HYPERACTIVE JUDGES:
AN EMPIRICAL STUDY OF JUDGE-DEPENDENT
“JUDICIAL HYPERACTIVITY” IN THE FEDERAL CIRCUIT

BY TED L. FIELD

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ABSTRACT

This article presents an empirical study of the extent to which individual judges of the U.S. Court of Appeals for the Federal Circuit—which has exclusive jurisdiction over patent appeals—engage in what William C. Rooklidge and Matthew F. Weil call “judicial hyperactivity.” This article defines “judicial hyperactivity” as a form of judicial activism in which a judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts),” where this improper behavior is not necessarily driven by politics or ideology as is traditional judicial activism. This study considers the extent of judicial hyperactivity exhibited by the individual Federal Circuit judges, rather than that of the court as a whole. This study examines two types of data to measure the judicial hyperactivity of individual Federal Circuit judges: (1) raw reversal rates and (2) data calculated using techniques that factor in reversal rates under different standards of review.

The results of this study support several interesting conclusions. One such conclusion is that the composition of the Federal Circuit may be ideal in terms of range of judicial hyperactivity. The court appears to include a mix of judges whose judicial hyperactivity is high, low, and in-between. Thus, the court may be well-positioned to evolve patent law as appropriate under ever-changing technological and economic circumstances while at the same time providing sufficient predictability and stability.

Additionally, this study shows that in patent cases, Federal Circuit judges with patent-law experience before joining the Federal Circuit are more judicially hyperactive than judges without such prior patent-law experience, but the same does not hold true in non-patent cases. This level of judicial hyperactivity may be ideal because judges with prior patent-law experience who are hyperactive in patent-law cases may be best at jumping in and correcting errors by district-court judges who lack a sound understanding of patent law.

Finally, this study shows that the political party of the president who appointed each judge of the Federal Circuit seems to have no effect on the extent to which the judge is judicially hyperactive. Although this finding goes against the traditional notion that Republican presidents tend to appoint judges who are less activist than those appointed by Democratic presidents, it is nonetheless consistent with the idea that because of its limited, subject-matter-based jurisdiction, the Federal Circuit generally does not decide cases that involve highly charged political or ideological issues.
INTRODUCTION

Many patent practitioners believe that decision-making by the U.S. Court of Appeals for the Federal Circuit\(^1\) is highly judge-dependent.\(^2\) Indeed, attorneys practicing before the Federal Circuit often prepare “judge charts” outlining how each judge has voted on each of the relevant cases. They summarize the state of the law by “counting noses”—that is, by seeing how many different judges (and which ones) have signed off on a controversial legal doctrine. And they tailor their oral arguments to particular judges, because they think that who is on the panel matters greatly to the outcome.\(^3\)

Additionally, a widespread belief exists that the judges of the Federal Circuit engage in what William C. Rooklidge and Matthew F. Weil call “judicial hyperactivity.”\(^4\) According to Rooklidge and Weil, an appellate court engages in “judicial hyperactivity” when it “lose[s] track of the important distinction between trial and appellate roles and

\(^1\) The U.S. Court of Appeals for the Federal Circuit has nationwide appellate jurisdiction over appeals from patent-infringement cases brought in all U.S. district courts. 28 U.S.C. § 1295(a) (2000). Moreover, the Federal Circuit also has jurisdiction over a variety of other subject areas, most of which are unrelated to patent law. § 1295. See infra Part I.A for a more detailed description of the Federal Circuit’s jurisdiction.


\(^3\) Allison & Lemley, supra note 2, at 745. For example, the author of this article engaged in this exact sort of behavior when he practiced before the Federal Circuit.

engages in . . . a form of decision-making at odds with traditional notions of appellate review.”

5 This article defines judicial hyperactivity as a form of judicial activism in which a judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts),”

6 where this improper behavior is not necessarily driven by politics or ideology as is traditional judicial activism.

7 Although most empirical studies of judicial activism or hyperactivity focus solely on the U.S. Supreme Court and its justices, the study described in this article focuses solely on the judges of the Federal Circuit. Studies that focus on judicial activism or hyperactivity at the court-of-appeals level can be even more valuable than those that focus on the Supreme Court. And with respect to patent law, an empirical study of the

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5 Id.


7 See Rooklidge & Weil, supra note 4, at 726–27 (contrasting judicial hyperactivity with the traditional notion of judicial activism). See infra Part I.B for a more detailed discussion of judicial activism and judicial hyperactivity.

8 Yung, supra note 6, at 3.

9 See Frank B. Cross & Stefanie Lindquist, Judging the Judges, 58 DUKE L.J. 1383, 1385 (2009) (“[T]he circuit court judiciary is probably the single most important level of the federal judiciary in light of its extensive caseload and policy making authority.” (footnotes omitted)); David S. Law, Strategic Judicial Lawmaking: Ideology, Publication, and Asylum Law in the Ninth Circuit, 818 U. CIN. L. REV. 817, 829 (2005) (“Judicial researchers have long been preoccupied with the Supreme Court, to the neglect of other courts that are equally deserving of study but lack the same cachet.”); Yung, supra note 6, at 3 (“Although the actions of the Supreme Court are higher profile, studying the courts of appeals for activism has been substantially more informative about judges and the judiciary.” (footnotes omitted)); cf. Richard R. Posner, Judicial Behavior and Performance: An Economic Approach, 32 FLA. ST. U. L. REV. 1259, 1273 (2005) (“[T]he Supreme Court reviews only a minute percentage . . . of court of appeals decisions. Entire fields of law are left mainly to the courts of appeals to shape.”).
judges of the Federal Circuit is even more valuable than a study centering on Supreme Court justices because the Supreme Court decides very few patent cases, thus giving the Federal Circuit the final word on most patent-law issues.

This article presents an empirical study of whether individual judges of the U.S. Court of Appeals for the Federal Circuit engage in judicial hyperactivity using reversal rates and data calculated from reversal rates under different standards of review. This study is a follow-up to an earlier study done by the author that investigated whether the overall reversal rates of the Federal Circuit as a court are greater than the corresponding reversal rates of other circuits. This earlier study supported the hypothesis that the

10 David Olson & Stefania Fusco, Rules Versus Standards: Competing Notions of Inconsistency Robustness in Patent Law, 64 ALA. L. REV. 647, 688 (2013). Although the Supreme Court has relatively recently begun to review more patent cases than it ever has since the creation of the Federal Circuit, the number of patent cases that the Supreme Court reviews each year nonetheless remains small. Id. at 688 n.206 (citing John M. Golden, The Supreme Court as “Prime Percolator”: A Prescription for Appellate Review of Questions in Patent Law, 56 UCLA L. REV. 657, 668–70 (2009)).


12 “Reversal . . . is an important tool available to appellate courts for controlling the law and guiding lower courts.” Joseph L. Smith, Patterns and Consequences of Judicial Reversals: Theoretical Considerations and Data from a District Court, 27 JUST. SYS. J. 28, 29 (2006). An appellate court uses the tool “of a reversal . . . to signal that the lower court has made an error and to guide all courts within the jurisdiction of the appellate court toward more uniform legal decisions.” Id. Importantly, “reversals are critical for maintaining coherence and consistency in judicial systems and for steering legal policy.” Id. Indeed, reversals are “the most definitive and forceful mechanism for communication of legal policy possessed by a higher court[,] and they] are likely to play an important role in maintaining uniformity in judicial decisions.” Id. at 30.

Federal Circuit engages in “judicial hyperactivity,” particularly in patent cases.\textsuperscript{14} It revealed that the Federal Circuit’s overall reversal rate of lower courts was statistically significantly greater than the overall reversal rates of several representative regional circuits treated as an aggregate, thus tending to show that the Federal Circuit is more judicially hyperactive than the representative regional circuits.\textsuperscript{15} Moreover, the earlier study showed that the Federal Circuit’s reversal rates in patent cases were statistically significantly greater than the Federal Circuit’s reversal rates in non-patent cases, thus tending to show that the Federal Circuit is more judicially hyperactive in patent cases than in non-patent cases.\textsuperscript{16}

The follow-up empirical study described in this article considers the extent of judicial hyperactivity exhibited by the individual Federal Circuit judges, rather than that of the court as a whole. A study such as this one that examines the behavior of individual judges rather than the behavior of the court as a whole is advantageous because it may reveal important information about how individual judges behave in their roles as appellate-court judges that cannot otherwise be observed.\textsuperscript{17} This study examines two types of data to measure the judicial hyperactivity of individual Federal Circuit judges: (1) raw reversal rates\textsuperscript{18} and (2) data calculated using techniques devised by Professor

\textsuperscript{14} Id. at 721–27.

\textsuperscript{15} Id.

\textsuperscript{16} Id.

\textsuperscript{17} Law, supra note 9, at 864 (“Significant patterns in judicial behavior can go undetected if researchers consider only how groups of judges act, to the exclusion of how individual judges behave.”).

\textsuperscript{18} See infra Part III.A for a description of the results based on reversal rates.
Corey Rayburn Yung, which factor in reversal rates under different standards of review.\textsuperscript{19}

The use of Professor Yung’s techniques in addition to the sole use of raw reversal rates is advantageous because his techniques can reveal patterns of judicial behavior that cannot be observed by examining raw reversal rates alone.

To measure judicial activism or hyperactivity, Professor Yung’s method involves the calculation of what he calls “activism differentials” and “scaled activism scores” from the reversal rates of cases having different standards of review.\textsuperscript{20} According to Professor Yung, these calculations

\begin{center}
examine[] situations in which one might have expected an appellate judge to be more deferential to another constitutionally significant actor (in this case, a federal district court) as well as situations in which an appellate judge was less likely to defer. By examining how individual judges respected both deferential and nondeferential standards of review in the aggregate, [Professor Yung’s method is] able to determine the rate, relative to other judges, at which a judge substituted her judgment for that of a district court judge.\textsuperscript{21}
\end{center}

\begin{flushleft}
\textsuperscript{19} See Yung, supra note 6, at 18–29. Yung applied his method to all the circuits except for the Federal Circuit. See id.

\textsuperscript{20} Id. at 18–22, 28–29. Professor Yung used the term “judicial activism” instead of “judicial hyperactivity.” E.g., id. at 18–22. But the concept of “judicial activism” that Professor Yung measured is identical to the concept of “judicial hyperactivity” measured using his techniques in this study—namely, that a judge engages in judicial hyperactivity or judicial activism where that judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts).” Id. at 6. This article uses the term “judicial hyperactivity,” except when discussing Professor Yung’s methods. For consistency, this article uses Professor Yung’s terminology and does not rename Professor Yung’s “activism differential” and “scaled activism score” as “hyperactivity differential” and “scaled hyperactivity score.”

\textsuperscript{21} Id. at 3.
\end{flushleft}
And this substitution of judgment is the defining characteristic of judicial hyperactivity,\(^\text{22}\) thus making Professor Yung’s method an ideal measure of judicial hyperactivity.

Professor Yung’s method involves using a judge’s reversal rate under the de-novo standard of review as a baseline.\(^\text{23}\) Using this baseline “remove[s] cases decided only by ideology or other factors separate from the concept of activism”\(^\text{24}\) or judicial hyperactivity. Thus, the use of activism differentials and scaled activism scores provides a better measure of judicial hyperactivity than studying reversal rates alone.\(^\text{25}\)

The results of this study support several interesting conclusions. One such conclusion is that the judges of the Federal Circuit exhibit a seemingly beneficial range of judicial hyperactivity.\(^\text{26}\) Although there is no such thing as “judicial Ritalin”\(^\text{27}\) for Federal Circuit judges to take, such a remedy for judicial hyperactivity is not necessary. Indeed, the results of this study tend to show that the composition of the Federal Circuit may be ideal in terms of range of judicial hyperactivity. The court appears to include judges from

\(^{22}\) See id. at 6.

\(^{23}\) Id. at 22.

\(^{24}\) Id.

\(^{25}\) One finding of this article that supports this proposition is that Professor Yung’s activism differential is measuring something different than what raw reversal rates measure because there was no statistically significant correlation between activism differentials and raw reversal rates in this study. See infra note 157 and accompanying text for a discussion of this finding.

\(^{26}\) See infra Part IV.A for a detailed discussion relating to this conclusion.

\(^{27}\) “Ritalin” is the brand name of methylphenidate, which is a drug used to treat attention deficit hyperactivity disorder (“ADHD”). Methylphenidate (Oral Route), http://www.mayoclinic.com/health/drug-information/DR601847 (last visited Mar. 20, 2013). The use of this drug to treat ADHD in children is controversial. See, e.g., Bronwen Hruska, Raising the Ritalin Generation, N.Y. TIMES, Aug. 19, 2012, at SR6.
both ends and the middle of the judicial hyperactivity continuum. Because the court includes a mix of judges whose judicial hyperactivity is high, low, and in-between, the court may be well-positioned to evolve patent law as appropriate under ever-changing technological and economic circumstances while at the same time providing sufficient predictability and stability.28

And perhaps the most interesting conclusion implied by the results of this study is that in patent cases, Federal Circuit judges with patent-law experience before joining the Federal Circuit are more judicially hyperactive than judges without prior patent-law experience, but the same does not hold true in non-patent cases.29 Judges with prior patent-law experience thus appear to be more comfortable in substituting their own judgment for that of the district court judges whose decisions they are reviewing in patent cases, possibly because they (consciously or, more likely, subconsciously) believe they have a better understanding of patent-law issues than the district-court judges. In contrast, in non-patent cases, prior patent-law experience is irrelevant, putting judges with prior patent-law experience are on a par with judges with no prior patent-law experience. The data here reveal that in non-patent cases, judges with prior patent-law experience are no more or less likely than judges with no prior patent-law experience to substitute their own judgment for that of the judge of the tribunal being reviewed. This level of judicial hyperactivity shown by the Federal Circuit judges studied here may indeed be ideal

28 See Cross & Lindquist, supra note 9, at 1425 (“A court consisting entirely of judicial entrepreneurs might be unduly activist and, to the extent that their judicial preferences differ, might produce many conflicting precedents and instability in the law. . . . A court of only judicial minimalists, though, might leave the law stagnant and unable to respond to changing societal circumstances.”).

