted, there is no noticeable substantive difference in the analysis if I look at the issue by patent as opposed to by case.

excludes the Eastern District of Texas from the analysis. Some of the differences between pilot and non-pilot judges become even more apparent when limiting the analysis to only certain technology categories. For example, for drug/medical patents, non-pilot judges found in favor of the patentee and found infringement at least in part 76% compared to only 55% for pilot judges. With respect to validity, non-pilot judges ruled drug/medical patents invalid 15% compared to 50% for pilot judges. The number of cases is small so these results must be interpreted with caution, but they nonetheless are indicative of patterns.

**Figure 7**



**Figure 8**



There are also differences accounting for procedural posture. In cases going to trial, non-pilot judges found infringement at least in part 78% of the time compared to 67% for pilot judges. In turn, pilot judges ruled at least in part in favor of invalidity 43% compared to 33% in non-pilot courts at trial. Dispositions on other motions were not as different. In resolving summary judgment motions (where the summary judgment motion resolved the case with the court granting summary judgment), non-pilot judges were just slightly more likely to grant summary judgment motions in favor of the infringer but the differences were not statistically significant. When faced with a dismissal motion disposing of the case, non-pilot judges ruled almost identically to pilot judges. Significantly, the numbers discussed here do not refer to all summary judgment motions or all motions to dismiss, just motions where the substantive merits of the case were resolved.

Although a full statistical analysis on these issues is beyond the scope of this particular Article, in another Article, I present a statistical model where I control for procedural posture, issue, technology type and other controls to discern whether pilot judges are in fact less likely to rule in favor of the patentee than non-pilot judges using the 1,374 cases where district courts ruled on a substantive patent law issue. I find that at least in their decisions, pilot judges appear no different than non-pilot judges once other factors are controlled for.

## **2. Judge Differences across Pilot v. Non-pilot Judges**

Pilot judges on the whole have more experience than non-pilot judges, though they have a shorter tenure overall as a judge than non-pilot judges. Overall, non-pilot judges have served as a federal court judge a median of fifteen years compared to eleven years for pilot judges. Not surprisingly, however, pilot judges have more experience in patent cases. Within the last five years, pilot judges have presided over a median of 172 patent cases compared to forty-three in the non-pilot districts. Eliminating the Eastern District of Texas in the pilot cases and the District of Delaware for the non-pilot cases, pilot judges presided over a median of 123 trials over the last five years compared to just thirty-four for non-pilot judges. Overall, pilot judges also had almost double the amount of trial and claim construction experience, with pilot judges overseeing a median number of eleven claim constructions over the past five years compared to just five for non-pilot judges. Moreover, pilot judges overall oversaw a median of two trials over the past five years compared to just one trial for judges in the non-pilot districts. These broad differences persist if one eliminates the outlier Eastern District and Delaware from the analysis. There are also notable outliers

among district court judges. Judge Rodney Gilstrap in the Eastern District has presided over 5,332 cases in the last five years; the next highest figure is Judge Sue Robinson in the District of Delaware who presided over 3,160 cases.

**Table 2: Patent Experience by Pilot Judge**

	<b>Pilot Judges</b>	<b>Non-pilot Judges</b>
Mean Judicial Tenure	12.4	15.3
Median Judicial Tenure	11.5	15
Mean Patent Filings Past 5 Years	950.6 (297.5) <sup>152</sup>	333.3 (189.5)
Median Patent Filings Past 5 Years	172 (123)	43 (34)
Mean Claim Construction Past 5 Years	47.3 (18.1)	30.2 (12.5)
Median Claim Construction Past 5 Years	11 (9)	4 (3)
Mean Patent Trial Past 5 Years	11.2 (3.6)	9 (3.3)
Median Patent Trial Past 5 Years	2 (2)	1 (1)
Mean Patent Filings Year Prior to Case	218.2 (58.7)	81.3 (46.7)
Median Patent Filings Year Prior to Case	27 (25)	10 (8)

### **3. Appealed Cases Comparing Pilot v. Non-pilot Judges, Sept 2011-June 2017**

I next analyze the summary statistics concerning what kind of cases — where the district court reached the substantive merits of the dispute — actually get appealed depending upon the specialization of the lower court tribunal. Overall, about 40% of the cases in which the district court reached the merits of the case on infringement, validity or inequitable conduct got appealed during the period under study, with about 7-8% of cases still pending appeal as of August 2017.<sup>153</sup> The appeal rate is higher before pilot judges as 51% of substantive cases got appealed compared to 36% before non-pilot judges, a result statistically significant.<sup>154</sup>

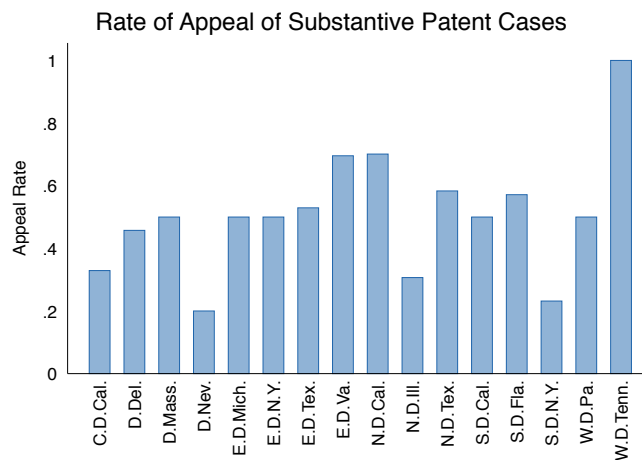
<sup>152</sup> Numbers in parentheses represent figures excluding the Eastern District of Texas in the pilot courts and the District of Delaware in the non-pilot courts.

<sup>153</sup> In addition, only half of the appeals heard during this period or filed concerned procedural issues that are not analyzed here.

<sup>154</sup> These figures are dramatically lower limited to all cases. Overall, about 5% of all cases get appealed, though the rate of appeal is slightly higher for non-pilot judges (6%) than pilot judges (4%)

There is some variation among districts in their appeal. The Federal Judicial Center found that almost half of cases with an appeal came from one of the three California pilot districts (particularly the Central District of California which is responsible for 25% of all appeals), with one-third of pilot cases being appealed coming from the California pilot districts.<sup>155</sup> They also found that as a percent of its total cases, the Eastern District of Texas sees comparatively few of its cases appealed than what would be predicted due primarily to the fact that so few cases in the District end in judgment on the merits.<sup>156</sup> The FJC, however, analyzed all cases, including procedural cases. In my analysis of only substantive cases made on the merits, I found that some districts like the Western District of Tennessee had a 100% appeal rate since there was only one substantive patent case resolved, while some districts like Nevada had an appeal rate of just 20%. Figure 9 shows the appeal rate for substantive cases for some of the most popular district courts, including all of the pilot districts and select non-pilot districts hearing the most patent cases.

**Figure 9**



Overall, almost half of appealed cases arise from summary judgment motions, with another 13% of appealed cases having been decided by consent judgment. Bench trials comprise 17% of appealed cases, with dismissals making up 14%. Figure 10 details the breakdowns by pilot versus non-pilot judges, where we see that the universe of appealed cases arising from

<sup>155</sup> *Federal Judicial Center, supra* note 61, at 32.

<sup>156</sup> *Id.*

summary judgment dispositions is higher for non-pilot judges (56%) versus pilot judges (38%), though pilot judges have a greater percentage of consent judgments appealed (19% v. 6%) than non-pilot judges. Appeals from bench trials are not surprisingly more common from pilot judges (10% v. 6%) than non-pilot judges while preliminary injunction motions are more common from non-pilot judges (7% v. 4%). Pilot judges have a greater percent of their docket coming from substantive dismissal motions (21% v. 18%) versus non-pilot judges.

**Figure 10**

Procedural Disposition of Appealed Cases, by Pilot Judge

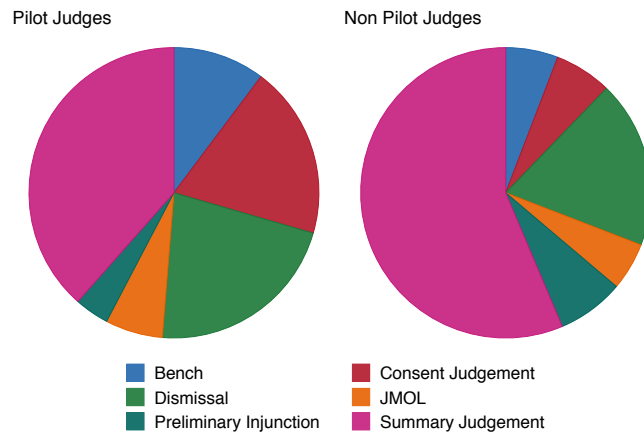


Figure 11 details the breakdowns of appealed issue type by pilot program. We see some differences based on tribunal, suggesting that there may be forum shopping toward pilot program judges for their expertise in certain types of cases if the case goes to trial. Of cases getting appealed, 28% of the non-pilot cases concern infringement compared to 25% in the pilot judges, while 45% of pilot cases concern validity compared to just 41% for non-pilot judges. Pilot judges are also more likely to see their claim construction cases reviewed on appeal as the primary issue in the case, with 18% of all pilot appeals dealing with claim construction as the main issue compared to 15% of non-pilot cases. Appeals from preliminary injunction motions also comprise a greater percent of the non-pilot cases than pilot cases (3% v. 1%). These differences may in part be explained by parties adopting different filing behavior in the pilot courts. Early in the case, competitors often file for summary judgment of noninfringement and/or invalidity and indeed almost a bare majority of cases (excluding the restrictions noted before) relate to summary judgment motions. Although the Federal Judicial



Center concludes that summary judgment motions make up only 2% of total case dispositions before pilot judges, they are the most common disposition of case heard on appeal, likely because the stakes are so high for the patentee and the costs so low for appeal.<sup>157</sup> Competitors can only get summary judgment granted when the case facts are not in dispute so more frivolous or clear-cut cases may simply be decided in the local tribunal where the case is first filed. The fact that dismissals and preliminary injunction motions are more common for non-pilot judges as well provides further support for this assessment.<sup>158</sup> It may be that competitors move to transfer the case away from the non-pilot districts later on in the process should summary judgment be denied. Appeals from judgement as a matter of law (“JMOL”) motions and bench trials are more common in pilot program courts, a finding that would suggest that more trials in general occur in pilot program courts than in non-pilot program courts.

**Figure 11**

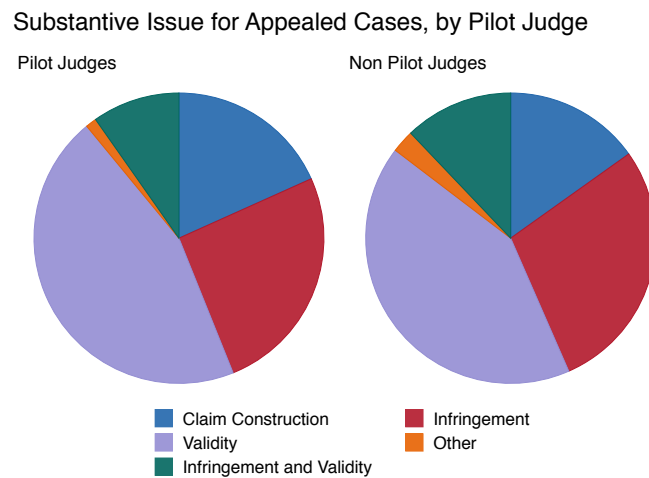


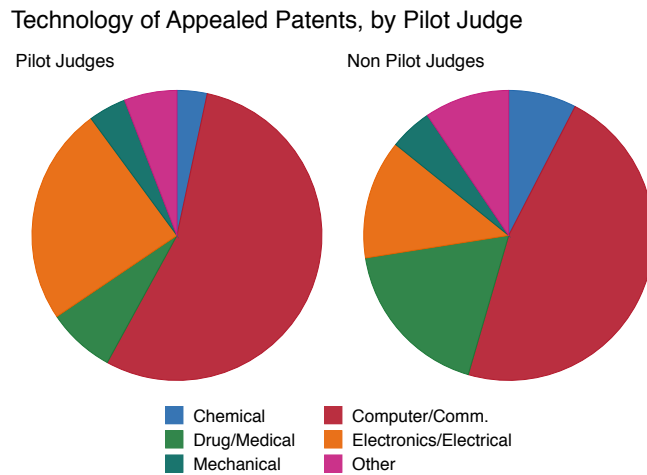
Figure 12 details the technology type of appealed cases. Patents concerning computers and communications take up a greater percentage of appealed cases than their percentage overall (50% v. 45%) (though the difference is 66% v. 45% if broken down by case instead of by patent). We see significant differences between pilot and non-pilot judges. Over 54% of patents arising from the pilot judges concern computers and communications

<sup>157</sup> *Federal Judicial Center, supra* note 61, at 28.

<sup>158</sup> The Federal Judicial Center similarly found that there was a statistically significant difference between pilot and non-pilot judges in terms of dismissals, reasoning that there was a higher percentage of nonvoluntary dismissals among non-pilot cases. *Id.* at 14. My findings indicate that these differences, at least concerning the universe of cases actually appealed, extends to dismissals granted by motions to dismiss or motions on the pleadings as well.

compared to 47% before the non-pilot judges. Moreover, there is a noticeable increase in the number of drug/medical patents from the non-pilot judges (17%) compared to the pilot judges (8%). Likewise, as we saw before, patents encompassing the “catch all” category are more common in the appealed cases coming from the non-pilot judges compared to the pilot judges (13% v. 8%). These patterns persist even if one excludes the Eastern District of Texas from the analysis, though the percentage of computer/communications patents and the drug/medical patents increases to 60% and 11%, respectively. Over 88% of patents that are appealed from the Eastern District of Texas concern computers/communications or electronics/electrical technologies. Overall, appeals from computer/communications and drug/medical cases are much more common than other categories as a general matter. For instance, while about 56% of cases from the two aforementioned categories get appealed overall, only 36% of chemical cases and 20% of mechanical cases get appealed.

**Figure 12**

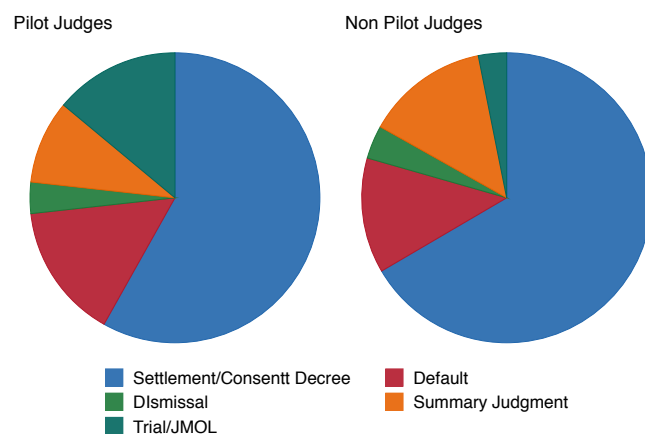


What does this data suggest about the cases that do not get appealed? Limited to only the cases where the district court made a substantive patent ruling, a little over half of the cases do not get appealed, with cases from the non-pilot judges being much less likely to be appealed compared to the pilot districts when the judges makes a substantive patent law ruling (37% v. 50%). Figure 13 details a graph of the case disposition of cases that are not appealed. We see that across districts, the vast majority of non-appealed cases that deal with a substantive patent issue end up settling or being resolved by consent decrees, with 56% of non-appealed cases before the pilot judges settling versus 66% before the non-pilot judges. But there are some noticeable

differences across pilot and non-pilot judges. For instance, of the non-appealed cases before pilot judges, 16% went to trial or were disposed of by JMOL motion compared to just 3% of cases in the non-pilot courts. The opposite is true for summary judgment motions; of the non-appealed cases before non-pilot judges, 14% were resolved by summary judgment motion compared to just 8% before the pilot judges (a figure which is similar if the Eastern District is excluded). In addition, for non-pilot judges, 3% of non-appealed cases are dismissed compared to 1% before pilot judges. While a fuller description of the characteristics of non-appealed cases is beyond the scope of this Article, the data nonetheless suggest differences between appealed and non-appealed cases and between pilot and non-pilot judges.

**Figure 13**

Case Disposition of Cases Not Appealed, by Pilot District



#### IV. Statistical Analysis: How Has the Pilot Patent Program Fared?

##### A. Case Selection

I then set out to test statistically the impact that the pilot program has had so far in terms of how district judges decide cases and how those cases are ultimately resolved on appeal. To do this, I collected all substantive patent law cases filed from September 19, 2011 to September 30, 2016.<sup>159</sup> As a separate measure, I also reviewed all CAFC decisions on Lexis filed after

<sup>159</sup> Eight of the pilot districts started the program on the recommended date of September 19, 2011 (C.D. Cal., S.D. Cal., N.D. Ill., D. Md., D. Nev., W.D. Pa., W.D. Tenn. and E.D. Tex.) Other pilot courts started as follows: September 1, 2011 (N.D. Tex.), September 18, 2011 (D. N.J.), November 21, 2011 (S.D.N.Y.), January 1, 2012 (N.D. Cal.) and January 10, 2012 (E.D.N.Y.). For ease of analysis I did my analysis using the September 19 date.

around January 1, 2012 and then backtracked to review the district court's ruling. I then consulted the Lexmachina database to confirm my findings. I went back and looked at the trial court ruling and coded each trial court and appellate court decision for both the specific patent law issue as well as the overall result on whether the patentee or the competitor prevailed. I included all decisions from the CAFC, including summary affirmances under Federal Circuit Rule 36.<sup>160</sup> I did not include cases that were dismissed under Federal Rule of Appellate Procedure 42(b) since the decision was not on the merits. I excluded some cases from the analysis as I detail below and focus the analysis on the following key issues: validity, infringement, claim construction, inequitable conduct and preliminary injunctions.

Notably, I excluded several broad categories from the analysis. I excluded jury verdict cases from the analysis unless they were accompanied by the court ruling on a JMOL.<sup>161</sup> I excluded default judgments, or cases in which the parties did not resolve any substantive patent law issue. I also did not include non-final judgements, such as denials of motions to dismiss or denials of summary judgment since these issues are not appealed. Furthermore, I left out cases where the issue in dispute primarily concerned an issue of state law with the patent law issue being merely tangential to the main issue of the case.<sup>162</sup> I also excluded the few cases in which the district court heard the case on remand from the CAFC and the appeal was coming up for a second or even a third time. Because the CAFC may have given detailed guidance on the law in the case in the prior appeal, inclusion of these cases in the analysis could cloud the results.

I focused the analysis to only those decisions where the court made a decision on a substantive patent law issue. As such, I excluded cases where the subject matter was purely procedural such as whether or not to transfer a case from one given district court to another; whether personal jurisdiction should be exercised over a given company; various discovery matters such as whether or not to include or exclude expert testimony or whether or not to issue a subpoena; whether the complaint properly pled the facts; cases that

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<sup>160</sup> Fed. Cir. R. 36 (“Entry of Judgement-Judgement of Affirmance Without Opinion.”). While there are summary affirmances, the CAFC cannot use Rule 36 to reverse. While Rule 36 affirmances are often used when the issue is minor or where the appeal is frivolous, it is also occasionally used when the district court wrote so thorough an opinion that it is not necessary for the CAFC to add to its reasoning by issuing its own opinion. Overall, claim construction issues are less likely to be affirmed under Rule 36 than other issues. Olson, *supra* note 95, at 772.

<sup>161</sup> A jury verdict without a JMOL motion is rare, so only a few cases were excluded under this criterion.

<sup>162</sup> This occurred most frequently in cases involving licenses. While as a factual matter, the CAFC had jurisdiction because there was a patent license, the issue in the case centered more on contract interpretation rather than patent law.

primarily concerned damages or willful infringement; and so forth. Moreover, I excluded cases dealing with whether a party should be held in contempt for violating an injunction or for engaging in discovery abuse. Cases concerning whether there should be a stay pending reexamination were also not included for purposes of this analysis as the decision does not rest on the merits. I also excluded cases in which the CAFC had to rule on the frivolousness of the patentee's case and the accordant award of attorneys' fees to the defendant competitor. Finally, I excluded all appeals from the Board of Patent Appeals and Interferences and the ITC, two administrative agencies in which the CAFC holds exclusive review since the object of this study is to analyze the impact of specialization in the district courts, not the administrative state. In future research, I may add in the Patent Board and ITC cases to see how they differ from the district courts.<sup>163</sup>

## B. Key Variables of Interest

### 1. Dependent Variable: Predicting Reversal

The key dependent variable is whether the CAFC overturned the district court decision. I created two alternative variables, similar to Kesan and Ball: complete reversal and partial reversal.<sup>164</sup> In some cases relying on the label given by the CAFC is misleading; for instance, the CAFC may affirm and remand the case but it is remanded on a purely technical or minor issue that has nothing to do with the "wrongness" of the lower court decisions. As such, I read each case to discern whether in fact the CAFC found fault with all or part of the lower court decisions. In most cases these findings comported with the CAFC's classifications but to the extent they did not, I relied on my own reading of the case. I coded the outcome of each case in one of the following categories, on a sliding scale to measure the accuracy of the decision: affirmed, affirmed and vacated/remanded; affirmed, reversed and vacated; affirmed and reversed; vacated and remanded; reversed and remanded; and reversed. I then dichotomized the variable to two binary choices, on whether the decision was fully affirmed or there was an error in part.<sup>165</sup> In determining whether there was an error in part I used two different criteria to create two different versions of the variable. In one version of the variable, I considered all cases that were "vacated and remanded," "vacated,"

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<sup>163</sup> Since I looked at the analysis by case, instead of by appeal, I did not have to worry about the inclusion of cross appeals resulting in double counting in my analysis. Where there was a cross appeal I noted it and I read the case facts to discern whether the ruling favored the patentee or the competitor more and coded the case accordingly.