29 See infra Part IV.B for a detailed discussion relating to these conclusions, and Table 7 on p. 67 for a summary of the data supporting these conclusions.
because judges with prior patent-law experience who are hyperactive in patent-law cases may be best at jumping in and correcting errors by district-court judges who lack a sound understanding of patent law. Thus, a court with several judges like these would best be able to fulfill Congress’s goals in creating the Federal Circuit.  

Finally, another conclusion of this study is that the political party of the president who appointed each judge of the Federal Circuit seems to have no effect on the extent to which the judge is judicially hyperactive. Indeed, for all three categories of cases studied—all cases (patent and non-patent), patent cases only, and non-patent cases only)—there was no statistically significant difference between the mean activism differentials of judges appointed by Republican presidents and judges appointed by Democratic presidents. This finding goes against the traditional, though over-simplified, notion that Republican presidents tend to appoint “conservative” judges who are less activist than “liberal” judges appointed by Democratic presidents. But it is consistent with the idea that because of its jurisdiction, the Federal Circuit generally does not decide cases that involve highly charged political or ideological issues, whereas the other circuits might decide more such issues.

This article describes this empirical study in detail. Part I begins by providing background information relating to the Federal Circuit, as well as the concepts of judicial

30 See infra Part I.A for a description of Congress’s goals in creating the Federal Circuit.

31 See infra Part IV.C for a detailed discussion of this conclusion.

32 See infra Table 8 on p. 72 for a summary of this data.

33 See, e.g., Yung, supra note 6, at 7 (“[J]udicial activism was historically a label hurled at liberal judges . . . .”).
activism and judicial hyperactivity. Next, Part II details the methodology used in conducting the study described in this article. After that, Part III analyzes the results of this study. And finally, Part IV discusses some implications of these results.

I. THE FEDERAL CIRCUIT, JUDICIAL ACTIVISM, AND JUDICIAL HYPERACTIVITY

This Part provides background information on the U.S. Court of Appeals for the Federal Circuit, as well as the concepts of judicial activism and judicial hyperactivity. First, Part I.A below describes the origins and jurisdiction of the Federal Circuit. Second, Part I.B defines and discusses the concept of traditional judicial activism and the concept of judicial hyperactivity as used in this article.

A. THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

The U.S. Court of Appeals for the Federal Circuit has exclusive appellate jurisdiction over most patent cases as well as a variety of other subject areas.34 Congress created the Federal Circuit in 1982 when it enacted the Federal Court Improvements Act of 1982 (“FCIA”).35 Unlike the other twelve courts of appeals, whose appellate jurisdiction


jurisdiction is determined by geography, the Federal Circuit’s jurisdiction is determined by subject matter. The Federal Circuit is best known for its nearly exclusive jurisdiction over appeals of patent decisions of the U.S. Patent and Trademark Office and the district courts. But the Federal Circuit also has jurisdiction involving a number of other disparate areas of law, including “trademark, tariff and customs law, technology transfer regulations, and government contract and labor disputes.”

The driving force behind the creation of the Federal Circuit was to bring national uniformity to patent law and to “yield a clearer, more coherent, more predictable legal

Appeals, and merged the appellate functions of these two courts into the Federal Circuit. Bennett, supra, at 4–5.

Adams, supra note 35, at 44 (“The CAFC is unique among the circuit courts because its jurisdiction is defined by subject matter instead of geography.”).


infrastructure for the patent system.” 40 Before the creation of the Federal Circuit, “patent cases [were] inconsistently adjudicated” by the regional circuit courts of appeals. 41 Indeed, before the Federal Circuit existed, certain circuits were perceived as “pro-patent” and others were perceived as “anti-patent.” 42 Business leaders contended that this was created, in part, to promote uniformity in the development of [patent] law”); Midwest Indus., Inc. v. Karavan Trailers, Inc., 175 F.3d 1356, 1360 (Fed. Cir. 1999) (en banc in relevant part) (“[O]ne of the principal purposes for the creation of this court [was] to promote uniformity in the law with regard to subject matter within our exclusive appellate jurisdiction.”); Dreyfuss, supra note 35, at 2–4; Joan E. Schaffner, Federal Circuit “Choice of Law”: Erie Through the Looking Glass, 81 IOWA L. REV. 1173, 1178–79 (1996).


42 H.R. REP. No. 97-312, at 20–21 (1981) (“[S]ome circuit courts are regarded as ‘pro-patent’ and other ‘anti-patent’ . . . .”); Melville Church, Reasons Why the Appellate Jurisdiction of the Supreme Court in Patent Causes Should Be Restored, 8 YALE L.J. 291, 292–93 (1899); Henry J. Friendly, The “Law of the Circuit” and All That, 46 ST. JOHN’S L. REV. 406, 413 (1972) (characterizing some circuits as “‘tough’ on patents” and others as “more favorably disposed”); see also Adams, supra note 35, at 57 (“[A] patent’s validity depended on where it was litigated.”); Bennett, supra note 35, at 10 (“Some of the regional circuit courts, expressing strong feelings about the dangers of monopoly and having a low regard for the expertise of the Patent Office, tended not to give any difference to the administrative examination process and invalidated many patents.”); Dreyfuss, supra note 35, at 6–7 (“Statistics demonstrate that in the period 1945-1957, a patent was twice as likely to be held valid and infringed in the Fifth Circuit than in the Seventh Circuit, and almost four times more likely to be enforced in the Seventh Circuit than in the Second Circuit.”). Indeed, the problem of inconsistent patent adjudication among the circuits existed for many decades before the Federal Circuit was created. For example, in 1899, one commentator noted:

[T]he appellate court of each circuit takes on a local color. That of one circuit is avowedly opposed to patents and sustains not one in twenty, thereby encouraging infringements and tending to throw the whole patent system into disrepute; that in another is liberally inclined toward patents, going, perhaps, in some instances, to extremes to sustain them, with the result of localizing litigation and congesting business in that particular court.
inconsistent adjudication led to uncertainty, and this uncertainty stifled innovation.\textsuperscript{43} Thus, the FCIA created the Federal Circuit largely to “provid[e] for uniformity of doctrinal development in the patent area.”\textsuperscript{44} Moreover, Congress hoped that this “uniformity [would] reduce the forum-shopping that is common to patent litigation.”\textsuperscript{45}

Congress included additional subject areas within the Federal Circuit’s jurisdiction in response to the objection that the court would be too specialized if its jurisdiction were limited solely to patent law.\textsuperscript{46} The fear was that if the Federal Circuit’s jurisdiction were limited to only patent law, it would produce “substantively inferior law.”\textsuperscript{47} Thus, the legislative history of the FCIA shows that Congress added additional subject matter to the Federal Circuit’s jurisdiction to create

\footnotesize{Church, \textit{supra}, at 292–93.}

\textsuperscript{43} Petherbridge & Wagner, \textit{supra} note 35, at 2058.

\textsuperscript{44} S. \textsc{Rep.} No. 97-275, at 5, 1982 \textsc{U.S.C.C.A.N.} at 15.

\textsuperscript{45} \textsc{Id.}

\textsuperscript{46} H.R. \textsc{Rep.} No. 97-312, at 19; Bennett, \textit{supra} note 35, at 12 (quoting \textsc{Id.}); Dreyfuss, \textit{supra} note 35, at 4.

\textsuperscript{47} Dreyfuss, \textit{supra} note 35, at 25. The reasons that the court might produce “substantively inferior law” if it specialized solely in patent law include:

The repetitious nature of the docket might lead to greater coherency but it would take patents out of the mainstream of legal thought, expose the court to a one-sided view of the issues, and discourage qualified people from serving as judges. . . . [E]fficiency may be the result, but channeling cases to a single forum also would deprive patent law of the collective wisdom of the circuit courts. Losing the tension produced by the percolation of ideas within the judiciary would, in addition, reduce the court’s incentive to reason clearly or to write persuasively.
a new intermediate appellate court markedly less specialized than either of its predecessors and [to] provide[] the judges of the new court with a breadth of jurisdiction that rivals in its variety that of the regional courts of appeals. The proposed new court is not a “specialized court.” Its jurisdiction is not limited to one type of case, or even to two or three types of cases. Rather, it has a varied docket spanning a broad range of legal issues and types of cases.\textsuperscript{48}

Therefore, the Federal Circuit decides cases involving many areas of the law in addition to patent law.\textsuperscript{49}


\textsuperscript{48} H.R. Rep. No. 97-312, at 19; Bennett, \textit{supra} note 35, at 12 (quoting \textit{id.}).

\textsuperscript{49} \textit{See} 28 U.S.C. \$ 1295 (2000) (defining the Federal Circuit’s appellate jurisdiction). The Federal Circuit currently has nationwide jurisdiction in a variety of subject areas, including international trade, government contracts, patents, trademarks, certain money claims against the United States government, federal personnel, veterans’ benefits, and public safety officers’ benefits claims. Appeals to the court come from all federal district courts, the United States Court of Federal Claims, the United States Court of International Trade, and the United States Court of Appeals for Veterans Claims. The court also takes appeals of certain administrative agencies’ decisions, including the United States Merit Systems Protection Board, the Boards of Contract Appeals, the Board of Patent Appeals and Interferences, and the Trademark Trial and Appeals Board. Decisions of the United States International Trade Commission, the Office of Compliance, an independent agency in the legislative branch, and the Government Accountability Office Personnel Appeals Board, and the Department of Justice Bureau of Justice Assistance also are reviewed by the court. The court’s jurisdiction consists of administrative law cases (55%), intellectual property cases (31%), and cases involving money damages against the United States government (11%). The administrative law cases consist of personnel and veterans claims. Nearly all of the intellectual property
B. JUDICIAL ACTIVISM AND “JUDICIAL HYPERACTIVITY”

The empirical study described in this article seeks to determine whether and to what extent the judges of the Federal Circuit engage in what William C. Rooklidge and Matthew F. Weil have called “judicial hyperactivity.” This article defines judicial hyperactivity as a form of judicial activism in which a judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts),” where this improper behavior is not necessarily driven by politics or ideology. Part I.B.1 below describes the traditional concept of judicial activism. Part I.B.2 then discusses judicial hyperactivity and its relationship with the traditional notion of judicial activism. Finally, Part I.B.3 describes previous contentions that the Federal Circuit as a whole engages in a degree of judicial hyperactivity.

cases involve patents. Suits for money damages against the United States government include government contract cases, tax refund appeals, unlawful takings, and civilian and military pay cases.


50 See generally Rooklidge & Weil, supra note 4.

51 Yung, supra note 6, at 2.

52 See Rooklidge & Weil, supra note 4, at 726–27 (contrasting judicial hyperactivity with the traditional notion of judicial activism).
1. The Traditional Concept of Judicial Activism

Many people have used the term “judicial activism” for many years.\(^5^3\) In 1947, Arthur Schlesinger Jr. became the first person to use the term “judicial activism” in print in an article in *Fortune* magazine.\(^5^4\) In this article, Schlesinger described Supreme Court Justices Black, Douglas, Murphy, and Rutledge as being “activist.”\(^5^5\) But Schlesinger never defined precisely what he meant by “activist” or “activism.”\(^5^6\) The term first appeared in a judicial opinion in 1959,\(^5^7\) and after that, judges have frequently used the term to “criticiz[e] other judges.”\(^5^8\) Traditionally, people have used the term “judicial activism” to criticize liberal judges,\(^5^9\) but today, the term is seeing increased use in criticizing conservative judges, as well.\(^6^0\)

Throughout the history of the use of the term “judicial activism,” many people have used the term, but they usually fail to define it precisely.\(^6^1\) Indeed, the term has been “defined in a number of disparate, even contradictory, ways; scholars and judges

\(^5^3\) Yung, *supra* note 6, at 6–7.


\(^5^5\) *Id.*

\(^5^6\) *Id.* at 6.

\(^5^7\) *Id.* (citing Theriot v. Mercer, 262 F.2d 754, 760 n.5 (5th Cir. 1959) (Hutcheson, J.); Keenan D. Kmiec, Comment, *The Origin and Current Meanings of “Judicial Activism,”* 92 CALIF. L. REV. 1441, 1443 (2004)).

\(^5^8\) *Id.*

\(^5^9\) *Id.* at 7.

\(^6^0\) *Id.*; Rooklidge & Weil, *supra* note 4, at 726.

\(^6^1\) Yung, *supra* note 6, at 7 (citing Kmiec, *supra* note 57, at 1443).
recognize this problem, yet persist in speaking about the concept without defining it.”  

Although people continue to use the term loosely without defining it precisely, the term normally has a strongly negative meaning. Indeed, labeling a judge as a “judicial activist” normally implies that that judge has engaged in improper behavior such as “(1) invalidation of the arguably constitutional actions of other branches, (2) failure to adhere to precedent, (3) judicial ‘legislation,’ (4) departures from accepted interpretive methodology, and (5) result-oriented judging.”

2. The Concept of Judicial Hyperactivity

William C. Rooklidge and Matthew F. Weil coined the term “judicial hyperactivity,” defining it to mean when an appellate court “lose[s] track of the important distinction between trial and appellate roles and engages in . . . a form of decision-making at odds with traditional notions of appellate review.” Importantly, judicial hyperactivity on the part of a judge is not necessarily motivated by the political or ideological views of the judge, in contrast to traditional judicial activism. Thus, even though a judge

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62 Kmiec, supra note 57, at 1443.

63 See id. (“[A]s the term has become more commonplace, its meaning has become increasingly unclear.”).

64 Yung, supra note 6, at 7 (citing Kmiec, supra note 57, at 1444) (“[T]he term normally has been overwhelmingly loaded with negative connotations.”); see also Rooklidge & Weil, supra note 4, at 726–27 (describing the use of the term “judicial activism” as “pejorative”).

65 Kmiec, supra note 57, at 1444.

66 Rooklidge & Weil, supra note 4, at 726.

67 Id. (describing traditional judicial activism as being “drenched in political overtones” and contrasting judicial activism with judicial hyperactivity). Rooklidge and Weil define “judicial activism” as “a tribunal going beyond the substantive statutory or
engaging in judicial hyperactivity does not seek to improperly alter the substantive law based on his or her political or ideological motivations, a judicially hyperactive judge nonetheless fails to act in accordance within the norms of an appellate-court judge.68

Additionally, judicial hyperactivity can be examined through the lens of whether a judge is more of a “judicial entrepreneur” or more of a “judicial minimalist.” Professors Frank B. Cross and Stefanie Lindquist propose that individual judges may lie on “a continuum, with different judges having different degrees of entrepreneurial spirit on different legal issues.”69 A judge who lies on the judicial-entrepreneur end of this continuum may be a judge who is alert to the opportunity for innovation, who is willing to invest the resources and assume the risks necessary to offer and develop a genuinely unique legal concept, and who must strategically employ the written word to undertake change. A judicial entrepreneur exhibits a certain swashbuckling flair in decisionmaking.70

Such a judicial entrepreneur may “take a definite lead in innovating in the law—even at the risk of being overruled.”71

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68 See id. at 727.

69 Cross & Lindquist, supra note 9, at 1419–21. Cross and Lindquist use the term “judicial entrepreneur” analogously to the term “policy entrepreneur” used in the political-science literature. Id. And they attribute the popularization of the term “judicial minimalist” to Professor Cass Sunstein. Id. at 1422 (citing CASS R. SUNSTEIN, ONE CASE AT A TIME: JUDICIAL MINIMALISM ON THE SUPREME COURT (1999)).

70 Id. at 1420 (footnotes and internal quotation marks omitted).

71 Id.
In contrast to a judicial entrepreneur, a judge who lies on the judicial-minimalist end of the continuum will tend to agree with the following principles:

[C]ourts should not decide issues unnecessary to the resolution of a case; . . . courts should refuse to hear cases that are not “ripe” for decision; . . . courts should avoid deciding constitutional questions; . . . courts should respect their own precedents; . . . courts should not issue advisory opinions; . . . courts should follow prior holdings but not necessarily prior dicta; . . . courts should exercise the “passive virtues” associated with maintaining silence on great issues of the day.\(^{72}\)

Moreover, “[m]inimalists prefer narrower opinions that don’t have application well beyond the case facts and shallower opinions that are grounded in a more pragmatic foundation than in a philosophical one.”\(^{73}\)

Thus, a judicial entrepreneur is more likely than a judicial minimalist to exhibit characteristics of judicial hyperactivity as it is defined in this article. As mentioned above, this article defines judicial hyperactivity as a form of judicial activism in which a judge improperly “elevate[s] his or her judgment above that of another constitutionally significant actor (e.g., Congress, the President, [or] other Article III courts),”\(^{74}\) where this improper behavior is not necessarily driven by politics or ideology.\(^{75}\) A judicial entrepreneur, who seeks to innovate and develop unique legal concepts,\(^{76}\) is likely to

\(^{72}\) Sunstein, supra note 69, at 4–5; Cross & Lindquist, supra note 9, at 1422 (quoting id.).

\(^{73}\) Cross & Lindquist, supra note 9, at 1422.

\(^{74}\) Yung, supra note 6, at 2.

\(^{75}\) See Rooklidge & Weil, supra note 4, at 726–27 (contrasting judicial hyperactivity with the traditional notion of judicial activism).

\(^{76}\) Cross & Lindquist, supra note 9, at 1420.
“elevate[s] his or her judgment above that of” a district court judge—thus behaving in a judicially hyperactive manner. In contrast, a judicial minimalist is less likely to do so—thus behaving in a non-judicially-hyperactive manner.

Although judicial entrepreneurs may contribute positively to the development of the law, the judicial-entrepreneur style of judging has notable shortcomings. A judicial entrepreneur may very well engage in improper judicial activism or judicial hyperactivity by “undermin[ing] other widely held values of judging.” Indeed, the judicial entrepreneur may “seek[] to increase [his or her] influence [by] reach[ing] for broader holdings by ignoring the factual nuances of specific cases or ignoring the factual record entirely.” Thus, there are both positives and negatives to judicial entrepreneurs. Therefore, there are both positives and negatives to judicial hyperactivity. Indeed, perhaps an ideal court would feature a normal distribution of judges on the judicial entrepreneur-judicial minimalist continuum, with a few judicial entrepreneurs on one side

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77 Yung, supra note 6, at 2.

78 Cross & Lindquist, supra note 9, at 1422; cf. Lawrence B. Solum, A Tournament of Virtue, 32 FLA. ST. U. L. REV. 1365, 1393 (2005) (“[I]t is hardly clear that novelty makes for good law or that originality is a judicial virtue. This is not to say that originality is never appropriate, but a truly virtuous judge will only be original when the law itself requires originality.”).

79 Id.

80 Id. (quoting Daniel A. Farber, Supreme Court Selection and Measures of Past Judicial Performance, 32 FLA. ST. U. L. REV. 1175, 1179 (2005)).

81 Id.
of the spectrum, a few judicial minimalists on the opposite side, and majority of judges somewhere in the middle.  

3. Contentions That the Federal Circuit Is a Judicially Hyperactive Court

This Sub-Part discusses previous contentions by commentators the Federal Circuit is a judicially hyperactive court. Part I.B.3.a describes such contentions by Rooklidge and Weil. Next, Part I.B.3.b discusses contentions by a number of commentators that the Federal Circuit is judicially hyperactive in the context of claim construction. Finally Part I.B.3.c discusses a previous empirical study by the author of this article that supported the conclusion that the Federal Circuit is a judicially hyperactive court.

a. Rooklidge and Weil

In an essay in 2000, Rooklidge and Weil persuasively argued that the Federal Circuit engages in judicial hyperactivity.  

83 Rooklidge & Weil, supra note 4, at 725–52. See generally Field, supra note 13, at 727–32 (summarizing Rooklidge and Weil’s arguments that the Federal Circuit engages in judicial hyperactivity). Rooklidge and Weil defined judicial hyperactivity as “where an appellate court steps out of its proper role as an appellate court and instead makes decisions that a lower court should properly make.” Field, supra note 13, at 728 (citing Rooklidge & Weil, supra note 4, at 726–27).

84 Rooklidge & Weil, supra note 4, at 735–48 (explaining instances in which the Federal Circuit has engaged in advocacy and fact-finding).
Almost since its inception, the Federal Circuit has been dogged with criticism for straying from the path carefully delineated for appellate tribunals. Disappointed litigants and commentators alike have criticized the court for fact-finding and other forms of hyperactive judging. Increasingly, the bar is expressing concern over the court’s decision-making procedures and its apparent willingness to take over the roles of patent examiner, advocate and trier of fact. 85

Rooklidge and Weil argued that the Federal Circuit engaged in judicial hyperactivity by improperly acting as an advocate 86 and as a fact-finder. 87 They gave two examples of how the court improperly acts as an advocate: by “(1) ignoring the general rule that appellate courts should not normally consider arguments the parties raise for the first time on appeal; and (2) deciding issues that the parties failed to properly preserve in the district court.” 88 Moreover, Rooklidge and Weil contended that the Federal Circuit improperly acts as a fact-finder, for example, “(1) by finding facts instead of remanding after reversing a district court’s judgment; and (2) after reversing a grant of summary judgment in favor of one party, by granting summary judgment in favor of the other party, even in the absence of a cross-motion for summary judgment.” 89

Ultimately, Rooklidge and Weil claimed that this judicial hyperactivity dramatically reduces certainty and predictability in patent appeals. This in turn will cause the number of appeals to continue to increase as disappointed litigants are encouraged to roll the dice in hope that the Federal Circuit

85 Id. at 729–30 (footnotes omitted).
86 Id. at 735–39.
87 Id. at 739–48.
88 Field, supra note 13, at 729 (citing Rooklidge & Weil, supra note 4, at 735–36).
89 Id. at 730 (citing Rooklidge & Weil, supra note 4, at 740, 743).
will... think up some new arguments that had not occurred to counsel, or find facts not found by the lower tribunal.  

They concluded that “the Federal Circuit, like any other appellate court, should strive to confine its decision-making procedures to those traditionally associated with an appellate court, and leave... innovative advocacy and fact-finding to others.”

b. Claim Construction

Additionally, a number of commentators have criticized the Federal Circuit for being judicially hyperactive in its treatment of claim-construction decisions. The Federal Circuit treats claim construction as a pure question of law and reviews claim-construction decisions de novo. A number of researchers have empirically studied the Federal Circuit’s reversal rate in claim-construction decisions and have concluded that this reversal rate is quite high. Indeed, these studies show that the court’s reversal rate

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90 Id. at 751–52 (footnotes omitted).

91 Id. at 752.

92 See generally Field, supra note 13, at 732-37 (describing how commentators have accused the Federal Circuit of engaging in judicial hyperactivity in its claim-construction decisions). “Claim construction is the necessary first step in any determination of patent infringement.” E.g., id. at 732–33. “When construing patent claims, a judge interpret[s] the specific terms or phrases used by the patentee to define the technology covered by the patent.” E.g., id. at 733 (footnotes and internal quotation marks omitted; alteration in original).

93 Cyber Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).

in claim-construction decisions ranges from 33.0%\textsuperscript{95} to 44.0%.\textsuperscript{96} Such high reversal rates may strongly indicate that the Federal Circuit engages in judicial hyperactivity in claim-construction decisions.\textsuperscript{97}

c. Previous Empirical Study by the Author

Moreover, a previous empirical study by this author suggested that the Federal Circuit as a court is more judicially hyperactive than other circuit courts of appeal, particularly in patent cases.\textsuperscript{98} This study involved contrasting the overall reversal rates and reversal rates for particular standards of review between the Federal Circuit and several representative regional circuits, as well as contrasting the Federal Circuit’s reversal rates in patent cases with its reversal rates in non-patent cases.\textsuperscript{99} Therefore, the overall results of this study supported the proposition that the Federal Circuit is more judicially hyperactive in patent cases than in non-patent cases and with respect to the representative regional circuits.\textsuperscript{100}


\textsuperscript{95} \textit{Id.} at 735 (citing Moore, \textit{District Court Judges}, \textit{supra} note 94, at 11–12).

\textsuperscript{96} \textit{Id.} (citing Chu, \textit{supra} note 94, at 1104).

\textsuperscript{97} \textit{Id.} at 735–37.

\textsuperscript{98} \textit{See id.} at 749–58.

\textsuperscript{99} \textit{Id.} at 737–740. Additionally, a second part of this study contrasted reversal rates of the Federal Circuit and the representative regional circuits while controlling for several exemplary procedural postures. \textit{Id.} at 740–41. This second part of the study also supported the conclusion that the Federal Circuit is more judicially hyperactive than other circuits. \textit{See id.} at 764–71.

\textsuperscript{100} \textit{Id.} at 724–27.
The study showed that the overall reversal rate of the Federal Circuit in all cases was statistically significantly greater than the overall reversal rates of the representative regional circuits treated as an aggregate.\textsuperscript{101} Additionally, when drilling down to the level of particular standards of review, the Federal Circuit’s reversal rates for all standards of review were statistically significantly greater than the corresponding reversal rates of the representative regional circuits.\textsuperscript{102} These findings tended to show that the Federal Circuit is more judicially hyperactive than the other circuits.\textsuperscript{103}

Moreover, the Federal Circuit’s reversal rates in patent cases were statistically significantly greater than in non-patent cases.\textsuperscript{104} This finding tended to show that the Federal Circuit is more judicially hyperactive in patent cases than in non-patent cases.\textsuperscript{105} And the Federal Circuit’s reversal rates in patent cases were significantly greater than the regional circuits’ reversal rates, but the Federal Circuit’s reversal rates in non-patent cases were not significantly greater than the regional circuits’ reversal rates.\textsuperscript{106} This finding showed that the Federal Circuit is more judicially hyperactive in patent cases than the regional circuits overall, but the Federal Circuit’s judicial hyperactivity in non-patent cases is comparable to the judicial hyperactivity of the regional circuits overall.\textsuperscript{107}

\textsuperscript{101} \textit{Id.} at 749–51.
\textsuperscript{102} \textit{Id.} at 751–56.
\textsuperscript{103} \textit{Id.} at 756.
\textsuperscript{104} \textit{Id.} at 757–58.
\textsuperscript{105} \textit{Id.} at 758.
\textsuperscript{106} \textit{Id.} at 758–64.
\textsuperscript{107} \textit{Id.} at 764.
II. METHODOLOGY

This Part describes the methodology used in the empirical study described in this article. Part II.A below describes the process of data gathering, and Part II.B describes the analysis performed on this data.