<sup>164</sup> Kesan & Ball, *supra* note 3, at 433.

<sup>165</sup> *Id.* at 433.

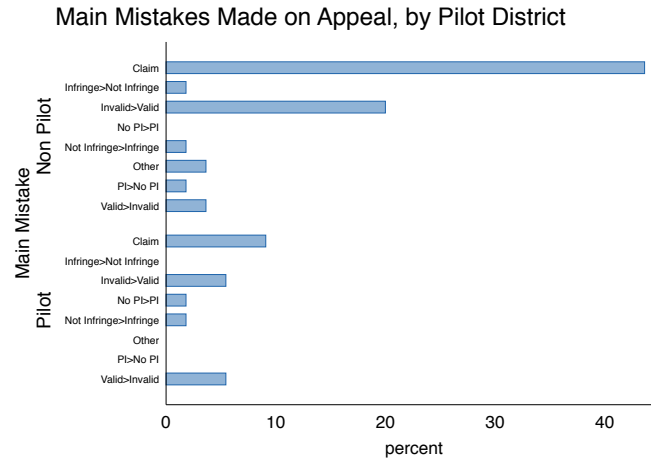
“affirmed and reversed,” “reversed and remanded” and “reversed” to be ones in which there was an “error.” I further read each case to ascertain the seriousness of the error. For instance, suppose the CAFC largely affirms the trial court, but refuses to find that the defendant acted willfully, thus increasing their damages. I would consider that scenario to be an affirmance in spirit, especially if the main issues in the case are ones of infringement and validity; the court is simply declining to award more damages. By contrast, if the patentee appealed a damage issue and the CAFC devoted the entire or most of their opinion to analyzing the damage issue, I would consider the CAFC’s decision on willfulness to be the primary issue in the case and thus not include the case in my analysis since my universe of cases only concerned substantive patent law issues. Moreover, I also looked at the decision to see whether the CAFC’s error was redundant. Provided that they rely on the same claims, if the CAFC finds a patent invalid or rules it unenforceable due to inequitable conduct, the fact that it affirmed the infringement ruling is of little practical consequence since the patent cannot be enforced against the purported infringer. Moreover, in alternative specifications not reported here, if the CAFC largely found the patent in question infringed (or not infringed for that matter), but found one claim to not be infringed, I recoded the case as one in which the CAFC did not perceive the lower court to be in error. These alternative specifications thus allowed me to analyze different scenarios on how district courts make mistakes. The results did not differ.

Overall, across pilot and non-pilot judges, the CAFC overwhelmingly affirmed cases at least in part. Limited to only substantive cases involving infringement, validity, inequitable conduct and claim construction and considering all cases including Rule 36 affirmances, the CAFC overruled just 8% of cases in full and between 13-20% in part, depending upon how one defines “in part.” There were differences across districts, with 5% of pilot cases being overruled in full compared to 9% of decisions from non-pilot judges. The figure increased to 7% once the Eastern District of Texas is eliminated. Restricting the analysis to only cases resolved by opinion (as opposed to Rule 36 motion), 14% of non-pilot cases were overturned in full compared to 8% of pilot cases. There were less differences between pilot and non-pilot districts when considering whether cases were appealed in part. Significantly, a greater percent of pilot decisions were overruled at least in part (13%) compared to non-pilot decisions (12%), a figure reduced to 12% if the Eastern District of Texas is eliminated from the analysis. Moreover, if we eliminate the District of Delaware from the analysis for non-pilot cases, the rate of overturning in part is actually reduced to 10%. These numbers go up restricting the analysis to non-Rule 36 judgments. Limiting the analysis to cases where the CAFC issued an opinion, 22% of pilot judgments were overruled in part compared to 20% of non-pilot judgments.

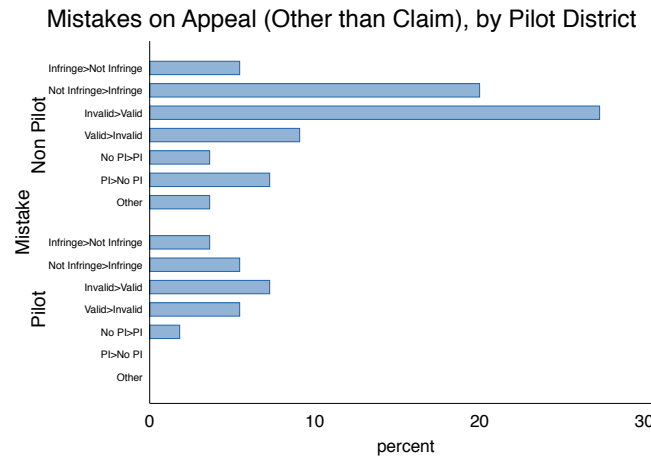
I coded each “main mistake” made by the district court, as perceived by the appellate court. I coded each case to be one of eight categories including: 1) claim construction; 2) infringement >>noninfringement; 3) noninfringement>>infringement;4)invalid>>valid;5)valid>>invalid; 6) ruling that a preliminary injunction should not issue>>ruling it should issue; 7) ruling that a preliminary injunction should issue>> ruling that a preliminary injunction should not issue; and 8) other including errors regarding inequitable conduct. In particular, coding for error in claim construction analysis can be tricky. When ruling on infringement or invalidity, courts must often construe the claims to aid in their analysis, so it can sometimes be difficult to tell if the CAFC reverses a lower court decision because of claim construction or because of some other issue like infringement or invalidity. Moreover, since there is no interlocutory appeal of claim construction issues, we only see claim construction in the context of an infringement or invalidity action. As such, I read each case to determine if claim construction was the “main” mistake. Sometimes it is easy to discern where the case primarily concerns claim construction because the CAFC makes it clear or because the case is coming up from a consent judgment where the parties stipulated to infringement based on the district court’s claim construction.

Figure 14 details the “main” mistake on appeal and makes apparent that about 40% of the mistakes on appeal are made by non-pilot judges on claim construction. Indeed, 60% of the main mistakes made by non-pilot judges concern claim construction compared to 33% of the main mistakes made by pilot judges. Figure 15 details the mistakes made by judges ignoring claim construction (that is I characterized all of the claim construction mistakes as either validity or infringement mistakes). Again there are noticeable differences between the pilot and non-pilot judges. Non-pilot judges were more likely to make the mistake against finding infringement when it should find infringement (26% for non-pilot judges versus 23% for pilot judges). Pilot judges were more likely to make the opposite mistake of finding infringement in error. With respect to validity, pilot judges often made the mistake of finding a patent invalid when it should have found it valid as 23% of its mistakes concern this issue. Moreover, non-pilot judges were also more likely to misjudge whether or not to issue a preliminary injunction as 13% of their mistakes concern injunctions compared to just 9% of the mistakes before pilot judges.

**Figure 14**



**Figure 15**



**2. Key Independent Variable: Judicial Experience and Inclusion in Pilot Program**

The key independent variable in the case is judicial experience. Other studies coded for judicial experience. Shartzer, for instance, looked at previous appellate experience, while Schwartz looked specifically at patent trial experience. Kesan and Ball analyzed “experience” in one of four ways: general experience measured as the number of years the judge served on the bench as well as specialized experience measured by experience in patent law cases.<sup>166</sup> They also looked at both cumulative experience, measured by the

<sup>166</sup> *Id.* at 424.



total number of patent cases the judge presided over in their career, as well as recent patent law experience ascertained by looking at the number of patent cases the judge heard in the three year period prior to the filing of the specific case at issue.<sup>167</sup>

Since I wish to test the impact of the pilot program, my measure of judicial experience is more direct. In the first instance, I want to test whether the judges participating in the pilot program act differently than judges not participating in the program. As such, one version of the “experience” variable is a dummy variable coded “1” for whether the judge in question is part of the pilot program. Here, we are testing whether judges that are part of the pilot program have higher rates of either total or partial reversals at the CAFC, so we would assume that judges that are part of the pilot program to have the requisite experience in patent cases compared to the reference category composed of judges that are not a part of the pilot program. As an alternative experience variable, I use whether the trial judge in question is part of a district participating in the pilot program. While that particular judge may not be a part of the project, it may be the case that judges sitting in districts participating in the project have, *de facto*, access greater resources or knowledge being in close physical proximity to judges deciding patent cases.

I also constructed another “experience” variables that may in fact be a better reflection of experience. The pilot program excludes some of the judges who hear the greatest number of patent cases because of the laws requirement that any participating district have at least ten judgeships with an exception made for the Eastern District of Texas. Notably, this rule means that the pilot program excludes the District of Delaware, one of the district courts that was the most popular for litigants prior to the advent of the pilot program. One judge in Delaware, Sue Robinson, had more cases heard on appeal than any other judge in the database. Furthermore, looking at the breakdown of judges, it became readily apparent that certain judges seemed to develop regional expertise. There were specific judges who had multiple cases appealed within the limited time frame under study. Oftentimes, they were the only judges from their particular district in the entire dataset. In particular, certain judges in Massachusetts, Nebraska, Wisconsin, the District of Columbia and the Eastern District of Virginia seem to have developed experience in patent law cases, as least as measured by the number of appeals in the short time frame under study. As such, I created two alternative measures of “experience.” In the first measure, I added the judges from the District of Delaware to the list of pilot program judges. Since over 20% of the cases in the database hail from Delaware, this increased the size of our

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<sup>167</sup> *Id.*

dummy variable. Alternatively, I also created a variable where I coded as “1” any judge in the dataset who had above them median number of patent filings (60) in the prior five-year period.

These measures of experience of course may undercount experience as well. A particular judge may have a lot of experience in patent litigation, but for whatever reason, many of the cases from his or her courtroom end up settling. The nature of the judge’s experience is also somewhat unaccounted for. A judge could have experience in infringement analysis but not in validity determinations or in holding *Markman* hearings. The Federal Judicial Center contends, for instance, that while *Markman* hearings are only held in 4% of all patent cases, over 60% of all total *Markman* hearings occur before pilot judges.<sup>168</sup>

In addition to the pilot judge variable, I included an additional measure of patent experience, measured by the number of patent cases filed before that judge in the last five years. As alternative measures of “trial experience,” I also used 1) claim construction experience in the past five years; 2) patent trial experience in the past five years; and 3) the number of patent cases filed before that particular judge in the year prior to the date of the decision in question. Because all of these variables present similar patterns, for ease of analysis, I use only the first measure in the regressions presented here. I alternatively also measured the number of years the judge served on the bench in general since their initial presidential appointment. In addition, I made a variable on whether or not the judge previously sat by designation at the Federal Circuit under the reasoning that judges who previously sat by designation are less likely to be reversed on appeal. In all, 28% of the judges in the dataset and 18% of the judges who have cases later heard on appeal previously served as visitors on the Federal Circuit.