A. DATA GATHERING

This study was based on the same dataset used in the author’s previous study that investigated whether the overall reversal rates of the Federal Circuit are greater than the corresponding reversal rates of other circuits. The major difference between the data gathered in this study and the previous study was that in this study, additional data was gathered regarding the identity of the judges who voted to affirm or reverse each issue.

The first step was gathering the necessary data. The data gathered were entered into a Microsoft Access database. The data gathered included 828 different issues in 299 different cases. Of these cases, 110 involved patent issues, and 189 involved non-

108 See Field, supra note 13, at 737–40.

109 This relational database included the following fields: citation, circuit, year, and fields for tracking up to nine discrete issues per case. The fields for tracking the discrete issues included a pair of fields for each issue: (1) standard of review; and (2) corresponding disposition. The standard-of-review fields were relationally linked to a lookup table comprising the different standards of review studied, and the disposition fields were relationally linked to a lookup table comprising possible dispositions (i.e., affirmed, reversed, vacated, and affirmed-in-part/reversed-in-part). Additionally, the database contained fields for recording each judge who participated in the decision, including the identity of the judge who authored the majority opinion, and the judges who authored any concurring or dissenting opinions. The judge fields were relationally linked to a lookup table comprising each judge’s name, as well as fields recording: (1) the political party of the president who appointed the judge; and (2) whether the judge had patent-law experience before being appointed to the Federal Circuit. Finally, the database included a field to record whether each case was a patent case or a non-patent case.

110 Field, supra note 13, at 738 n.109. The cases included are the Federal Circuit’s first 299 cases of 2010, excluding en-banc opinions. This time period ran from January
patent issues. For each of the issues, it was determined whether the court of appeals affirmed, reversed, vacated, or affirmed in part and reversed in part the lower court on that particular issue. Each major issue was examined separately. Where a case discussed multiple “minor” issues, these minor issues were grouped together as one major issue. For example, in a case involving multiple related evidentiary rulings, these rulings were not treated as individual issues; instead, they were grouped together as one single issue. If the court affirmed or reversed all the rulings, then the issue was recorded as “affirmed” or “reversed,” respectively; if the court affirmed some and reversed some of the rulings, then the issue was recorded as “affirmed in part-reversed in part.”

Additionally, also recorded was the standard of review that applied to each issue, which allowed comparison of the judges’ reversal statistics with respect to both deferential (i.e., de novo) and non-deferential standards of review. Also recorded were the names of each judge who participated in the decision, including the identity of the judge who authored the majority opinion, and the judges who authored any concurring or dissenting opinions.

2010 through June 2010. These cases were retrieved using either Westlaw or Lexis. The cases examined included both published and unpublished opinions. Including unpublished decisions in a study such as this one improves its results. See Law, supra note 9, at 866 (“[R]esearchers would be well advised to either incorporate a sample of unpublished decisions, or to justify their reliance on published opinions in light of the research questions posed.”); cf. Yung, supra note 6, at 25 (including unpublished opinions in an empirical study of judicial activism).

111 Field, supra note 13, at 739 & n.110.

112 The standards of review recorded were de novo, clear error, substantial evidence/reasonable juror, and abuse of discretion.

113 The non-deferential standards of review consisted of a combination of clear error, substantial evidence/reasonable juror, and abuse of discretion.
Certain types of dispositions were excluded from the data. For example, the database does not include decisions granting or denying motions made to the court of appeals,\textsuperscript{114} resolving petitions to appeal,\textsuperscript{115} and deciding petitions for writs of mandamus.\textsuperscript{116} Also excluded were any issues for which the court did not articulate a standard of review.\textsuperscript{117} Finally, all en-banc decisions were excluded.\textsuperscript{118}

All judges who participated in decisions during the time period studied were tracked. These judges included active judges, senior judges, and judges from other courts sitting by designation.\textsuperscript{119} But the final analysis was limited to only those judges who participated in at least fifteen decisions during the time period studied.\textsuperscript{120}

\textsuperscript{114} For example, \textit{Young v. Shinseki}, 364 F. App’x 634 (Fed. Cir. 2010) (granting plaintiff’s motion to voluntarily withdraw his appeal), was not included.

\textsuperscript{115} For example, \textit{Harrison v. Shinseki}, 364 F. App’x 630 (Fed. Cir. 2010) (dismissing appeal of decision from the U.S. Court of Appeals for Veterans’ Claims), was not included.

\textsuperscript{116} For example, \textit{In re Pfizer, Inc.}, 364 F. App’x 620 (Fed. Cir. 2010) (denying petition for writ of mandamus), was not included.

\textsuperscript{117} For example, no issue was recorded if a court said that the appellant’s additional arguments were without merit.

\textsuperscript{118} The Federal Circuit issued three en-banc decisions during the period studied: \textit{Ariad Pharms., Inc. v. Eli Lilly & Co.}, 598 F.3d 1336 (Fed. Cir. 2010) (en banc); \textit{Braza v. Office of Personnel Mgmt.}, 598 F.3d 1315 (Fed. Cir. 2010) (en banc); and \textit{Neb. Pub. Power Dist. v. United States}, 590 F.3d 1357 (Fed. Cir. 2010) (en banc). All three of these cases were excluded from this study.

\textsuperscript{119} The following seventeen Federal Circuit judges participated in these decisions: Glen L. Archer, Jr.; William C. Bryson; Raymond C. Clevenger III; Timothy B. Dyk; Daniel M. Friedman; Arthur J. Gajarsa; Richard Linn; Alan D. Lourie; Howard T. Markey; Haldane R. Mayer; Paul R. Michel; Kimberly A. Moore; Pauline Newman; S. Jay Plager; Sharon Prost; Randall R. Rader; and Alvin A. Schall. Additionally, also participating in the decisions studied were the following five judges from other courts sitting on the Federal Circuit by designation: Ron Clark (Eastern District of Texas), David Folsom (Eastern District of Texas), James F. Holderman (Northern District of
B. DATA ANALYSIS

The data from the Microsoft Access database were transferred to Microsoft Excel spreadsheets for analysis. The first step was to count the raw data in appropriate categories for each judge. Dispositions for all issues were tallied under each standard of review for each writing judge, concurring judge (whether writing or not), and dissenting judge. Next, these numbers were combined into two tables: (1) dispositions voted-for by each judge when in the majority; and (2) dispositions voted-for by each judge when in dissent. Next, these tables were combined into a single table with total votes to affirm and total votes to reverse (at least in part) for each judge. Finally, a table was created that grouped the results for all the individual non-deferential standards of review into a

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120 The fifteen judges included in the study because they participated in at least fifteen decisions were Judges Bryson, Clevenger, Dyk, Friedman, Gajarsa, Linn, Lourie, Mayer, Michel, Moore, Newman, Plager, Prost, Rader, and Schall. All these judges were Federal Circuit judges. The five judges sitting by designation did not participate in at least fifteen decisions, so they were excluded from the study, as were Federal Circuit Judges Archer and Markey.

121 Total votes to reverse (at least in part) included votes to reverse, vacate, and affirm-in-part and reverse-in-part.

122 For judges in the panel majority for each case (either writing the majority opinion or concurring), a vote in favor of affirming an issue was counted as a vote to affirm, and a vote in favor of reversing (at least in part) was counted as a vote to reverse (at least in part). In contrast, for judges in the panel minority (i.e., writing the dissenting opinion), a vote in favor of affirming an issue was counted as a vote to reverse (at least in part), a vote in favor of reversing or vacating was counted as a vote to affirm, and a vote in favor of affirming-in-part and reversing-in-part was counted as a vote to affirm-in-part and reverse-in-part.

123 These standards of review were clear error, substantial evidence/reasonable juror, and abuse of discretion. This study followed Professor Yung’s rationales for grouping deferential standards of review together, rather than dealing with them individually. See Yung, supra note 6, at 22 n.113. Professor Yung’s three reasons for
single category. This final table showed results for each judge under (1) totals for issues reviewed de novo; (2) totals for issues reviewed with deference; and (3) totals for all issues. Data for judges who participated in fewer than fifteen decisions\textsuperscript{124} were then deleted. Rates of affirmance and reversal (at least in part) were calculated based on these totals.

These steps were repeated for two subsets of this data: (1) patent cases and (2) non-patent cases. For each of these subsets (patent and non-patent cases), two further subsets of data were tabulated: (1) judges appointed by Republican presidents versus Democratic presidents;\textsuperscript{125} and (2) judges with patent-law experience before joining the Federal Circuit versus judges with no such previous patent-law experience.\textsuperscript{126}

\textsuperscript{124} See \textit{supra} note 120 for the identity of the judges who were included and excluded.

\textsuperscript{125} Of the Federal Circuit judges considered in this study, Judges Clevenger, Lourie, Mayer, Michel, Moore, Newman, Plager, Prost, Rader, and Schall were appointed by Republican presidents. Judges Bryson, Dyk, Friedman, Gajarsa, and Linn were appointed by Democratic presidents. \url{http://www.fjc.gov/history/home.nsf/page/judges.html} (enter name of each judge into the search field to access a biography of each judge, which includes the identity of the appointing president) (last visited Mar. 11, 2013).

\textsuperscript{126} The definition used here of judges having previous patent-law experience followed that used by Allison & Lemley: “[W]e defined a judge as having a patent background if they had regularly practiced patent law, or if they had scientific or technical expertise.” Allison & Lemley, \textit{supra} note 2, at 751. Five of the judges in this study had previous patent-law experience before joining the Federal Circuit: Judges Linn, Lourie, Moore, Newman, and Rader.
Appropriate tables and charts were created using Microsoft Excel for reporting the results in this article.

The second step in tabulation of the data was to calculate “activism differentials” and “scaled activism scores” for each judge based on the methodology developed by Professor Yung. First, a raw “activism differential” was calculated for each judge using the following formula:

\[
\text{Activism differential} = \text{Reversal rate using deferential standards} - \text{Reversal rate using de novo standard.}
\]


“Judge Lourie, who has an advanced degree in chemistry, was corporate counsel for SmithKline Beecham, practiced and wrote about patent law before his appointment.” Allison & Lemley, supra note 2, at 751 n.23.

Judge Moore, who has an advanced degree in engineering, “has written and presented widely on patent litigation.” Kimberly A. Moore, Circuit Judge, http://www.cafc.uscourts.gov/judges/kimberly-a-moore-circuit-judge.html (last visited Mar. 11, 2013). She co-wrote a legal casebook and served as a law professor specializing in patent law before her appointment. Id.

“Judge Newman, who has an advanced degree in chemistry, was a research chemist and a patent lawyer before her appointment.” Allison & Lemley, supra note 2, at 751 n.23.

“Judge Rader, who was counsel to the Senate subcommittee on patents, copyrights and trademarks, and has written on patent law,” including co-writing a legal casebook. Id.

127 See generally Yung, supra note 6, at 18–22, 25–29, 49–50 (describing Professor Yung’s methodology for analyzing reversal rate data to measure substitution of judgment and providing sample calculations using this methodology).

128 Yung, supra note 6, at 49. Professor Yung’s two adjustment steps were not performed in this analysis: (1) a “case-mix adjustment” and (2) a “circuit adjustment.” Id. at 26, 28, 49–50.
Next, these scores were “scale[d] from 0 to 100” to create “scaled activism scores.” These scaled activism scores help to “clarify the relationships between judges’” raw activism differentials because these scaled scores necessarily range from 0 to 100, as opposed to raw activism differentials, which, in this study, were decimal fractions between -0.5 and 0.5.

“Because criminal and civil cases have very different reversal rates,” Professor Yung used a “case-mix adjustment” “to account for the mix of civil and criminal cases” decided by each judge. *Id.* at 49; see also *id.* at 26. This step was eliminated because criminal cases do not fall within the Federal Circuit’s jurisdiction. See 28 U.S.C. § 1295 (2000). This study could have used an analogous adjustment for patent and non-patent cases because these types of cases analogously have very different reversal rates. But instead, this study calculated reversal rates and activism scores for patent and non-patent cases separately, as well as in the aggregate.

Additionally, this study did not use Professor Yung’s “circuit adjustment.” Professor Yung used this circuit adjustment to allow for judges of different circuits to be included in the same calculations because “circuits confront varied substantive and procedural law and diverse cultures and norms.” *Yung, supra* note 6, at 28; see also *id.* at 50. But this adjustment is not necessary in this study because only Federal Circuit judges are being analyzed; this study makes no inter-circuit comparisons.

129 *Yung, supra* note 6, at 28–29, 50. The scaled activism scores were calculated by “determining the highest and lowest [a]ctivism [d]ifferentials” for each group of judges studied. *Id.* at 29. “The judge with the highest score in that group was assigned an [a]ctivism score of 100[,] and the judge with the lowest score was assigned a 0. All other judges were scaled linearly in relation to the high and low values.” *Id.*

For each group of judges to be compared, the linear scaling of the scaled activism scores was accomplished using the following formula:

\[
\text{scaled score} = \text{unscaled score} \times 100 (\text{max} - \text{min}) - \\
\text{min} \times 100 (\text{max} - \text{min}),
\]

where \(\text{scaled score}\) is the scaled activism score, \(\text{unscaled score}\) is the raw activism differential, and \(\text{max}\) and \(\text{min}\) are the maximum and minimum values, respectively, of the raw activism differentials for the group of judges being compared.

130 *Yung, supra* note 6, at 28–29, 50.
The reversal rates and activism scores are based on data that comprise a population, rather than a sample, because this data is based on all relevant cases decided within a particular time frame. And because this study is based on a population, all the data and calculations presented in this article about the population “are by definition ‘statistically significant’” with respect to the population. But because the period of time spanned by the cases of the population is relatively short, the population is also treated “as a subset of an indeterminate ‘superpopulation’ consisting of” cases “across a [longer] range of time.” By so doing, “[t]echniques of statistical inference” can be used to “test a number of hypotheses about the relationship between various factors in the superpopulation”—i.e., to determine whether particular differences are statistically significant. To test hypotheses relating to the difference between mean values relating to particular subsets of the data, an independent-samples t-test was used, and

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131 For a description of cases that were excluded because they were not relevant or useful to this study, see supra notes 114–118 and accompanying text.

132 Cf. Allison & Lemley, supra note 2, at 746 (characterizing a study of “all written, final patent validity decisions by the Federal Circuit reported in the U.S.P.Q. during” a particular time period as “a population, not a sample”). A “population” includes “all members of the group in question,” whereas a “sample” is “a subset drawn from a larger population.” SARAH BOSLAUGH & PAUL ANDREW WATTERS, STATISTICS IN A NUTSHELL 265 (2009).

133 Allison & Lemley, supra note 2, at 747.

134 See supra note 110 and accompanying text for a description of the cases examined in this study.

135 Allison & Lemley, supra note 2, at 748.

136 Id.

137 An independent-samples t-test is used “to determine whether two population means are significantly different.” BOSLAUGH & WATTERS, supra note 132, at 658. The t-
p-values\textsuperscript{138} were calculated based on the resulting values of \( t \).\textsuperscript{139} Additionally, to determine whether and to what extent a correlation exists between two observed
test is particularly useful “where sample sizes are small.” \textit{Id.} at 631. To calculate \( t \)-values to test null hypotheses that there was no difference between the population means of two
groups, the following formula was used:

\[
\begin{align*}
    t &= \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_p^2}{n_1} + \frac{s_p^2}{n_2}}},
\end{align*}
\]

where \( \bar{x}_1 \) and \( \bar{x}_2 \) are the means of sample groups 1 and 2, respectively; \( n_1 \) and \( n_2 \) are the
sample sizes of sample groups 1 and 2, respectively; and \( s_p^2 \) is the pooled sample
variance. Pooled sample variance was calculated using the following formula:

\[
\begin{align*}
    s_p^2 &= \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2},
\end{align*}
\]

where \( s_1^2 \) and \( s_2^2 \) are the variances of sample groups 1 and 2, respectively. Variance is
the square of standard deviation, and standard deviation was calculated using the
“STDEV” function in Microsoft Excel.

\textsuperscript{138} A \( p \)-value represents the probability that an observed difference was due to
chance as opposed to being a true, significant difference. \textit{Id.} at 609. For example, if
\( p = 0.05 \), then there is a 5% chance that an observed difference is due to chance, and there
is a 95% chance that the observed difference is real. \textit{See id.} The traditionally accepted
definition of statistical significance is where \( p < 0.05 \)—i.e., where there is at most a 5%
chance that the observed difference is due to chance and at least a 95% chance that the
observed difference is real. \textit{Id.} at 591. The lower the value of \( p \) is below 0.05, the more
statistically significant the difference is. \textit{See id.}

\textsuperscript{139} Values of \( p \) were calculated based on values of \( t \) using on online statistical
Mar. 12, 2013).
quantities, \( r \)-values\(^\text{140} \) were calculated, and corresponding \( p \)-values were calculated based on the value of \( r \).\(^\text{141} \)

III. RESULTS

This Part describes the results of the empirical study. Part III.A begins by discussing the results relating to the judge dependency of reversal rates. Next, Part III.B discusses the results relating to the judge dependency of activism differentials and scaled activism scores using techniques developed by Professor Yung, which were described above.\(^\text{142} \)

A. REVERSAL RATES

This Sub-Part discusses the results of the empirical study relating to the judge dependency of reversal rates. Figure 1 below summarizes the reversal-rate data used in this Sub-Part for each of the categories of all cases (i.e., patent and non-patent cases), patent cases only, and non-patent cases only.

\(^{140} \) An \( r \)-value represents the “Pearson’s product-moment correlation coefficient” between two samples. BOSLAUGH & WATTERS, supra note 132, at 723. The value of “\( r \) always ranges . . . from -1 to 1, with values close to zero representing weak relationships, and high values representing strong relationships (either strongly negative or strongly positive).” Id.

\(^{141} \) Values of \( p \) were calculated based on values of \( r \) using an online statistical calculator. Statistical Tables Calculator, http://www.vassarstats.net/tabs.html (last visited Mar. 12, 2013).

\(^{142} \) See supra Part II.B for a detailed discussion of how Professor Yung’s techniques were used in the study described in this article.
First, Part III.A.1 discusses the results for all cases. Second, Part III.A.2 discusses the results for patent cases only. Third and finally, Part III.A.3 discusses the results for non-patent cases only.

1. All Cases

Table 1 and Figure 2 below show the results for reversal rates for each judge of the Federal Circuit in all cases, patent and non-patent. The overall mean reversal rate for the issues studied was 29.7%. As expected, the mean reversal rate for the de novo standard of review (39.8%) was greater than that for deferential standards of review (21.2%). The reversal rates ranged from a low of 19.0% for Judge Friedman up to 43.8% for Judge Plager. As can be seen in Figure 2, there is a high correlation between the
identity of the judge and reversal rate, and this correlation is highly statistically significant.\textsuperscript{143}

\begin{table}[h]
\centering
\caption{Reversal Rates of Federal Circuit Judges—All Cases (Patent and Non-Patent)}\textsuperscript{144}
\label{tab:reversal-rates}
\begin{tabular}{|l|c|c|c|}
\hline
\textbf{Judge} & \textbf{De novo standard of review} & \textbf{Deferential standards of review} & \textbf{Overall (all standards of review)} \\
\hline
Bryson & 31.8\% & 13.9\% & 20.7\% \\
Clevenger & 40.0\% & 18.2\% & 30.8\% \\
Dyk & 34.4\% & 20.0\% & 26.4\% \\
Friedman & 20.0\% & 18.2\% & 19.0\% \\
Gajarsa & 43.5\% & 20.6\% & 29.8\% \\
Linn* & 43.8\% & 31.1\% & 36.4\% \\
Lourie* & 36.2\% & 20.6\% & 29.6\% \\
Mayer & 38.1\% & 19.0\% & 28.6\% \\
Michel & 52.0\% & 26.3\% & 40.9\% \\
Moore* & 39.1\% & 11.5\% & 24.5\% \\
Newman, P.* & 36.0\% & 34.1\% & 34.8\% \\
Plager & 60.0\% & 36.4\% & 43.8\% \\
Prost & 44.0\% & 11.9\% & 23.9\% \\
Rader* & 32.5\% & 35.9\% & 34.2\% \\
Schall & 45.5\% & 0.0\% & 21.7\% \\
\hline
\textbf{Mean} & \textbf{39.8\%} & \textbf{21.2\%} & \textbf{29.7\%} \\
\hline
\end{tabular}
\end{table}

\textsuperscript{143} r = 0.985, p < 0.0001.

\textsuperscript{144} In all tables and figures in this article, an asterisk indicates a judge that had patent-law experience before joining the Federal Circuit. See supra note 126 for a discussion of the criteria used to determine which judges had such previous patent-law experience.
Figure 2. Overall Reversal Rates of Federal Circuit Judges—All Standards of Review, All Cases (Patent and Non-Patent)

Figure 3 below shows the distribution of overall reversal rates for all standards of review and all cases (including both patent and non-patent cases). As can be seen from this figure, the distribution appears to approximate a normal, though skewed, distribution.

Figure 3. Distribution of Reversal Rates—All Standards of Review, All Cases (Patent and Non-Patent)
Figure 4 below shows the number of standard deviations from the mean for the overall reversal rate of each judge. Eight judges had reversal rates less than the mean,\(^{145}\) and seven judges had reversal rates greater than the mean.\(^{146}\) Judge Lourie’s reversal rate (29.6\%) was almost exactly equal to the mean (29.7\%). There were no outliers\(^{147}\)—i.e., no judge’s reversal rate was greater than two standard deviations above or below the mean.

\(^{145}\) These were Judges Bryson, Dyk, Friedman, Lourie, Mayer, Moore, Prost, and Schall.

\(^{146}\) These were Judges Clevenger, Gajarsa, Linn, Michel, Newman, Plager, and Rader.

\(^{147}\) The definition of “outlier” used here is a value that is “two or more standard deviations above or below the mean.” BOSLAUGH & WATTERS, supra note 132, at 514.
2. Patent Cases Only

Table 2 and Figure 5 below show the results for overall reversal rates for each judge of the Federal Circuit in patent cases only. The overall mean reversal rate for patent cases only was 38.9%. As expected, the mean reversal rate for the de novo standard of review (46.7%) was again greater than that for deferential standards of review (25.7%). The reversal rates ranged from a low of 19.0% for Judge Friedman up to 43.8% for Judge Plager. As can be seen in Figure 5, as with all cases, there is again a high correlation between the identity of the judge and reversal rate for patent cases only, and this
correlation is highly statistically significant.\textsuperscript{148} Interestingly, the overall reversal rate for patent cases only (38.9\%) was substantially greater than that of all cases (29.7\%).

\textbf{Table 2. Reversal Rates of Federal Circuit Judges—Patent Cases Only}

<table>
<thead>
<tr>
<th>Judge</th>
<th>De novo standard of review</th>
<th>Deferential standards of review</th>
<th>Overall (all standards of review)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryson</td>
<td>46.7%</td>
<td>30.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>Clevenger</td>
<td>55.6%</td>
<td>25.0%</td>
<td>46.2%</td>
</tr>
<tr>
<td>Dyk</td>
<td>38.9%</td>
<td>21.4%</td>
<td>31.3%</td>
</tr>
<tr>
<td>Friedman</td>
<td>50.0%</td>
<td>0.0%</td>
<td>40.0%</td>
</tr>
<tr>
<td>Gajarsa</td>
<td>50.0%</td>
<td>40.0%</td>
<td>44.8%</td>
</tr>
<tr>
<td>Linn*</td>
<td>52.6%</td>
<td>47.4%</td>
<td>50.0%</td>
</tr>
<tr>
<td>Lourie*</td>
<td>34.4%</td>
<td>25.0%</td>
<td>31.3%</td>
</tr>
<tr>
<td>Mayer</td>
<td>28.6%</td>
<td>12.5%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Michel</td>
<td>62.5%</td>
<td>11.1%</td>
<td>44.0%</td>
</tr>
<tr>
<td>Moore*</td>
<td>40.0%</td>
<td>16.7%</td>
<td>31.3%</td>
</tr>
<tr>
<td>Newman, P.*</td>
<td>33.3%</td>
<td>40.0%</td>
<td>37.0%</td>
</tr>
<tr>
<td>Plager</td>
<td>75.0%</td>
<td>50.0%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Prost</td>
<td>50.0%</td>
<td>18.8%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Rader*</td>
<td>40.6%</td>
<td>47.6%</td>
<td>43.4%</td>
</tr>
<tr>
<td>Schall</td>
<td>42.9%</td>
<td>0.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td>\textbf{Mean}</td>
<td>\textbf{46.7%}</td>
<td>\textbf{25.7%}</td>
<td>\textbf{38.9%}</td>
</tr>
</tbody>
</table>

\textsuperscript{148} \( r = 0.941, p < 0.0001 \).
Figure 5. Overall Reversal Rates of Federal Circuit Judges—All Standards of Review, Patent Cases Only

Figure 6 below shows the distribution of overall reversal rates for all standards of review for patent cases only. As can be seen from this figure, as for all cases, the distribution of reversal rates for patent cases only appears to again approximate a normal, though skewed, distribution.

$r = 0.941$

$p < 0.0001$

*Denotes prior patent experience
Figure 6. Distribution of Reversal Rates—All Standards of Review, Patent Cases Only

![Bar chart showing distribution of reversal rates](image)

Figure 7 below shows the number of standard deviations from the mean for the overall reversal rate of each judge for patent cases only. This time, seven judges had reversal rates less than the mean,\(^{149}\) and eight judges had reversal rates greater than the mean.\(^{150}\) Judges Bryson and Friedman’s reversal rates (40.0\% each) were the closest to the mean for patent cases only (38.9\%). Again, none of the judges was an outlier.

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\(^{149}\) These were Judges Dyk, Lourie, Mayer, Moore, Newman, Prost, and Schall.