### 3. Other Independent Variables

I collected information about the patent, including the patent number, whether there were multiple patents and if so how many, how many claims each patent had and how many claims were asserted. I also noted both the USPTO’s international patent class as well as the technological category of the relevant field. Scholars have found that the CAFC is less likely to affirm claim constructions on software.<sup>169</sup> For ease of analysis in the analysis I present here, I characterized cases according to one of the six categories: 1) chemical; 2) computer and communications; 3) drug and medical; 4) electronics and electrical; 5) mechanical; and 6) other (including design

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<sup>168</sup> *Federal Judicial Center*, *supra* note, at 23.

<sup>169</sup> John R. Allison, Mark A. Lemley & Joshua Walker, *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. Pa. L. Rev. 1, 6-7 (2009).

patents).<sup>170</sup> As an alternative measure, similar to Kesan and Ball, I used the National Bureau of Economic Research (“NBER”) categories to represent the category in issue.<sup>171</sup>

In addition to technology category, it is also important to assess complexity. It may be the case that judges in certain districts hear cases having more complex technology than in other districts, and as such, failure to control for complexity could obscure the results as reversals may simply be more common in complex cases.<sup>172</sup> Akin to Kesan and Ball, I note the presence of a dissenting opinion, opining that the presence of a dissent is a proxy for the complexity of the technology in issue, and for the purported “difficulty” of the case.<sup>173</sup> In alternative specifications for additional robustness checks, I relied on alternative measures of “complexity” including the number of claims in the given case. To better capture complexity, for each patent, I noted how many citations each patent had to both other patents and other non-patent literature, as well as the number of citations other patents made to that specific patent, on the theory that patents of greater economic consequence tend to get cited more and that more complex patents would have more citations. This alternative measure did not impact my results.

I collected a variety of other data for each case relating to the litigants and the judges hearing the case at the district court and appellate level. I accounted for the procedural posture of the case. Lemley and Miller found higher reversal rates after summary judgment, jury trials and JMOL motions compared to the reference category of bench trials.<sup>174</sup> I analyzed information about the parties in the case, including whether the plaintiff filed multiple patent suits against other parties signifying that they were a “high frequency” plaintiff.<sup>175</sup> Overall, patent trolls or NPEs are more likely to be affirmed as

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<sup>170</sup> See Schwartz, *Practice*, *supra* note 90, at 241-44 (discussing how case characteristics may not be randomly distributed across districts).

<sup>171</sup> Kesan & Ball, *supra* note 3, at 426 & Table; *see also* Bronwyn Hall et al., *The NBER Patent Citations Data File: Lessons, Insights, and Methodological Tools* (Nat’l Bureau of Econ. Research, Working Paper No. 8498, 2011) (discussing technology categories as a method for classifying patents).

<sup>172</sup> Kesan & Ball, *supra* note 3, at 419.

<sup>173</sup> *Id.* at 432.

<sup>174</sup> Lemley & Miller, *supra* note 6, at 466 (noting however that these procedural results were significant at 90% confidence).

<sup>175</sup> I assessed this two ways. First, for each patent, I looked to see whether the plaintiff filed other suits on the same patent against multiple defendants. If they filed more than 5 such suits, I categorized the patentee as “high volume.” In addition, for each case, I looked to see whether Lex Machina characterized a patentee as “high volume.” I employed both ways because the given case may be the first in a long line of cases that the patentee will file. Using the Lex Machina measure allows one to capture patentees who have a practice of routinely filing lawsuits.

they may be less risk adverse and appeal more often.<sup>176</sup> I also collected information about both the federal court judges and the Federal Circuit panel, including the ideology of the judges represented by the party of the appointing president, whether they had a scientific background using the Almanac of the Federal Judiciary as well as some information about their general judge and patent experience. While some scholars have found that ideology plays little to no role in decision making,<sup>177</sup> some have concluded that ideology is especially pertinent in influencing decision making for specialized judges on the theory that concerns about patent rights mirror concerns about monopolies in general, with Democrats being more likely to want to invalidate patents with Republicans wanting to preserve the property right.<sup>178</sup> I looked at how many years the judge served up to the time of the decision and I also calculated how many patent cases the judge had overseen from 2011 through 2016. In addition, I reviewed how much trial and claim construction experience a judge had and I reviewed how many patent cases were filed before that particular judge in the year prior to the decision. For instance, if the case year was 2013, I looked to see how many patent cases were filed before that particular judge in 2012.

There may also be unobservable, non-random differences among district courts or between courts in the pilot program and those outside it. To control for differences among districts, I used dummy variables per district.<sup>179</sup> Some district courts hear more cases than others.<sup>180</sup> Kesan and Ball found the share of all civil cases that are patent-related ranged from 6.7% in the District of Delaware to close to zero like in the Southern District of Mississippi.<sup>181</sup> In addition, there could be other differences between districts in terms of how cases are managed or how workload is allocated.<sup>182</sup> I ended up dropping most of the district level dummy variables because that variable often perfectly predicts the outcome of the case, resulting in that particular observation being dropped from the data set. This is so because so many district judges heard

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<sup>176</sup> Shawn P. Miller, “Fuzzy” Software Patents Boundaries and High Claim Construction Reversal Rates, 17 STAN. TECH. L. REV. 809, 830 (2014); Mark A. Lemley & A. Douglas Malamud, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2163-65 (2013) (arguing that NPEs may express less anxiety about reputation and appeal anyway).

<sup>177</sup> See, e.g., Moore, *supra* note 9 (finding no difference between Democratic and Republican judges in claim construction).

<sup>178</sup> See Miller & Curry, *supra* note 102, at 850.

<sup>179</sup> In alternative specifications, I tried to assess court congestion using the weighted average of all case filings per judge, per Kesan & Ball. See Kesan & Bell, *supra* note 3, at 424.

<sup>180</sup> *Id.* at 424.

<sup>181</sup> *Id.* Likewise, they found that the number of patent cases per judge ranged from 17.61 in the District of Delaware to .04 in the District of New Mexico.

<sup>182</sup> *Id.* at 425.

only one or two cases during the period under study, making it impossible to properly include district level dummy variables in the analysis. I also controlled for the lower court decision since it may be more common to simply affirm the lower court.

In alternative specifications reported in the online appendix, I used the variable “summary motion” to control for the degree of fact-finding by the lower court. When the lower court rules on a motion for summary judgment or a motion to dismiss on the pleadings, they purportedly are only supposed to grant the motion if there are indeed no genuine disputes about any material facts, leading the decision maker to make one and only one conclusion about the case as a matter of law. Banks and Curry found that the presence of a summary motion increased the likelihood that a CAFC judge would overturn the district court and invalidate the patent by 25%.<sup>183</sup> In addition, although the period of study is fairly short, there could be a time varying impact as well, as changes in the economy or national political events could impact decision making.<sup>184</sup> I used two alternative measures to get at time: both year dummy variables for each year from 2011 to 2016 as well as a time trend.

In alternative specifications, I accounted for judge-level fixed effects with the standard errors clustered by judge. There may be unobserved characteristics of any given judge that impact the analysis that are left unmeasured by other variables. We might thus expect that cases presided over by that particular judges to be correlated. However, because most judges in the dataset had only one case heard on appeal, clustering the errors in this fashion has no measurable impact on the results. I did not include a specification involving case-level fixed effects because I did not include cases that were heard on appeal multiple times.

### **C. The Statistical Models**

#### **1. Overview**

In terms of the statistical model, I tried two approaches: logit regression analysis and regression analysis after conducting propensity score matching. Because assortment into the pilot and non-pilot districts is not random, the results of any statistical analysis could be biased if one does not properly account for the factors that influence the probability of being in or out of the “treatment” group. While in regression analysis, one can try to “control” for factors that may influence the propensity to be in one group or another, there could still be lingering bias in the results. As such, to further buttress the robustness of my analysis, in addition to doing it by regression, I

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<sup>183</sup> *Id.* at 857.

<sup>184</sup> Kesan & Ball, *supra* note 3, at 425.

also used propensity score matching as an alternative measure. In propensity score matching, we try to predict the probability of being in the treatment category, which would here be having your case heard before the pilot judge. In the first stage regression we estimate the probability of receiving the treatment, that is, what factors influence one's propensity to be in the "treatment" group before a pilot judge? After estimating that probability based on a propensity score, we can then match treatment and control cases based on their propensity score, on the reasoning that cases in both the treatment and control group with similar propensity scores may be alike on all characteristics except for the "treatment" (i.e, part of the pilot).

An example illustrates the point. Suppose there are two cases involving invalidity on a chemical patent, with the only difference being that one was heard before a pilot judge and one heard before a non-pilot judge. Those cases would then be "matched" and we would conduct the regression on the matched sample on only the cases that had a match. Doing the analysis in this way helps us overcome some of the causality issues that occur when, as here, the treatment (being in the pilot program) is not a random occurrence.<sup>185</sup>

## 2. Results

Moving to test the hypotheses, I first employ a logit model to estimate the impact that inclusion in the pilot program has in whether or not the decision of the judge in question is overturned in full or in part on appeal. Logit models estimate the impact of a given variable on the probability that a given event will occur. If the coefficient on the variable is positive, then there is an increased probability of the event occurring whereas if the event is negative, then the probability of a reversal in whole or in part decreases. Table 3 gives the results when the impact is measured across legal issues where there is a complete reversal. The variable of interest — specialized judge — is measured in a few different ways as discussed above. It does not reach significance for any construction of the dependent variable, though in the last specification, the experience variable measured as judges with more than the median number of filings can be significant at 90% confidence depending on the specification. Variables directed at the number of patent cases filed before that particular judge (or alternatively, in other

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<sup>185</sup> Alternatively, to get around some of the causality issues, one can try an instrumental variable approach. However, it is difficult to find an instrument here that would explain the treatment (being in the pilot program) that would not otherwise influence the result (being overruled).

specifications, number of claim construction hearings, number of trials, number of patent filings the year before as well as general tenure of being a judge) also do not affect the outcome here, at least according to traditional levels of statistical significance.

Interestingly, the results indicate that district court judges who previously served as designated judges on the Federal Circuit were less likely to have their cases reversed on appeal to a statistically significant degree at near 99% confidence. Holding all other variables at their mean, judges who previously sat by designation were 12% less likely to be reversed in full on appeal, a stunning result that provides confirmation that the Lemley and Miller's findings in this regard extend beyond claim construction decisions.<sup>186</sup> However, when the analysis is limited to opinions (eliminating Rule 36 cases), designation only remains significant at 90% confidence, though the predicted probability increases to 15%.

Other variables also reach significance. A lower court decision in favor of the patentee is 18% more likely to be overturned in appeal while high volume plaintiffs are 9% more likely to be reversed in full, holding other variables at their means. In addition, holding all other variables at the mean, we see a noticeable and expected increase in the rate by which claim construction opinions are reversed in full on appeal. Compared to claim construction cases, infringement and invalidity cases are less likely to be reversed in full, an unsurprising result. With respect to technology category, inventions concerning mechanical patents were less likely to be reversed on appeal compared to the reference category of chemical patents. The CAFC is also slightly more likely to overturn in full complex cases, as measured by the presence of a dissent. Although significant to only 90% confidence, the presence of a dissent increases the probability of a reversal by near 15% holding other variables at their means. In addition, the CAFC is more likely to reverse preliminary injunction cases compared to the reference category of bench trials as preliminary injunctions are 47% more likely to be reversed holding other variables at their means. The CAFC is also somewhat more likely to reverse cases coming from the most highly prolific district courts in patent litigation.