\(^{150}\) These were Judges Bryson, Clevenger, Friedman, Gajarsa, Linn, Michel, Plager, and Rader.
3. **Non-Patent Cases Only**

Table 3 and Figure 8 below show the results for overall reversal rates for each judge of the Federal Circuit in non-patent cases only. The overall mean reversal rate for non-patent cases only was 21.8%. As expected, the mean reversal rate for the de novo standard of review (26.1%) was yet again greater than that for deferential standards of review (18.0%). The reversal rates ranged from a low of 6.1% for Judge Bryson up to 36.8% for Judge Michel. As can be seen in Figure 8, as with all cases and patent cases only, there is yet again a high correlation between the identity of the judge and reversal...
rate for non-patent cases only, and this correlation is highly statistically significant.\footnote{\( r = 0.984, p < 0.0001. \)} \footnote{\( r = 0.984, p < 0.0001. \)}

Interestingly, the overall reversal rate for non-patent cases only (21.8\%) was substantially less than that of patent cases only (38.9\%) and that of all cases (29.7\%).

\begin{table}
\centering
\caption{Reversal Rates of Federal Circuit Judges—Non-Patent Cases Only}
\begin{tabular}{|l|c|c|c|}
\hline
\textbf{Judge} & \textbf{De novo standard of review} & \textbf{Deferential standards of review} & \textbf{Overall (all standards of review)} \\
\hline
Bryson & 0.0\% & 7.7\% & 6.1\% \\
Clevenger & 16.7\% & 14.3\% & 15.4\% \\
Dyk & 28.6\% & 19.2\% & 22.5\% \\
Friedman & 0.0\% & 20.0\% & 12.5\% \\
Gajarsa & 33.3\% & 5.3\% & 14.3\% \\
Linn* & 30.8\% & 19.2\% & 23.1\% \\
Lourie* & 40.0\% & 16.7\% & 27.3\% \\
Mayer & 42.9\% & 23.1\% & 33.3\% \\
Michel & 33.3\% & 40.0\% & 36.8\% \\
Moore* & 38.5\% & 10.0\% & 21.2\% \\
Newman, P.* & 38.5\% & 31.0\% & 33.3\% \\
Plager & 0.0\% & 33.3\% & 30.0\% \\
Prost & 38.5\% & 7.7\% & 17.9\% \\
Rader* & 0.0\% & 22.2\% & 15.4\% \\
Schall & 50.0\% & 0.0\% & 18.2\% \\
\hline
\textbf{Mean} & \textbf{26.1\%} & \textbf{18.0\%} & \textbf{21.8\%} \\
\hline
\end{tabular}
\end{table}
Figure 8. Overall Reversal Rates of Federal Circuit Judges—All Standards of Review, Non-Patent Cases Only

Figure 9 below shows the distribution of overall reversal rates for all standards of review for non-patent cases only. As can be seen from this figure, as for all cases and patent cases only, the distribution of reversal rates for non-patent cases only appears to once again approximate a normal, though skewed, distribution.
Figure 9. Distribution of Reversal Rates—
All Standards of Review, Non-Patent Cases Only

Figure 10 below shows the number of standard deviations from the mean for the overall reversal rate of each judge for non-patent cases only. This time, eight judges had reversal rates less than the mean, and seven judges had reversal rates greater than the mean. Judge Moore’s reversal rate (21.2%) was closest to the mean for non-patent cases only (21.8%). Again, none of the judges was an outlier.

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152 These were Judges Bryson, Clevenger, Friedman, Gajarsa, Moore, Prost, Rader, and Schall.

153 These were Judges Dyk, Linn, Lourie, Mayer, Michel, Newman, and Plager.
B. ACTIVISM DIFFERENTIALS

This Sub-Part discusses the results of the empirical study relating to activism differentials and scaled activism scores using a method developed by Professor Yung.\textsuperscript{154} Analyzing judicial hyperactivity using Professor Yung’s activism differentials and scaled activism scores is superior to using raw reversal rates. Professor Yung’s method involves using a judge’s reversal rate using the de-novo standard of review as a baseline.\textsuperscript{155} Using

\textsuperscript{154} See \textit{supra} Part II.B for a detailed discussion of how Professor Yung’s techniques were used to calculate activism differentials and scaled activism scores in the study described in this article.

\textsuperscript{155} Yung, \textit{supra} note 6, at 22.
this baseline “remove[s] cases decided only by ideology or other factors separate from the concept of activism”\textsuperscript{156} or judicial hyperactivity. Thus, the use of activism differentials and scaled activism scores provides a better measure of judicial hyperactivity than studying reversal rates alone.

That activism differentials are measuring a different type of judicial behavior than reversal rates is supported by the fact that in this study, there was no statistically significant correlation between activism differentials and reversal rates for the population analyzed. If activism differentials were measuring the same type of judicial behavior as reversal rates, then a strong positive correlation would be expected to exist between these two measures. But only a weak positive correlation was observed in this study, and this correlation was not statistically significant.\textsuperscript{157} Thus, it is likely that activism differentials are measuring something different than reversal rates.

First, Part III.B.1 below discusses the results for all cases. Second, Part III.B.2 discusses the results for patent cases only. Third and finally, Part III.B.3 discusses the results for non-patent cases only.

\textsuperscript{156} \textit{Id.}

\textsuperscript{157} For activism differentials and reversal rates calculated from the data for all judges in all cases (patent and non-patent), $r = 0.164$ and $p = 0.280$. This value of $p$ is far greater than the value of $p = 0.05$, a value below which would be required under the traditional definition of statistical significance.
1. All Cases

Table 4 and Figure 11 below show the activism differentials and scaled activism scores\(^{158}\) for each judge of the Federal Circuit in all cases, patent and non-patent. The lowest activism differential and scaled activism score belonged to Judge Schall (-0.455 and 0,\(^{159}\) respectively). And the highest activism differential and scaled activism score belonged to Judge Rader (0.034 and 100,\(^{160}\) respectively). Thus, by this measure, Judge Schall was the least judicially hyperactive judge in the population of cases studied, and Judge Rader was the most judicially hyperactive judge in the population. Figure 11 clearly shows how the judges in the population rank with respect to judicial hyperactivity as measured by activism differential. Also, as can be seen in Figure 11, there is a high correlation between the identity of the judge and scaled activism score, and this correlation is highly statistically significant.\(^{161}\)

Interestingly, Figure 11 also reveals that judges with prior patent-law experience before joining the Federal Circuit\(^{162}\) appeared to show a somewhat greater degree of

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\(^{158}\) See supra Part II.B for a detailed discussion of how Professor Yung’s techniques were used to calculate activism differentials and scaled activism scores in the study described in this article.

\(^{159}\) The lowest scaled activism score for a group of judges is zero by definition. See supra notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.

\(^{160}\) The highest scaled activism score for a group of judges is 100 by definition. See supra notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.

\(^{161}\) \(r = 0.957, p < 0.0001\).

\(^{162}\) The judges in this study with prior patent-law experience are Judges Linn, Lourie, Moore, Newman, and Rader. See supra note 102 for the criteria used to differentiate between Federal Circuit judges with and without prior patent-law experience.
judicial hyperactivity than judges with no such prior patent-law experience. Indeed, Figure 11 shows that three of the top four ranked judges had prior patent-law experience. A statistical analysis of these results, described below, revealed that in fact there was a statistically significant difference between the mean activism differentials of judges with prior patent-law experience and judges with no prior patent-law experience in all cases.163

Table 4. Activism Differentials and Scaled Activism Scores—All Cases (Patent and Non-Patent)

<table>
<thead>
<tr>
<th>Judge</th>
<th>Activism Differential</th>
<th>Scaled Activism Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryson</td>
<td>-0.179</td>
<td>56.3</td>
</tr>
<tr>
<td>Clevenger</td>
<td>-0.218</td>
<td>48.4</td>
</tr>
<tr>
<td>Dyk</td>
<td>-0.144</td>
<td>63.6</td>
</tr>
<tr>
<td>Friedman</td>
<td>-0.018</td>
<td>89.3</td>
</tr>
<tr>
<td>Gajarsa</td>
<td>-0.229</td>
<td>46.2</td>
</tr>
<tr>
<td>Linn*</td>
<td>-0.126</td>
<td>67.2</td>
</tr>
<tr>
<td>Lourie*</td>
<td>-0.156</td>
<td>61.1</td>
</tr>
<tr>
<td>Mayer</td>
<td>-0.190</td>
<td>54.1</td>
</tr>
<tr>
<td>Michel</td>
<td>-0.257</td>
<td>40.5</td>
</tr>
<tr>
<td>Moore*</td>
<td>-0.276</td>
<td>36.6</td>
</tr>
<tr>
<td>Newman, P.*</td>
<td>-0.019</td>
<td>89.1</td>
</tr>
<tr>
<td>Plager</td>
<td>-0.236</td>
<td>44.7</td>
</tr>
<tr>
<td>Prost</td>
<td>-0.321</td>
<td>27.3</td>
</tr>
<tr>
<td>Rader*</td>
<td>0.034</td>
<td>100.0</td>
</tr>
<tr>
<td>Schall</td>
<td>-0.455</td>
<td>0.0</td>
</tr>
</tbody>
</table>

163 The mean activism differential for judges with prior patent-law experience was -0.109 in all cases, and the mean activism differential for judges with no prior patent-law experience was -0.225. This difference was statistically significant ($p = 0.0452$). See infra Part IV.B for a detailed discussion of this analysis.
Figure 11. Scaled Activism Scores—All Cases (Patent and Non-Patent)

Figure 12 below shows the distribution of scaled activism scores for all cases (i.e., patent and non-patent). As can be seen from this figure, the distribution appears to approximate a normal, though skewed, distribution.

Figure 12. Distribution of Scaled Activism Scores—All Cases (Patent and Non-Patent)
As a further aide in understanding the extent to which each judge in the population of cases studied was judicially hyperactive, Figure 13 below shows the number of standard deviations from the mean for the activism differential of each judge. Eight judges had activism differentials less than the mean,¹⁶⁴ and seven judges had activism differentials greater than the mean.¹⁶⁵ Judge Bryson’s activism differential (-0.179) was almost exactly equal to the mean activism differential (-0.186). This time, there was one judge—Judge Schall—who might be considered an outlier¹⁶⁶ because his activism differential was slightly greater than two standards of deviation less than the mean (-2.14).

¹⁶⁴ These were Judges Clevenger, Gajarsa, Mayer, Michel, Moore, Plager, Prost, and Schall.

¹⁶⁵ These were Judges Bryson, Dyk, Friedman, Linn, Lourie, Newman, and Rader.

¹⁶⁶ The definition of “outlier” used here is a value that is “two or more standard deviations above or below the mean.” BOSLAUGH & WATTERS, supra note 132, at 514.
2. Patent Cases Only

Table 5 and Figure 14 below show the activism differentials and scaled activism scores\textsuperscript{167} for each judge of the Federal Circuit in patent cases only. The lowest activism differential and scaled activism score for patent cases only belonged to Judge Michel (-0.514 and 0,\textsuperscript{168} respectively). And the highest activism differential and scaled activism score

\textsuperscript{167} See \textit{supra} Part II.B for a detailed discussion of how Professor Yung’s techniques were used to calculate activism differentials and scaled activism scores in the study described in this article.

\textsuperscript{168} The lowest scaled activism score for a group of judges is 0 by definition. See \textit{supra} notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.
score for patent cases only belonged to Judge Rader (0.070 and 100,\textsuperscript{169} respectively). Thus, by this measure, Judge Michel was the least judicially hyperactive judge in the population of patent cases studied, and Judge Rader was the most judicially hyperactive judge in the population of patent cases. Figure 14 clearly shows how the judges in the population of patent cases rank with respect to judicial hyperactivity as measured by activism differential. Also, as can be seen in Figure 14, there is a high correlation between the identity of the judge and scaled activism score, and this correlation is highly statistically significant.\textsuperscript{170}

Interestingly, Figure 14 also reveals that judges with prior patent-law experience before joining the Federal Circuit\textsuperscript{171} appeared to show a greater degree of judicial hyperactivity in patent cases than judges with no such prior patent-law experience. Indeed, Figure 14 shows that the top four ranked judges in patent cases all had prior patent-law experience, and four of the five judges with prior patent-law experience were ranked one through four in scaled activism scores in patent cases, with scores all greater than or equal to 72.0.\textsuperscript{172} A statistical analysis of these results, described below, revealed that in fact there was a strong statistically significant difference between the mean

\textsuperscript{169} The highest scaled activism score for a group of judges is 100 by definition. See \textit{supra} notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.

\textsuperscript{170} \(r = 0.982, p < 0.0001\).

\textsuperscript{171} The judges in this study with prior patent-law experience are Judges Linn, Lourie, Moore, Newman, and Rader. See \textit{supra} note 102 for the criteria used to differentiate between Federal Circuit judges with and without prior patent-law experience.