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<sup>186</sup> Lemley & Miller, *supra* note 7, at 453.

**Table 3: Logit Estimation of Likelihood of CAFC Overruling Decision in Full**

	(1)	(2)	(3)	(4)
	Pilot Judge	Pilot District	Pilot Judge +DE	More than 60 Patent Filings
Specialized	0.0896 (0.726)	0.144 (0.761)	0.0896 (0.726)	-0.913 (0.584)
Patent Exp.	-0.000262 (0.000182)	-0.000261 (0.000177)	-0.000262 (0.000182)	-0.0000680 (0.000216)
Lower Court Pro Pat	1.737* (0.740)	1.769* (0.753)	1.737* (0.740)	1.702* (0.718)
Complexity	1.499 (0.877)	1.523 (0.914)	1.499 (0.877)	1.669 (0.887)
High Volume P	1.305* (0.512)	1.307* (0.512)	1.305* (0.512)	1.311* (0.524)
Designated Judge	-2.168* (0.864)	-2.160* (0.867)	-2.168* (0.864)	-2.020* (0.860)
Infringement	-3.102*** (0.896)	-3.091*** (0.898)	-3.102*** (0.896)	-3.106*** (0.868)
Validity	-1.912* (0.817)	-1.919* (0.814)	-1.912* (0.817)	-2.003* (0.842)
Other (Inequitable)	-0.640 (2.819)	-0.636 (2.785)	-0.640 (2.819)	-0.714 (3.123)
Infringement & Validity	-3.295** (1.248)	-3.278** (1.234)	-3.295** (1.248)	-3.476** (1.258)
Computers/Comm.	0.806 (0.708)	0.813 (0.712)	0.806 (0.708)	0.540 (0.685)
Drugs/Medical	1.078 (1.042)	1.082 (1.033)	1.078 (1.042)	0.875 (1.010)
Electronics/Electrical	1.439 (0.957)	1.447 (0.952)	1.439 (0.957)	1.016 (0.988)
Mechanical	1.892** (0.698)	1.907** (0.699)	1.892** (0.698)	1.756** (0.679)
Other Technology	-0.219 (1.554)	-0.204 (1.578)	-0.219 (1.554)	-0.513 (1.525)
Sum. Jud/Consent	0.982 (0.754)	0.986 (0.745)	0.982 (0.754)	0.476 (0.722)
Dismissal	0.860 (1.135)	0.885 (1.144)	0.860 (1.135)	0.434 (1.071)
JMOL	1.657 (1.010)	1.664 (0.980)	1.657 (1.010)	1.208 (0.978)
Preliminary Injunction	4.324*** (0.941)	4.328*** (0.941)	4.324*** (0.941)	4.042*** (0.880)
Delaware	1.926** (0.630)	1.987** (0.700)	1.837* (0.798)	2.215*** (0.660)



	(1)	(2)	(3)	(4)
	Pilot Judge	Pilot District	Pilot Judge +DE	More than 60 Patent Filings
NDCA	0.131 (0.978)	0.102 (0.967)	0.131 (0.978)	0.751 (0.956)
ED Texas	2.684** (0.955)	2.681** (0.937)	2.684** (0.955)	2.611** (0.897)
SDNY	2.579* (1.290)	2.519 (1.356)	2.579* (1.290)	2.448 (1.332)
Ideology/Panel Composition Controls	Included	Included	Included	Included
Other Patent Controls	Included	Included	Included	Included
Year Fixed Effects	Included	Included	Included	Included
cons	-3.744*** (1.084)	-3.826** (1.177)	-3.744*** (1.084)	-2.799** (0.995)
N	276	276	276	276

Standard errors clustered by judge in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4 looks at the results broken down by partial reversals. There, we see similar results, with neither the pilot variables or the patent experience variables reaching significance. With respect to the other variables, we again see that claim construction opinions are more likely to be overturned on appeal at least in part. Moreover, serving previously as a designated judge on the CAFC results in a 16% lessened chance of being reversed in part on appeal, holding other variables at their means. However, when the analysis is restricted to non-Rule 36 cases, this variable no longer remains significant.

The results on partial reversals display some differences from total reversals. Most importantly, complexity appears to influence results more in partial reversal cases. Holding other variables at their means, the presence of a dissent results in a 38% increased likelihood of the CAFC partially reversing the case. Complexity (as proxied by a dissent) was not significant to such an extent for full reversals. No technology category is significant in the regression analyzing partial reversals. Moreover, the district court dummy variables are not significant at conventional levels. Nonetheless, as shown in our statistical results, it does not appear that there is much difference in appellate court treatment based on the specialization of the judge. This specification is robust to alternative codings of some of the variables as indicated and to different ways of clustering the standard errors.

**Table 4: Logit Estimation of Likelihood of CAFC Overruling Decision in Part**

	(1)	(2)	(3)	(4)
	Pilot Judge	Pilot District	Pilot Judge +DE	More than 60 Patent Filings
Specialized	-0.427 (0.528)	-0.0550 (0.533)	-0.427 (0.528)	-0.845 (0.470)
Patent Experience	-0.000199 (0.000182)	-0.000225 (0.000185)	-0.000199 (0.000182)	-0.0000618 (0.000209)
Lower Court Pro Pat	1.044 (0.724)	1.021 (0.736)	1.044 (0.724)	1.142 (0.698)
Complexity(Dissent)	2.357** (0.766)	2.272** (0.715)	2.357** (0.766)	2.380*** (0.708)
High Volume P	0.763 (0.461)	0.748 (0.464)	0.763 (0.461)	0.705 (0.479)
Designated Judge	-1.708* (0.817)	-1.672* (0.804)	-1.708* (0.817)	-1.538* (0.762)
Infringement	-2.153*** (0.624)	-2.146*** (0.627)	-2.153*** (0.624)	-2.207*** (0.622)
Validity	-1.490** (0.573)	-1.467* (0.575)	-1.490** (0.573)	-1.540** (0.587)
Other (Inequitable)	-0.0519 (1.617)	0.0216 (1.640)	-0.0519 (1.617)	0.0438 (1.709)
Infringement & Validity	-1.549 (0.832)	-1.525 (0.832)	-1.549 (0.832)	-1.654* (0.802)
Computers/Comm.	1.012 (0.700)	1.038 (0.705)	1.012 (0.700)	0.880 (0.670)
Drugs/Medical	0.0389 (0.946)	0.0817 (0.952)	0.0389 (0.946)	-0.0644 (0.927)
Electronics/Electrical	1.352 (0.823)	1.428 (0.821)	1.352 (0.823)	1.186 (0.794)
Mechanical	1.046 (0.621)	1.041 (0.609)	1.046 (0.621)	0.954 (0.607)
Other Technology	0.249 (0.866)	0.290 (0.868)	0.249 (0.866)	0.143 (0.834)
Sum. Jud./Consent	-0.323 (0.747)	-0.280 (0.735)	-0.323 (0.747)	-0.515 (0.759)
Dismissal	-1.035 (0.866)	-1.016 (0.866)	-1.035 (0.866)	-1.226 (0.900)
JMOL	0.357 (0.917)	0.433 (0.919)	0.357 (0.917)	0.0586 (0.946)
Preliminary Injunction	2.093* (0.872)	2.103* (0.858)	2.093* (0.872)	1.950* (0.845)
Delaware	0.497 (0.492)	0.590 (0.547)	0.924 (0.604)	0.895 (0.537)

	(1)	(2)	(3)	(4)
	Pilot Judge	Pilot District	Pilot Judge +DE	More than 60 Patent Filings
NDCA	0.288 (0.798)	0.191 (0.839)	0.288 (0.798)	0.622 (0.849)
ED Texas	1.284 (0.751)	1.029 (0.721)	1.284 (0.751)	0.944 (0.693)
SDNY	1.194 (1.043)	1.183 (1.041)	1.194 (1.043)	0.960 (1.038)
Ideology/Panel Composition Controls	Included	Included	Included	Included
Other Patent Controls	Included	Included	Included	Included
Year Fixed Effects	Included	Included	Included	Included
cons	-1.139 (1.048)	-1.276 (1.116)	-1.139 (1.048)	-0.680 (1.032)
N	276	276	276	276

Standard errors clustered by judge in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

I then turn to looking at the results using the propensity score method which is detailed in the online appendix.<sup>187</sup> To do this analysis, I first estimate the propensity to be included in the pilot group, using many of the same independent variables discussed earlier to predict whether or not a case would be considered part of the “treatment.” Based on the qualitative analysis discussed earlier, several factors suggest a greater proclivity to be included in a pilot district. If a case concerned a high-filing plaintiff it would be more likely be in the pilot group. Cases concerning multiple patents or patents concerning computers and communications would be more likely be in a pilot district. Case disposition could also affect the chance of being in a pilot group as dismissals would be less common and trials more common in the pilot group. I thus regressed these factors on the dependent variable (probability of being in a pilot group). This gave me a matched sample of observations for me to conduct the same regression analysis as above. Because the sample of matched cases is so small convergence of the model was difficult, but overall once I parsed down the model by eliminating some of the district dummy variables, the results were the same, with none of the specialization or experience variables reaching conventional levels of significance.

### 3. Limitations from Statistical Studies

As with any statistical analysis there are limitations to what we can

<sup>187</sup> The online Appendix is available at [https://scholar.princeton.edu/sites/default/files/amysemet/files/semet\\_patent\\_online\\_appendix.docx](https://scholar.princeton.edu/sites/default/files/amysemet/files/semet_patent_online_appendix.docx).

say the data implies. Any study of judicial decision making is necessarily influenced by other factors that may not be controlled for in our analysis. It is hard to tell whether the measure of specialization is the right one. It could be that the most experienced judges are not showing up as “experienced” in my database because they are so versed in patent law that they have a special knack for encouraging settlements. In turn, there may also be a better way of analyzing case complexity, which likely would be the key confounding variable in this analysis in addition to the selection effect issue. Moreover, we need to examine more about the interaction between specialization and issue type. While I tried some specification accounting for a judge’s “scientific” background, the analysis is necessarily crude, as a judge’s undergraduate or graduate training in a science discipline may not be a reflection of scientific knowledge, and those with significant scientific expertise could be “hidden from view.”<sup>188</sup> Technical expertise could also vary by case; a judge could have a chemistry background but if the invention concerns computers, his or her background is of little relevance.<sup>189</sup> The analysis does not account for the fact that a judge’s law clerk may have scientific skills which could influence how the judge decides a given case.<sup>190</sup>

The findings are sensitive to other variations in coding. How does one tell, for instance, unless it is made explicit, that the trial court’s invalidity ruling rests on a claim construction analysis if the Federal Circuit simply summarily affirms the decision? This problem is especially acute when the CAFC decides a case by Rule 36 motion. I looked at the lower court’s decision as well as the briefs to resolve this dilemma when it came up, but it sometimes can be impossible to see on what basis the Federal Circuit affirms when it does not issue an opinion, especially when the CAFC issues its opinion under Rule 36.

Moreover, the results are dependent on the issue actually been appealed, and in some cases, the CAFC may not resolve one issue if it is moot. For instance, the trial court may find that a patent is both invalid and not infringed. The CAFC’s decision, however, may discuss only infringement since if that issue is resolved to the competitor’s favor it need not rule on the merits of any affirmative defense like invalidity or inequitable conduct. It could very well be that the CAFC equally disagrees with the invalidity decision as well, but because the issue is moot, the issue is not flagged in the dataset.

In addition, how to adequately measure the dependent variable is a pressing issue. By centering the dependent variable around the CAFC decision, I implicitly am making the assumption that the CAFC decision is

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<sup>188</sup> Lemley et al., *supra* note 7, at 1154.

<sup>189</sup> *Id.*

<sup>190</sup> Shartzter, *supra* note 13, at 231.

the “correct” one. Whether this assumption holds up empirically is up for debate, as it may be the case that appellate courts may not necessarily make more “correct” decisions than the lower court. Further analysis could look at alternative dependent variables such as time to disposition so as to measure whether pilot judges may be more efficient in their decision making. Moreover, whether the pilot program helped alleviate forum shopping would also be of interest to analyze.

Of most concern, selection effects may also be at work, presenting the most concerning methodological difficulty in analyzing the workings of the pilot program. Patent case filings across various district courts are not a random sample, and as an element of trial strategy, a litigant may file in one district over another.<sup>191</sup> Parties may engage in judge-shopping. Some districts like the Eastern District of Texas facilitate this practice with parties having the unique opportunity to essentially choose their judge by deciding which district to file in, a fact that could impact the results to some extent.<sup>192</sup> Indeed the Eastern District has continued this practice even though officially the rules of the pilot program provide for random assignment.<sup>193</sup> In any event, the nature of the pilot program assignment process makes it so that litigants know with at least a one-third chance who their judge will be.<sup>194</sup>

Appealed cases are also not representative and are more likely to be close cases.<sup>195</sup> The type of litigant may correlate with the propensity to appeal.<sup>196</sup> For example, generic drug manufacturers may be more likely to appeal — as opposed to settle — decisions that litigants who are competitors with each other.<sup>197</sup> Patent trolls may be more likely to appeal. Further, in deciding whether to appeal, litigants may consider the reputation and expertise of the trial court judge so the choice to appeal is endogenous to some extent.<sup>198</sup> Sorting out the direction of causation can be difficult.

Inconsistent joinder of parties could bias the results. The Eastern District of Texas has historically loosely interpreted joinder rules, allowing parties to sue multiple defendants in the same suit.<sup>199</sup> Meanwhile, in other districts, the same type of suit would be considered multiple lawsuits instead of one joint one. In recent years, Congress sought to address this issue through the American Invents Act and the Federal Circuit too has tried to deal with the issue to little avail as the Eastern District simply altered the way it

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<sup>191</sup> *See id.* at 228.

<sup>192</sup> Klerman & Reilly, *supra* note 57, at 114.

<sup>193</sup> *Id.* at 115.

<sup>194</sup> *Id.*

<sup>195</sup> Moore, *District Courts*, *supra* note 9, at 9.

<sup>196</sup> *Id.* at 242.

<sup>197</sup> *See* Schwartz, *supra* note 90, at 243.

<sup>198</sup> *Id.* at 243.

<sup>199</sup> Klerman & Reilly, *supra* note 57, at 117.

consolidated cases.<sup>200</sup> In addition, the Eastern District also has a habit of allowing multiple defendants to be tried in the same trial.<sup>201</sup> These practices wreck havoc on any statistical model trying to predict behavior because you are comparing apples to oranges with the Eastern District's disparate practices. Fortunately, the results are the same whether or not the Eastern District is included in the analysis, but nonetheless, other, less obvious practices between courts could impact the results.

Moreover, the procedural posture of the case could influence the propensity for the parties to settle. Defendants who sue patentees in declaratory judgment actions may be more willing to settle, as would parties who have license agreements who do not want to risk having their patents invalidated.<sup>202</sup> One cannot also underestimate the extent to which public opinion and the status of the litigants in the wider society could influence results as well. Some patents are more societally useful than others and public opinion about a case could conceivably affect how courts rule. A case involving the Apple iPhone could implicate societal and public opinion concerns not present for other run of the mill patent cases.

Some of these concerns of course may be overblown. Patent law may be unique from other litigation in terms of the stakes involved so the selection effects in terms of appeal rate may not be as worrisome. The patent for the iPhone forms the cornerstone of Apple's plan. Likewise, a pharmaceutical company will not hold back in protecting the patents of its most profitable products. As such, while the American Intellectual Property Association estimates that patent litigation can cost up to \$5 million through the close of discovery, that figure is a pittance when the company makes \$5 million in profit every week over the indicated product. Thus, these factors encourage parties to appeal no matter the circumstance or the identity of the judge or panel hearing the case.<sup>203</sup> Moreover, the *de novo* nature of appellate review increases the propensity to appeal.<sup>204</sup> While statistical analysis can try to deal with some of these concerns, recognition of the limits of statistical analysis to conclusively explain decision making is important in discerning how well the pilot program is working.

## V. DISCUSSION AND PROPOSALS FOR REFORM

As companies increasingly rely on intellectual property assets as a source of revenue and strategic advantage it is increasingly clear that we need

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<sup>200</sup> *Id.* at 117-18.

<sup>201</sup> *Id.* at 118.

<sup>202</sup> Shartzer, *supra* note 13, at 230.

<sup>203</sup> *See id.*

<sup>204</sup> Schwartz, *supra* note 41, at 243.

to do more to resolve the levels of unpredictability and inaccuracy in the current system.<sup>205</sup> With patent litigation in a rapid ascent<sup>206</sup> and costs of litigation sky high,<sup>207</sup> the patent law pilot represents a solid attempt at achieving greater predictability and uniformity but so far, at least this study indicates that it may not be as successful as its proponents hoped for in reducing errors on appeal.

Despite the clear benefits brought about by specialization, the results five years out indicate that — at least as measured by reversal rates — specialized trial court tribunals may not differ much from generalist ones. This should not close the door for the patent pilot project and indeed, some of the results are promising, suggesting ways in which the program could be adjusted to achieve its goals more expeditiously. In recent years, some districts like the Southern District of Florida have exited from participating, finding that it does not foster the benefits it thought would happen. Moreover, a report by the Federal Judicial Center confirms the findings of this analysis concerning the lack of influence of the pilot program.<sup>208</sup> But there are ways to reform the program as well as reform the system in general so as to achieve the pilot program's goals. I discuss the following potential reforms: 1) altering the system to focus on judges rather than district courts; 2) reforming patent law internally by focusing on rules and internal practices; and 3) readjusting the system to give the PTO more responsibility to rule on patent cases.

#### A. Reform of Patent Pilot Project

A specialized patent judiciary may work but it may be either that the wrong judges are included in the current program or that more time is needed for the current judges to gain the needed experience for the pilot program to bear fruit. Some district courts, such as the Eastern District of Virginia or the District of Delaware, have developed national reputations in patent law so their exclusion from the pilot program is puzzling. Moreover, some district courts developed regional expertise. Judge T.S. Ellis in the Eastern District

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<sup>205</sup> Indeed, some companies like IBM extensively rely on patent rights for revenue. See Shartzter, *supra* note, at 209. As of 2009, IBM generated over \$1 billion in revenue from patents alone. See *id.* As another example, in 2010, an Apple-led group bought several Nortel patents for \$4.5 billion. See Phillip Elmer-DeWitt, *Consortium Led by Apple Buys Nortel's Patents for \$4.5 Billion*, CNN MONEY (Jul. 1, 2011).

<sup>206</sup> Between 2000 and 2007, patent litigation increased nearly 20%. See Shartzter, *supra* note, at 210.

<sup>207</sup> A patent worth more than \$25 million can cost millions to litigate, with costs rising over 67% between 2001 and 2007, a figure that far outpaces the rate of inflation. See *id.* at 211.

<sup>208</sup> *Federal Judicial Center, supra* note 61.

of Virginia or Judge Nathaniel Groton in the District of Massachusetts hear many patent cases, developing a sort of regional expertise. The pilot program may simply be allocating resources to the wrong judges, relying on district court numbers of patent litigation rather than looking at what judges actually developed some expertise in patent law. Indeed, the program currently excludes about 85% of district court judges from participating, including all courts from the Fourth and Tenth Circuit,<sup>209</sup> and the District of Delaware, which is precluded from participating because it lacks having the minimum ten judgeships.<sup>210</sup>

More fine-grained understanding of legal issues may help us see where specialized courts help and where they do not. Looking at one *de facto* specialized court — the District of Delaware — one sees that it has lower reversal rates than other districts. But it took Delaware many years for its judges to gain expertise. In order for the patent pilot project to work we need to give it more time for judges to fully understand the intricacies of patent law. As Shartzter found, and my results confirmed, on an individual basis, the CAFC hears only a few cases a year even for judges participating in the pilot program, thereby reducing the opportunity for judges to get appropriate feedback from the CAFC.<sup>211</sup>

It is also not clear what barometer to use to measure “success.” It may be the case that patent pilot judges are more efficient or that studies over a longer period of time with a larger data set could show more differences across issue types. One problem may be that the pilot program improperly equates experience with expertise whereas these concepts are analytically distinct.<sup>212</sup> The pilot program may be helping judges gain more experience but what we really need is greater expertise in the scientific fields at issue, a finding that very few trial courts have. Indeed, only about 5% of all patent cases overall from 2012 to 2015 had a special masters or technical assistant appointed, with 83% of those appointments occurring before pilot judges, with most of such appointments occurring in the Eastern District of Texas.<sup>213</sup> While there is always a chance reliance on a technical expert or law clerk may make the judge rely on that expert to the detriment of the case,<sup>214</sup> since

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<sup>209</sup> Olson, *supra* note 95, at 758. Moreover, because of the three circuit requirement, some district are left out; in California, for instance, the Southern, Northern and Central District of California are included.

<sup>210</sup> *Id.* at 761.

<sup>211</sup> See Shartzter, *supra* note 13, at 233.

<sup>212</sup> Miller & Curry, *supra* note 102, at 858.

<sup>213</sup> *Federal Judicial Center, supra* note 61, at 26.