\textsuperscript{172} The only judge with prior patent-law experience that does not rank high in scaled activism score for patent cases was Judge Moore, who ranked ninth with a score of 48.1.
activism differentials of judges with prior patent-law experience and judges with no prior patent-law experience in patent cases.\textsuperscript{173}

Table 5. Activism Differentials and Scaled Activism Scores—Patent Cases Only

<table>
<thead>
<tr>
<th>Judge</th>
<th>Activism Differential</th>
<th>Scaled Activism Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryson</td>
<td>-0.167</td>
<td>59.5</td>
</tr>
<tr>
<td>Clevenger</td>
<td>-0.306</td>
<td>35.7</td>
</tr>
<tr>
<td>Dyk</td>
<td>-0.175</td>
<td>58.1</td>
</tr>
<tr>
<td>Friedman</td>
<td>-0.500</td>
<td>2.4</td>
</tr>
<tr>
<td>Gajarsa</td>
<td>-0.100</td>
<td>70.9</td>
</tr>
<tr>
<td>Linn*</td>
<td>-0.053</td>
<td>79.0</td>
</tr>
<tr>
<td>Lourie*</td>
<td>-0.094</td>
<td>72.0</td>
</tr>
<tr>
<td>Mayer</td>
<td>-0.161</td>
<td>60.5</td>
</tr>
<tr>
<td>Michel</td>
<td>-0.514</td>
<td>0.0</td>
</tr>
<tr>
<td>Moore*</td>
<td>-0.233</td>
<td>48.1</td>
</tr>
<tr>
<td>Newman, P.*</td>
<td>0.067</td>
<td>99.4</td>
</tr>
<tr>
<td>Plager</td>
<td>-0.250</td>
<td>45.2</td>
</tr>
<tr>
<td>Prost</td>
<td>-0.313</td>
<td>34.5</td>
</tr>
<tr>
<td>Rader*</td>
<td>0.070</td>
<td>100.0</td>
</tr>
<tr>
<td>Schall</td>
<td>-0.429</td>
<td>14.6</td>
</tr>
</tbody>
</table>

\textsuperscript{173} The mean activism differential for judges with prior patent-law experience was -0.049 in patent cases, and the mean activism differential for judges with no prior patent-law experience was -0.291 in patent cases. This difference was strongly statistically significant ($p = 0.0040$). See infra Part IV.B for a detailed discussion of this analysis.
Figure 14. Scaled Activism Scores—Patent Cases Only

Figure 15 below shows the distribution of scaled activism scores for patent cases only. As can be seen from this figure, unlike results for other categories, the distribution of scaled activism scores for patent cases does not appear to be normal. Instead, the scaled activism scores appear to be uniformly distributed among the judges studied.

$r = 0.982$
$p < 0.0001$

*Denotes prior patent experience
As a further aide in understanding the extent to which each judge in the population of cases studied was judicially hyperactive in patent cases, Figure 16 below shows the number of standard deviations from the mean for the activism differential of each judge for the population of patent cases only. Seven judges had activism differentials less than the mean,\textsuperscript{174} and eight judges had activism differentials greater than the mean.\textsuperscript{175} Judge Moore’s activism differential (-0.233) was closest to the mean activism differential (-0.210). None of the judges was an outlier.

\textsuperscript{174} These were Judges Clevenger, Friedman, Michel, Moore, Plager, Prost, and Schall.

\textsuperscript{175} These were Judges Bryson, Dyk, Gajarsa, Linn, Lourie, Mayer, Newman, and Rader.
3. Non-Patent Cases Only

Table 6 and Figure 17 below show the activism differentials and scaled activism scores for each judge of the Federal Circuit in non-patent cases only. The lowest activism differential and scaled activism score for non-patent cases only belonged to Judge Schall (-0.500 and 0, respectively). And the highest activism differential and

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176 See supra Part II.B for a detailed discussion of how Professor Yung’s techniques were used to calculate activism differentials and scaled activism scores in the study described in this article.

177 The lowest scaled activism score for a group of judges is 0 by definition. See supra notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.
scaled activism score for non-patent cases belonged to Judge Plager (0.333 and 100,\textsuperscript{178} respectively). Thus, by this measure, Judge Schall was the least judicially hyperactive judge in the population of non-patent cases studied, and Judge Plager was the most judicially hyperactive judge in the population of non-patent cases. Figure 17 clearly shows how the judges in the population of non-patent cases rank with respect to judicial hyperactivity as measured by activism differential. Also, as can be seen in Figure 17, there is a high correlation between the identity of the judge and scaled activism score, and this correlation is highly statistically significant.\textsuperscript{179}

Unlike in the all-cases and patent-only-cases category, in the non-patent-cases-only category, Figure 17 reveals that the judicial hyperactivity of judges with prior patent-law experience before joining the Federal Circuit\textsuperscript{180} seemed to be equally distributed throughout the continuum of judicial hyperactivity. A statistical analysis of these results, described below, revealed that in fact there was no statistically significant difference between the mean activism differentials of judges with prior patent-law experience and judges with no prior patent-law experience in non-patent cases.\textsuperscript{181}

\textsuperscript{178} The highest scaled activism score for a group of judges is 100 by definition. See supra notes 129–130 and accompanying text for a description of how raw activism differentials were converted to scaled activism scores.

\textsuperscript{179} r = 0.984, p < 0.0001.

\textsuperscript{180} The judges in this study with prior patent-law experience are Judges Linn, Lourie, Moore, Newman, and Rader. See supra note 102 for the criteria used to differentiate between Federal Circuit judges with and without prior patent-law experience.

\textsuperscript{181} The mean activism differential for judges with prior patent-law experience was -0.0971 in non-patent cases, and the mean activism differential for judges with no prior patent-law experience was -0.0726 in non-patent cases. This difference was not statistically significant (p = 0.427). See infra Part IV.B for a detailed discussion of this analysis.
Table 6. Activism Differentials and Scaled Activism Scores—Non-Patent Cases Only

<table>
<thead>
<tr>
<th>Judge</th>
<th>Activism Differential</th>
<th>Scaled Activism Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bryson</td>
<td>0.077</td>
<td>69.2</td>
</tr>
<tr>
<td>Clevenger</td>
<td>-0.024</td>
<td>57.1</td>
</tr>
<tr>
<td>Dyk</td>
<td>-0.093</td>
<td>48.8</td>
</tr>
<tr>
<td>Friedman</td>
<td>0.200</td>
<td>84.0</td>
</tr>
<tr>
<td>Gajarsa</td>
<td>-0.281</td>
<td>26.3</td>
</tr>
<tr>
<td>Linn*</td>
<td>-0.115</td>
<td>46.2</td>
</tr>
<tr>
<td>Lourie*</td>
<td>-0.233</td>
<td>32.0</td>
</tr>
<tr>
<td>Mayer</td>
<td>-0.198</td>
<td>36.3</td>
</tr>
<tr>
<td>Michel</td>
<td>0.067</td>
<td>68.0</td>
</tr>
<tr>
<td>Moore*</td>
<td>-0.285</td>
<td>25.8</td>
</tr>
<tr>
<td>Newman, P.*</td>
<td>-0.074</td>
<td>51.1</td>
</tr>
<tr>
<td>Plager</td>
<td>0.333</td>
<td>100.0</td>
</tr>
<tr>
<td>Prost</td>
<td>-0.308</td>
<td>23.1</td>
</tr>
<tr>
<td>Rader*</td>
<td>0.222</td>
<td>86.7</td>
</tr>
<tr>
<td>Schall</td>
<td>-0.500</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Figure 17. Scaled Activism Scores—Non-Patent Cases Only

Figure 18 below shows the distribution of scaled activism scores for non-patent cases only. As can be seen from this figure, the distribution of scaled activism scores for
non-patent cases does not appear to be normal. Instead, the scaled activism scores appear to be somewhat uniformly distributed among the judges studied.

**Figure 18. Distribution of Scaled Activism Scores—Non-Patent Cases Only**

![Bar chart showing distribution of scaled activism scores for non-patent cases.]

As a further aide in understanding the extent to which each judge in the population of cases studied was judicially hyperactive in non-patent cases, Figure 19 below shows the number of standard deviations from the mean for the activism differential of each judge for the population of non-patent cases only. Eight judges had activism differentials less than the mean,\(^{182}\) and seven judges had activism differentials greater than the mean.\(^{183}\) Judge Newman’s activism differential (-0.074) was closest to the mean activism differential (-0.081). Finally, none of the judges was an outlier.

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\(^{182}\) These were Judges Dyk, Gajarsa, Linn, Lourie, Mayer, Moore, Prost, and Schall.

\(^{183}\) These were Judges Bryson, Clevenger, Friedman, Michel, Newman, Plager, and Rader.
IV. IMPLICATIONS OF THE RESULTS

This Part discusses some implications of the results of the study described in this article. Part IV.A starts by discussing the implication that the judges of the Federal Circuit exhibit a beneficial range of judicial hyperactivity. Next, Part IV.B discusses the conclusion that Federal Circuit judges with prior patent-law experience are more judicially hyperactive in patent cases, but not in non-patent cases. Finally, Part IV.C describes the conclusion that Federal Circuit judges appointed by Republican presidents are no more or less judicially hyperactive than Federal Circuit judges appointed by Democratic presidents.
A. THE JUDGES OF THE FEDERAL CIRCUIT EXHIBIT A BENEFICIAL RANGE OF JUDICIAL HYPERACTIVITY

The data in this study show that the judges of the Federal Circuit exhibit a seemingly beneficial range of judicial hyperactivity. Looking at both reversal rates or activism differentials, the results show that during the time period of this study, the Federal Circuit was composed of judges who showed various degrees of judicial hyperactivity. In all three categories of cases studied—all cases (patent and non-patent), patent only, and non-patent only—the reversal-rate data revealed a somewhat normal (though skewed) distribution of reversal rates.184 And instead examining the activism-differential results, in the all-cases category, a similar normal-but-skewed distribution was observed.185 But using the activism-differential results for the categories of patent cases and non-patent cases, activism differential was evenly rather than normally distributed among the judges.186

These results reveal that the composition of the Federal Circuit may be ideal in terms of range of judicial hyperactivity. The court appears to include judges from both ends and the middle of the judicial hyperactivity continuum. A court with too few judicially hyperactive judges might be less effective than one with a greater number of judicially hyperactive judges. Indeed, a court with few or no judicially hyperactive judges

184 See supra Part III.A for a discussion of reversal-rate data.

185 See supra Part III.B.1 for a discussion of activism-differential data for the all-cases category.

186 See supra Parts III.B.2 and III.B.3 for discussions of activism-differential data for patent cases and non-patent cases, respectively.
may lack the innovative, risk-taking characteristics of the “judicial entrepreneur,” which are necessary to allow the court to evolve the law as appropriate under changing circumstances. Such evolution is particularly important in patent law if it is to keep up with ever-changing technologies.

In contrast, a court with too many judicially hyperactive judges might be less effective than one with fewer judicially hyperactive judges. Such a court may lack the stability that minimalist judges provide. Moreover, such a court may lack the ability to fulfill one of the central purposes of the Federal Circuit: to “yield a clearer, more coherent, more predictable legal infrastructure for the patent system.” Indeed, a court with too many judicially hyperactive entrepreneurs may decrease the predictability of the patent system because the court’s results would be too judge-dependent. Thus, because

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188 See Cross & Lindquist, supra note 9, at 1425 (“A court consisting entirely of judicial entrepreneurs might be unduly activist and, to the extent that their judicial preferences differ, might produce many conflicting precedents and instability in the law.”).

189 See, e.g., Sean B. Seymore, Atypical Inventions, 86 NOTRE DAME L. REV. 2057, 2058 (2011) ("Patent law is one of the most dynamic areas of the law because it must respond as the nature of the invention landscape changes to reflect advances in science and technology."); Teri-Lynn A. Evans, Note, The Effect of the Supreme Court’s Decision in KSR on the System of Patent Litigation, 40 RUTGERS L.J. 669, 674 (2009) ("Patent law is a constantly evolving system of jurisprudence because it is based on the demands of the ever-changing technological community . . . .").

190 Cross & Lundquist, supra note 9, at 1419–21; SUNSTEIN, supra note 69, at 4–5. See supra Part I.B.2 for a discussion of judicial minimalists.

191 Wagner & Petherbridge, supra note 40; see Cross & Lindquist, supra note 9, at 1425 (“A court of only judicial minimalists . . . might leave the law stagnant and unable to respond to changing societal circumstances.”).

192 See Cross & Lundquist, supra note 9, at 1425.
the data of this study show that the judges of the Federal Circuit exhibit a range of judicially hyperactive behavior, this study supports the conclusion that the Federal Circuit has a beneficial mix of judges with respect to judicial hyperactivity.

B. FEDERAL CIRCUIT JUDGES WITH PRIOR PATENT-LAW EXPERIENCE ARE MORE JUDICIAIHY HYPERACTIVE THAN JUDGES WITHOUT PRIOR PATENT-LAW EXPERIENCE IN PATENT CASES, BUT NOT IN NON-PATENT CASES

The activism-differential data calculated in this study support the conclusion that in patent cases, Federal Circuit judges with prior patent-law experience are more judicially hyperactive than judges without prior patent-law experience.¹⁹³ Judges with prior patent-law experience thus appear to be more comfortable in substituting their own judgment for that of the district court judges whose decisions they are reviewing in patent cases, possibly because they (consciously or, more likely, subconsciously) believe they have a better understanding of patent-law issues than the district-court judges whose decisions they are reviewing. But the data do not support the conclusion that in non-patent cases, judges with prior patent-law experience are any more or less judicially hyperactive than judges with no prior patent-law experience. Table 7 and Figure 20 below summarize the data used in this Sub-Part.

¹⁹³ See supra note 102 for the criteria used to differentiate between Federal Circuit judges with and without prior patent-law experience, as well as the identities of the judges falling into each category.

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</thead>
<tbody>
<tr>
<td>Patent Cases</td>
<td>-0.049</td>
<td>-0.291</td>
<td>3.129</td>
<td>0.0040</td>
<td>YES (99.6%)</td>
</tr>
<tr>
<td>Non-Patent Cases</td>
<td>-0.0971</td>
<td>-0.0726</td>
<td>0.187</td>
<td>0.427</td>
<td>NO</td>
</tr>
<tr>
<td>All Cases</td>
<td>-0.109</td>
<td>-0.225</td>
<td>1.829</td>
<td>0.0452</td>
<td>YES (95.5%)</td>
</tr>
</tbody>
</table>

Figure 20. Mean Activism Differentials—Judges with Prior Patent-Law Experience Versus Judges with No Prior Patent-Law Experience

To test whether the activism differentials calculated here tend to support the conclusion that in patent cases, judges with prior patent-law experience are more
judicially hyperactive than those without prior patent-law experience, the following null hypothesis\textsuperscript{194} was used:

\textit{In patent cases, there is no difference between the mean activism differential of Federal Circuit judges with prior patent-law experience and the mean activism differential of judges with no prior patent-law experience.}

The following alternative hypothesis\textsuperscript{195} was used:

\textit{In patent cases, the mean activism differential of Federal Circuit judges with prior patent-law experience is greater than the mean activism differential of judges with no prior patent-law experience.}

In patent cases, the mean activism differential of judges with prior patent-law experience (-0.049) was substantially greater than that of judges with no prior patent-law experience (-0.291). This difference was statistically significant to a confidence level of 99.6\%\textsuperscript{196}. Thus, this evidence strongly supports the rejection of the null hypothesis and acceptance of the alternative hypothesis. Assuming that the mean activism differential of a group of judges is a valid indicator of the level of judicial hyperactivity of this group, then this study strongly supports the conclusion that Federal Circuit judges with prior patent-law experience are more judicially hyperactive than judges with no prior patent-law experience.

\textsuperscript{194} A “null hypothesis” is a hypothesis that a researcher will accept “unless the statistical evidence is very strong in the other direction.” CHARLES LIVINGSTON & PAUL VOAKES, WORKING WITH NUMBERS AND STATISTICS 84 (2005).

\textsuperscript{195} An “[a]lternative [h]ypothesis is the opposite of the [n]ull [h]ypothesis.” Id. If the statistical evidence is sufficiently strong to overcome the null hypothesis, then a researcher will accept the alternative hypothesis as true. See D.G. REES, ESSENTIAL STATISTICS 141 (4th ed. 2001) (“[I]f we reject the null hypothesis we should accept the alternative hypothesis . . . ”).

\textsuperscript{196} $t = 3.129$, $p = 0.0040$. Because of the way in which these null and alternative hypotheses were constructed, a one-tailed $p$-value was used.
To test whether the activism differentials calculated here tend to support the conclusion that in non-patent cases, judges with prior patent-law experience are no more or less judicially hyperactive than those without prior patent-law experience, the following null hypothesis was used:

*In non-patent cases, there is no difference between the mean activism differential of Federal Circuit judges with prior patent-law experience and the mean activism differential of judges with no prior patent-law experience.*

The following alternative hypothesis was used:

*In non-patent cases, the mean activism differential of Federal Circuit judges with prior patent-law experience is either greater than or less than the mean activism differential of judges with no prior patent-law experience.*

In non-patent cases, the mean activism differential of judges with prior patent-law experience (-0.0971) was slightly less than that of judges with no prior patent-law experience (-0.0726). This difference was not even close to being statistically significant.\(^{197}\) Thus, this evidence does not support the rejection of the null hypothesis. Therefore, the alternative hypothesis cannot be accepted. Again assuming that the mean activism differential of a group of judges is a valid indicator of the level of judicial hyperactivity of this group, then this study does not support the conclusion that Federal Circuit judges with prior patent-law experience are more or less judicially hyperactive than judges with no prior patent-law experience.

The level of judicial hyperactivity shown by the Federal Circuit judges studied here may indeed be ideal. On the whole, Federal Circuit judges with prior patent-law experience seem to be more judicially hyperactive than those without prior patent-law experience.

\(^{197}\) \(t = 0.187, p = 0.854\). Because of the way in which these null and alternative hypotheses were constructed, a two-tailed \(p\)-value was used.
experience. But this judicial hyperactivity seems to come in patent cases only, not in non-patent cases. This situation may be ideal because judges with prior patent-law experience who are hyperactive in patent-law cases may be best at jumping in and correcting errors by district-court judges who lack a sound understanding of patent law. Thus, a court with several judges like these would best be able to fulfill Congress’s goals in creating the Federal Circuit—to bring national uniformity to patent law198 and to “yield a clearer, more coherent, more predictable legal infrastructure for the patent system.”199 But in non-patent cases, these judges with prior patent-law experience would not need to be any more judicially hyperactive than judges with no prior patent-law experience, and this study implies that this situation is exactly what actually exists.

Importantly, however, the court should not have too many judges with prior patent-law experience.200 During the period studied here, the court had five judges with prior patent-law experience and ten judges with no prior patent-law experience.201 Judges with no prior patent-law experience are desirable because they may inject more of an outsider’s perspective into patent law. Such a perspective may be useful given that patent-law issues do not have the ability to “percolate” in other circuits as do the vast


199 Wagner & Petherbridge, supra note 40, at 1108.

200 Cf. Golden, supra note 10, at 659 (describing that specialized courts may be problematic due to “tendencies toward interest-group capture, bias in favor of an overly muscular view of the laws under its special care, and an esotericism or tunnel vision that disconnects the circuit from broader social or legal concerns” (footnotes omitted)).

201 See supra notes 120, 126.
majority of other issues. Thus, such an outside perspective may at least be a small substitute for such percolation with respect to patent issues. And with respect to non-patent issues, judges with prior experience in fields other than patent law may bring important experience that directly bears upon other subject areas of the Federal Circuit’s jurisprudence. Therefore, the composition of the court during the period of this study may be ideal to fulfill the Federal Circuit’s goals of uniformity and stability in patent law without experiencing the problems that arise with overspecialization.

C. FEDERAL CIRCUIT JUDGES APPOINTED BY REPUBLICAN PRESIDENTS ARE NO MORE OR LESS JUDICIALLY HYPERACTIVE THAN FEDERAL CIRCUIT JUDGES APPOINTED BY DEMOCRATIC PRESIDENTS

The activism-differential data calculated in this study do not support the conclusion that there is any difference in the judicial hyperactivity between Federal Circuit judges appointed by Republican presidents and judges appointed by Democratic presidents. This statement is true for all three categories examined: all cases (i.e., patent and non-patent cases), patent cases only, and non-patent cases only. The traditional view is that judges appointed by Democratic presidents are more activist or judicially hyperactive than judges appointed by Republican presidents. On the surface, the

202 See Dreyfuss, supra note 35, at 25 (“[C]hanneling cases to a single forum also would deprive patent law of the collective wisdom of the circuit courts. Losing the tension produced by the percolation of ideas within the judiciary would, in addition, reduce the court’s incentive to reason clearly or to write persuasively.” (footnotes omitted)); Nard & Duffy, supra note 2, at 1629–30 (describing the benefits of decentralized decision-making).


204 See, e.g., Yung, supra note 6, at 7 (“[J]udicial activism was historically a label hurled at liberal judges . . . .”). But in recent times, many judges appointed by Republican
differences in mean activism differentials between judges appointed by Republican presidents and Democratic presidents seems to follow this traditional view: for all three categories studied, the mean activism differential of the judges appointed by Democratic presidents was greater than that of the judges appointed by Republican presidents. But, as described below, none of these differences was statistically significant. Thus, the mean-activism-differential data here do not support the conclusion that there is any difference between the judicial hyperactivity of judges based on the political party of their appointing presidents.

Table 8 and Figure 21 below summarize the data used in this Sub-Part.

Table 8. Mean Activism Differentials—Judges Appointed by Republican Presidents Versus Judges Appointed by Democratic Presidents

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent Cases</td>
<td>-0.216</td>
<td>-0.199</td>
<td>0.170</td>
<td>0.868</td>
<td>NO</td>
</tr>
<tr>
<td>Non-Patent Cases</td>
<td>-0.100</td>
<td>-0.043</td>
<td>0.443</td>
<td>0.665</td>
<td>NO</td>
</tr>
<tr>
<td>All Cases</td>
<td>-0.209</td>
<td>-0.139</td>
<td>1.024</td>
<td>0.324</td>
<td>NO</td>
</tr>
</tbody>
</table>

presidents have also been accused of being activist. See id. (“[J]udicial activism . . . has more recently been an equal-opportunity epithet launched at conservatives.”).
To test whether the activism differentials calculated here tend to support the conclusion that Federal Circuit judges appointed by Republican presidents are either more or less judicially hyperactive than judges appointed by Democratic presidents, the following null hypothesis was used:

*There is no difference between the mean activism differential of Federal Circuit judges appointed by Republican presidents and the mean activism differential of judges appointed by Democratic presidents.*

The following alternative hypothesis was used:

*The mean activism differential of Federal Circuit judges appointed by Republican presidents is greater than or less than the mean activism differential of judges appointed by Democratic presidents.*

---

**Figure 21. Mean Activism Differentials—Judges Appointed by Republican Presidents Versus Judges Appointed by Democratic Presidents**

![Bar chart showing mean activism differentials for Patent cases, Non-patent cases, and All cases for Republican and Democratic judges.](chart.png)

- **Patent cases**: Mean Differential: -0.216
- **Non-patent cases**: Mean Differential: -0.043
- **All cases**: Mean Differential: -0.209

Legend:
- Republican
- Democrat
In all cases (i.e., patent and non-patent), the mean activism differential of judges appointed by Republican presidents (-0.209) was less than that of judges appointed by Democratic presidents (-0.139). This difference was not statistically significant.\textsuperscript{205} Similarly, in patent cases, the mean activism differential of judges appointed by Republican presidents (-0.216) was also less than that of judges appointed by Democratic presidents (-0.199). This difference was also not statistically significant.\textsuperscript{206} Finally, in non-patent cases, the mean activism differential of judges appointed by Republican presidents (-0.100) was again less than that of judges appointed by Democratic presidents (-0.043). Yet again, this difference was not statistically significant.\textsuperscript{207} Thus, for all three categories examined—all cases (i.e., patent and non-patent cases), patent cases only, and non-patent cases only—this evidence does not support the rejection of the null hypothesis. Therefore, the alternative hypothesis cannot be accepted. Again assuming that the mean activism differential of a group of judges is a valid indicator of the level of judicial hyperactivity of this group, then this study does not support the conclusion that Federal Circuit judges appointed by Republican presidents are more or less judicially hyperactive than judges appointed by Democratic presidents.

\textsuperscript{205} \( t = 1.024, p = 0.324 \). Because of the way in which these null and alternative hypotheses were constructed, a two-tailed \( p \)-value was used.

\textsuperscript{206} \( t = 0.170, p = 0.868 \). Because of the way in which these null and alternative hypotheses were constructed, a two-tailed \( p \)-value was used.

\textsuperscript{207} \( t = 0.443, p = 0.665 \). Because of the way in which these null and alternative hypotheses were constructed, a two-tailed \( p \)-value was used.
CONCLUSION

This study revealed that during the period studied, the judges of the Federal Circuit exhibited varying degrees of judicial hyperactivity. The court appears to include judges from both ends and the middle of the judicial hyperactivity continuum. Because the court includes a mix of judges whose judicial hyperactivity is high, low, and in-between, the court may be well-positioned to evolve patent law as appropriate under ever-changing technological and economic circumstances while at the same time providing sufficient predictability and stability.\footnote{208} Thus, the judges of the Federal Circuit exhibit a seemingly beneficial range of judicial hyperactivity.

Additionally, this study shows that in patent cases, Federal Circuit judges with patent-law experience before joining the Federal Circuit are more judicially hyperactive than judges without prior patent-law experience, but the same does not hold true in non-patent cases. Judges with prior patent-law experience thus appear to be more comfortable in substituting their own judgment for that of the district court judges whose decisions they are reviewing in patent cases, possibly because they (consciously or, more likely, subconsciously) believe they have a better understanding of patent-law issues than the district-court judges. In contrast, in non-patent cases, prior patent-law experience is irrelevant, putting judges with prior patent-law experience are on a par with judges with no prior patent-law experience. The data here reveal that in non-patent cases, judges with prior patent-law experience are no more or less likely than judges with no prior patent-law experience to substitute their own judgment for that of the judge of the tribunal being reviewed. This level of judicial hyperactivity shown by the Federal Circuit judges studied

\footnote{208 See Cross & Lindquist, \textit{supra} note 9, at 1425.}
here may indeed be ideal because judges with prior patent-law experience who are hyperactive in patent-law cases may be best at jumping in and correcting errors by district-court judges who lack a sound understanding of patent law. Thus, a court with several judges like these would best be able to fulfill Congress’s goals in creating the Federal Circuit.

Finally, another conclusion of this study is that the political party of the president who appointed each judge of the Federal Circuit seems to have no effect on the extent to which the judge is judicially hyperactive. Indeed, for all three categories of cases studied—all cases (patent and non-patent), patent cases only, and non-patent cases only)—there was no statistically significant difference between the mean activism differentials of judges appointed by Republican presidents and judges appointed by Democratic presidents. This finding goes against the traditional, though over-simplified, notion that Republican presidents tend to appoint “conservative” judges who are less activist than “liberal” judges appointed by Democratic presidents. But it is consistent with the idea that because of its jurisdiction, the Federal Circuit generally does not decide cases that involve highly charged political or ideological issues, whereas the other circuits might decide more such issues.

209 See, e.g., Yung, supra note 6, at 7.