<sup>214</sup> Olson, *supra* note 95, at 762. Olson notes that technical patent experts could be considered like someone with a technical degree on a jury, as that person may end up influencing the jury verdict. See Robert W. Dickerson, Jones Day, REMARKS AT LOYOLA LAW SCHOOL SYMPOSIUM: SPECIAL IP FOCUS SERIES: SPECIALIZED PATENT COURTS (Apr.



most judges are not experts in the technical field of issue, perhaps adding more resources to aid in understanding technology could help the pilot better achieve its goals. Alternatively, segregating cases by the judge's scientific subject matter expertise is also an option.

Indeed, instead of trying to work within the confines of the current judicial machinery, perhaps the time is ripe to at least consider more radical alternatives like creating a national-level specialized trial court akin to the U.S. Tax Court,<sup>215</sup> a specialized tax tribunal housed in Washington D.C. whose judges “ride circuit” to hear cases regionally. Such an approach is not new in American law. In addition to the Tax Court, we have a Court of International Trade as well as the Court of Federal Claims<sup>216</sup> to provide specialized trial-level jurisprudence to great effect. Alternatively, a move to an adjudicatory system structured like the Bankruptcy courts might also be desirable.

This move would follow the lead of countries like England that have created a separate patent law trial court.<sup>217</sup> England has both a Patent Court and a Patent County Court — a new patent only trial court with concurrent jurisdiction that has had the result of reducing wait times and in enhancing efficiency.<sup>218</sup> Germany has a system whereby certain district courts are authorized to hear patent cases, with judges developing expertise in intellectual property matters.<sup>219</sup> These courts are known for their speed, often resolving cases in under a year.<sup>220</sup>

In particular, it may be desirable to give greater jurisdiction to the ITC to resolve patent cases.<sup>221</sup> At present, the ITC hears patent cases when a party files a complaint to start an investigation by the U.S. ITC based on unfair competition by infringing the patent.<sup>222</sup> Winning at the ITC results in the product being excluded from being imported to the US as well as an order to

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27, 2007).

<sup>215</sup> 26 U.S.C. § 7441. The Tax Court has concurrent jurisdiction with the district courts. *Id.* However, over 90% of tax disputes are resolved in the Tax Court. Pegram, *supra* note 220, at 94.

<sup>216</sup> The Court of Federal Claims has original jurisdiction over claims against the United States for monetary compensation. 28 U.S.C. §§1491-1509 (1988).

<sup>217</sup> See Thomas K. McBride, Jr., *Patent Practice in London- Local Internationalism: How Patent Law Magnifies the Relationship of the United Kingdom with Europe, the United States, and the Rest of the World*, 2 LOY. INT'L REV. 31 (2005).

<sup>218</sup> Olson, *supra* note 95, at 750.

<sup>219</sup> *Id.* at 750.

<sup>220</sup> *Id.*

<sup>221</sup> See Pegram, *supra* note 69, at 782-86; see also John B. Pegram, *Should the U.S. Court of International Trade Be Given Patent Jurisdiction Concurrent with that of the District Courts?*, 32 HOUS. L. REV. 67 (1995). The ITC is an Article III court. 28 U.S.C. § 251(a).

<sup>222</sup> 19 U.S.C.C. §1337(a)(1)(B).

cease and desist the infringing activity.<sup>223</sup> The ITC is a desirable choice because it lacks a criminal and tort docket, and is designated as an Article III court, an attribute that is important to consider since there is a right to a jury trial.<sup>224</sup>

Further analysis would also be needed to assess whether the program had the intended effect of reducing forum shopping. The Federal Judicial Center found that five pilot districts (the Eastern District of Texas, the Central, Northern and Southern Districts of California and the Southern District of New York) all saw greater patent filings relative to civil case filings.<sup>225</sup> The results thus far are not promising that the pilot has reduced forum shopping. Some noticeable districts, such as the Eastern District of Virginia and the Western District of Wisconsin are popularly known as “rocket dockets” due to their speed and efficiency in resolving all case, not just patent ones.<sup>226</sup> Litigants may still have an incentive to file in these districts. Moreover, some districts, such as the Western District of Wisconsin and the Eastern District of Texas have a reputation for being pro patentee due to the series of local rules it has adopted.<sup>227</sup> In Texas, for instance, Judge Ward requires parties to turn over discovery at the onset, sanctioning them if they fail to comply.<sup>228</sup> Moreover, both parties are required to come up with a list of agreed upon claim terms, thus narrowing the number of terms in dispute. The pilot program could perhaps fix this by requiring districts subscribing to the program adhere to universal local patent rules. Yet, even should this occur, there may still remain an incentive for judges to forum shop in certain districts either for speed or reputation. Further, some pilot program districts have a greater percentage of their judges participating in the program. Thus, litigants know a priori that in some districts there is nearly a 80% chance of getting a pilot judge whereas in other districts like the Northern District of California, the odds are much less due to the lower percentage of pilot judges per total number of district judges.<sup>229</sup> Added to the fact that nothing in the law actually requires litigants to file or not file in any particular forum, it appear at least on first blush that the pilot program may not have mitigated forum shopping as much as intended.

In addition to requiring nationwide, uniform patent rules, recent developments in patent law jurisprudence may help alleviate forum shopping

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<sup>223</sup> 19 U.S.C. §1337(d). Monetary damages are not awarded. *Id.*

<sup>224</sup> Olson, *supra* note 95, at 782-83.

<sup>225</sup> *Federal Judicial Center*, *supra* note 61, at 37.

<sup>226</sup> Olson, *supra* note 95, at 768.

<sup>227</sup> *Id.*

<sup>228</sup> *Id.*

<sup>229</sup> Moreover, the Northern District of California often relies on magistrate judges to decide patent cases, and the pilot program requires that participants in the pilot be district judges. See *Federal Judicial Center*, *supra* note 61, at 9 n.14.

concerns. In 2017, in *T.C. Heartland LLC v. Kraft Foods Group Brand Inc.*, the Supreme Court tightened how the patent venue statute should be read, holding that a domestic corporation only “resides” in its state of incorporation.<sup>230</sup> Prior to the decision, a plaintiff could sue in any district where an infringing product was sold, making it easy for pretty much any plaintiff to be able to sue in the Eastern District of Texas. In interpreting the Supreme Court decision, in September 2017, the Federal Circuit further tightened the Eastern District’s interpretation of the venue provisions, requiring a much tighter physical nexus in order for a party to sue in that district.<sup>231</sup> The *T.C. Heartlands* decision and the subsequent Federal Circuit decision may do more to alter plaintiff filing behavior and have more of an impact on alleviating forum shopping — if interpreted so strictly — than any pilot program would have.

## B. Reform Patent Law Internally

If the results here hold up to additional specifications, the fundamental problem may lie in patent law in general. Patent law — and its emphasis on interpreting the patent’s claims — may be too indeterminate for proper resolution as there is little common understanding of claim terms through either definition or through legal standard.<sup>232</sup> Patent office rules may not have kept up with modern times as the PTO requires that claims be drafted within a single sentence, regardless of how many ideas are encompassed within a single claim.<sup>233</sup> Courts are required to interpret the claims as one of ordinary skill in the art would but because the judge is often a person that is not of ordinary skill in the art, claim construction amounts to an impossible task.

As such, if the system will continue to rely on generalist judges to decide patent litigation, more resources should be added as the trial court level to aid in interpretation. The federal judiciary could follow the lead of other countries such as Japan, and set up blue-ribbon panels composed of university researchers and experts from the private sector to advise on cases.<sup>234</sup> More than three-quarters of patent cases in Japan are heard by specialized intellectual property divisions of the trial court in Tokyo and Osaka.<sup>235</sup> Technical assistants, akin to PTO examiners, aid judges in deciding

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<sup>230</sup> 137 S.Ct. 1514, 1514 (2016).

<sup>231</sup> *In re Clay, Inc.* (Fed. Cir. Sept. 21, 2017).

<sup>232</sup> See Schwartz, *supra* note 90, at 260.

<sup>233</sup> U.S. Patent and Trademark Office, U.S. Dep’t of Commerce, Manual of Patent Examining Procedure, § 608.01(m).

<sup>234</sup> See Shartzer, *supra* note 13, at 205.

<sup>235</sup> Pegram, *supra* note 69, at 750.

cases.<sup>236</sup> For instance, the Japanese High IP Court, the appellate body, created an “Expert Commissioner System” by hiring over 140 university researchers and experts from the private sector to assist judges.<sup>237</sup>

The PTO could play its part in reforming the system, as they could encourage or require patentees to provide more real-world guidance on what the patent claims and what the actual invention consists of in plain English. Further, with the rise of technology, perhaps the time is ripe to start thinking of alternative ways to supplement the record to identify what the invention covers, how it differs from the prior art and what it actually does. Video of how an invention works in practice could be considered part of the record as a supplement to the plain meaning of words to aid in interpreting what the patent covers.

The problem may also lie in part on the Federal Circuit. The CAFC has “near-total authority” over how patent policy is implemented in this country, a result that is an anomaly to patent law.<sup>238</sup> As Jonathan Masur noted, the CAFC has been criticized for “promulgating overly formalistic doctrines that ignore pragmatic considerations, tolerating uncertainty and confusion on key points of law, enhancing the power of patent holders to the point of diminishing innovation, and failing to distinguish technological fields in which patentees are necessary from those in which they are not.”<sup>239</sup> Some have argued that the pilot program may not be a success because the CAFC’s jurisprudence lacks consistency.<sup>240</sup> R. Polk Wagner and Lee Petherbridge contend that CAFC claim construction is panel-dependent with their empirical analysis revealing that the CAFC has two different modes of claim construction.<sup>241</sup>

In addition, the heavy panel-dependent nature of claim construction jurisprudence may result in a lack of stability or clarity of jurisprudence for lower courts to apply. Part of the problem may lie in claim construction itself. The Federal Circuit may not be an effective transmitter of whatever precedent it does espouse. As Schwartz argued in his article finding little difference in claim construction reversal rates on the basis of experience, it may be the case that the CAFC does a poor job of translating precedent into workable principles for district courts to apply.<sup>242</sup> District judges also bemoan that they

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<sup>236</sup> *Id.*

<sup>237</sup> See Ruth Taplin, *Transforming Intellectual Property in Japan*, Knowledge Links Newsletter from Thomson Scientific, July 2007, at 5.

<sup>238</sup> Jonathan S. Masur, *Regulating Patents*, 2010 SUP. CT. REV. 275, 277 (2010).

<sup>239</sup> *Id.*

<sup>240</sup> See Moore, *supra* note 9, at 247 (arguing that the fault for high reversal rests with the CAFC who do not provide sufficient guidance on how to conduct claim construction).

<sup>241</sup> Wagner & Petherbridge, *supra* note 43, at 1110-11. These two methods were a procedural method and a holistic method. *Id.*

<sup>242</sup> See Schwartz, *Practice*, *supra* note 90, at 223.

get no “real guidance” from the Federal Circuit.<sup>243</sup> The Federal Circuit could do more to lessen the tenuous connection between formation of precedent and its application by adopting more supervision over the lower courts. As Rochelle Dreyfuss argues, the Federal Court could engage in “broader scope of review over fact finding. . .more supervision over proceedings in the district court” and more interlocutory appeals.<sup>244</sup> Moreover, express recognition of the factual underpinnings of claim construction could do much to lower the high reversal rate by the CAFC irrespective of specialized courts.<sup>245</sup>

### C. Administrative Reform

Finally, perhaps the solution lies in changing the focus of the entire system to leverage administrative expertise in deciding patent cases. Unlike other areas of law like tort where legislatures are very active, patent law is characterized by an “overmatched judiciary and an absent legislature.”<sup>246</sup> Reform of patent system must be multi-institutional, focusing on the role that Congress, the bureaucracy and the courts have in implementing policy. The current system puts too much power in the CAFC as a promulgator of policy, without installing inferior institutions such as the PTO and the lower federal courts with the adequate reforms necessary for the CAFC to actually formulate policy.<sup>247</sup>

The current patent system gives too much judicial discretion to courts, allowing courts to run rampant on crafting legal doctrine. While some argue that complexity in patent law is no different than other fields<sup>248</sup> and the Supreme Court has hinted that they prefer that patent law not be treated differently, the question remains why patent law is different than other fields of law like environmental law where a federal administrative agency has plenary authority.<sup>249</sup> Unlike areas of law such as securities, pharmaceuticals, transportation and the environment, patent law remains an outlier in that it is

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<sup>243</sup> Remarks of J. Avern Cohn, Tenth Federal Circuit Judicial Conference (Apr. 30, 1992), in 146 F.R.D. 205, 372-73 (1992).

<sup>244</sup> Dreyfuss, *Federal Circuit*, *supra* note 25, at 62.

<sup>245</sup> Paul M. Schoenhard, *Reversing the Reversal Rate: Using Real Property Principles to Guide Federal Circuit Patent Jurisprudence*, 11 FORDHAM INTELL. PROP. MEDIA & ENT. L. J. 299, 336 (2007) (arguing that is no evidence that specialized courts would perform better and that the real problem lay in the claim construction process itself and the role that intent and underlying facts play in claim construction).

<sup>246</sup> Masur, *supra* note 238, at 293.

<sup>247</sup> Rai, *supra* note 68, at 1036.

<sup>248</sup> See Howard T. Markey, *On Simplifying Patent Trials*, 118 F.R.D. 369, 372 (1987).

<sup>249</sup> Masuer, *supra* note 238, at 275.

a “highly technical complex regulatory field controlled entirely by courts.”<sup>250</sup> Masur argues that the time has come to bring patent law’s institutional arrangements in line with the rest of the administrative state by *inter alia*, empowering the PTO with greater rulemaking authority.<sup>251</sup>

Courts — even specialized courts — may simply find themselves poorly equipped to truly understand the intricacies of patent law and its application to new and emerging technologies. Courts may simply lack the institutional capability to weigh whether in fact an invention is obvious to those of ordinary skill in the art. Patent law involves two layers of technical competence: considering the economic consequences of setting the rule as well as application of the rule to the technical facts of a case.<sup>252</sup> Specialized trial courts do not solve either problem; they do not apply the right rule and they lack the technical competence to devise the rule in the first place.<sup>253</sup> Thus, instead of relying on the federal courts to decipher legal rules for patent cases, the task could instead be given to the very experts the taxpayers pay for to oversee the patent system: the PTO or another administrative agency tasked for the job.

Patent law is different statutorily from other fields where courts can effectively implement policy. The Patent Act sets the broader outer bounds for patentability and infringement, but it is up to the courts on how those principles to apply. To do so, the courts have created doctrines — such as the doctrine of equivalents or the doctrine of unenforceability when there is fraud — based on their understanding of how patent policy *should* be implemented.<sup>254</sup> But it makes such doctrines piecemeal without a full consideration on how to properly balance patent rights versus innovation. Giving power to the courts would be appropriate if the Patent Act were already clear about what economic and societal judgments courts should make in determining validity.<sup>255</sup> But the Patent Act is vague, and has not been amended in over 75 years preceding the immense technological innovation that has occurred in the software and medical fields in particular.<sup>256</sup> Courts simply have no guidance or expertise to weigh the often competing demands of encouraging innovation and protecting property rights.

Moreover, many scholars argue that patents should function differently across different industries, with some industries benefiting from broader benefits while others needing narrow ones to encourage

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<sup>250</sup> *Id.* at 279.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.* at 294.

<sup>253</sup> *Id.*

<sup>254</sup> *Id.* at 1638.

<sup>255</sup> Masur, *supra* note 238, at 286.

<sup>256</sup> *Id.*

innovation.<sup>257</sup> Dan Burk and Mark Lemley argue that courts already have the necessary tools — in the form of what they call “patent levers” — to adjust patent scope depending on the industry.<sup>258</sup> But the disparate nature of decision making — combined with the CAFC’s failure to embrace its role as a patent policymaker as opposed to being an adjudicator — necessarily results in patent policy being left in disarray. Courts may have the tools at their disposal to properly make patent policy, but quite simply the CAFC and the district courts simply have not embraced the role for making the patent system work.

Other institutional actors are similarly ill-equipped to carry out policy. Congress could legislate to ensure divergent standards depending on the industry. But relying on a legislative solution in this circumstance is impractical and involves too much administrative cost and uncertainty.<sup>259</sup> Technology changes too often for the Congress to keep up with.<sup>260</sup> In addition, most of the inquiries needed to dictate rules are fact-specific requiring case by case application.<sup>261</sup> The problem of intense industry lobbying would also result in policy that better reflects special interest influence rather than sound economic policy on what actions actually encourage innovation.<sup>262</sup> Congress most recent foray into legislating patent law — the Biotechnological Process Patents Act of 1995 which codifies that biotechnological processes that use or result in a novel or nonobvious product are always nonobvious — illustrates the role that special interests can play in the process.<sup>263</sup>

Rather than the CAFC or Congress setting forth rules for guiding validity, the PTO could instead use its rulemaking power to make more explicit how patent claims could be construed, and how the results could vary depending upon technology.<sup>264</sup> The PTO has been loath to use its rulemaking power, thus relegating the power to decide many questions concerning patent laws to the courts.<sup>265</sup> But in order to understand whether an invention should

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<sup>257</sup> *Id.* at 288.

<sup>258</sup> See Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1674-75 (2003).

<sup>259</sup> *Id.* at 1635.

<sup>260</sup> *Id.* at 1636. As an example, the Semiconductor Chip Protection Act is virtually obsolete because of changes in the way semiconductors are made. *Id.*

<sup>261</sup> *Id.* at 1635.

<sup>262</sup> See *id.* at 1637.

<sup>263</sup> 35 U.S.C. §103(b); see also Rai, *supra* note 68, at 1129 (noting high administrative cost of creating a regime for biotechnological patents).

<sup>264</sup> See *id.* at 275.

<sup>265</sup> See Clarisa Long, *The PTO and the Market for Influence in Patent Law*, 157 U. PA. L. REV. 1965, 1968 (2009). Indeed, courts have interpreted that the PTO’s rulemaking authority extend only to making rules concerning PTO examination procedures. See *Animal Legal Defense Fund v. Quigg*, 932 F.3d 920, 930 (Fed. Cir. 1991).

be patentable requires a thorough understanding of not only the technology in question but also the economic markets involved to properly resolve the balance between innovation and protection.<sup>266</sup> Congress may also want to delegate to the agency the power to treat different classes of subject matter differently, by, for instance, allowing patents on software for shorter time periods than on pharmaceutical products so as to address the different incentives in each industry regarding innovation.<sup>267</sup> PTO examiners, with thousands of hours of experience surveying patents across a range of technologies, would be most equipped to decide whether a patent is valid or not, or at least provide better guidance via rulemaking on how claims in particular fields could be construed. Moreover, the PTO is best equipped to keep up with modern technology and how interpretation of claims could change over time.

Reform of the system in an administrative fashion mirrors what many other countries do with respect to their patent jurisprudence. Rather than creating specialized judges—most of whom do not have scientific training—reallocation of the task—at least on validity determinations—could be given to a federal agency. The courts would then be tasked with following these rules and in adjudicating infringement disputes, rather than worry about construing claims or making invalidity determinations. My results indicate that most mistakes concern either claim construction or validity determinations; courts do a pretty good job in infringement analysis so a proposal where administrative agencies undertake more of the scientific analysis may be a better path.

Adaptation of rulemaking comes at the expense of decreasing judicial discretion and flexibility.<sup>268</sup> But one questions what are the benefits of flexibility in this current situation that could not otherwise be met by the the PTO. One concern is that the time involved in rulemaking could necessitate delay in getting answers in patent disputes. Which such a concern is not trivial, the current system of court action may give quicker answers but they may not necessarily be correct ones or consistent ones.

In all, a fundamental rebalancing of the system to put decision making back in the hands of experts would do much to balance out the entire system to get better results. As Arti Rai argues, “[i]f greater fact-finding and policy application expertise were vested at the administrative and trial court levels, the role of appellate review within the patent system could substantially be reconceived.”<sup>269</sup> The PTO is already beginning to take these steps. Although

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<sup>266</sup> Masur, *supra* note 238, at 278.

<sup>267</sup> David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patent Law Subject Matter*, 82 *TEMPLE L. REV.* 181, 239 (2009).

<sup>268</sup> Burk & Lemley, *supra* note 258, at 1639.

<sup>269</sup> Rai, *supra* note 68, at 1041.



a full examination of the issue is beyond the scope of this Article, *inter partes* review — where a third party can challenge the validity of patent before the PTO — may be a mechanism that should be used more frequently to gauge validity of patents in a consistent manner. My preliminary analysis of *inter partes* review reveals that a lot of patents are declared invalid before the PTO, yet district courts still continue to find that parties infringe them. Some courts even find the patents valid, contrary to the PTO's conclusion. The system needs to do better. A system where validity determinations are shaped as much as possible by the PTO would do much to create greater consistency and predictability in patent law decision making.<sup>270</sup>

### CONCLUSION

The patent law system needs reform. Given the high volume and monetary stakes involved, law is too unpredictable. Recent attempts to solve the problem by encouraging specialized expertise in the patent system is a promising first step but it may not go far enough. While the results in this study do not indicate that specialization translates into better decision making, the jury is still out for the final verdict, as we need to give the pilot project more time for judges to participate. Moreover, by refocusing resources toward regional judges who hear a lot of patent cases, the program might gain in terms of achieving greater accuracy on appeal. The time may also be ripe in asking whether more radical alternatives are necessary, that is, instead of adjudicating patent cases through the judicial system, perhaps there needs to be more vigorous debate about whether patent law should be radically altered to give more power back to the administrative agency to leverage its technical expertise to properly resolve patent cases at least in part. Or alternatively, the time is also ripe for discussion about whether a nationally-based specialized trial court could be a better alternative than the pilot project.

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<sup>270</sup> The Seventh Amendment of the U.S. Constitution provides for jury trials, so this amendment raises constitutional issues on whether the PTO could have exclusive jurisdiction to hear and decide infringement and validity cases.