# Opinion Assignment and Control of the Law on the U.S. Courts of Appeals

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**Abstract**

We evaluate opinion assignment and opinion authorship on the U.S. Courts of Appeals. Based on the Courts of Appeals' distinct institutional setting, we derive theoretical explanations and predictions for opinion assignment on three-judge panels. Using an original dataset of sexual harassment cases, we test our predictions and find that women and more liberal judges are substantially more likely to write opinions in sexual harassment cases, making it likely that these judges have a disproportionate influence on the development of doctrine. We further find that this pattern appears to result not from purely policy-driven behavior by women and liberals assigners, but from an institutional environment in which judges seek out opinions they wish to write. Judicial opinions are the vehicles of judicial policy, and thus these results have important implications for the relationship between legal rules and opinion assignment and for the study of diversity and representation on multimember courts.

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# 1 Introduction

To write a legal opinion is to exercise a fundamental form of legal power. When judges write legal opinions, they create law and communicate it to other judges, lawyers, and citizens. While appellate courts in the United States are multimember, the task of writing a court's majority opinion usually falls to a single judge. Though opinion authors are not unconstrained by their colleagues, the ability to draft an opinion has long been recognized as providing a judge with a critical first-mover advantage to shape an opinion to her liking (Maltzman, Spriggs and Wahlbeck 2000, Lax and Cameron 2007). Because opinions are the vehicles of judicial policy, and because opinion authors often are able to exert an outsized influence on the content of an opinion relative to their colleagues in the majority, the designation of an author can have significant consequences for the establishment of precedent and the development of legal rules, and thus who wins and who loses in future cases.

While opinion assignment on the U.S. Supreme Court has been studied extensively for decades, it has received relatively scant attention on other appellate courts, including the U.S. Courts of Appeals. This neglect is unfortunate because since the Supreme Court hears fewer than 100 cases each year, the Courts of Appeals are the end of the road of the vast majority of federal appeals. In addition, when the federal judiciary deals with a novel legal issue, opinions of the Courts of Appeals often influence both other judges on the Courts of Appeals and the justices of the Supreme Court (Klein 2002, Lindquist and Klein 2006).

In this paper we present, to the best of our knowledge, the first systematic evaluation of the relationship between judge characteristics and opinion assignment and authorship on the Courts of Appeals. No prior scholarship has either theorized about or empirically investigated the relationship between characteristics of Courts of Appeals judges (such as ideology or gender) and the likelihood that they will be leaders on their courts in crafting doctrine in particular fields of law. Applying existing scholarship on the Supreme Court to

the Courts of Appeals setting, we develop theoretical predictions that assigning judges will be more likely to self-assign authorship in high salience cases, or assign it to more ideologically proximate judges. Based on the Courts of Appeals' distinct institutional setting, we further develop the theoretical prediction that judges, regardless of assigner versus non-assigner status, will utilize opportunities to successfully seek authorship in high salience cases that will allow them to advance preferences associated with their ideology and gender. Finally, drawing upon policy utility and psychological utility theory, we predict that, conditional upon being in the majority, judges will be most likely to seek control of authorship in cases with outcomes that are congruent with their broad policy preferences.

Using an original dataset of sexual harassment cases decided between 1977 and 2006, we test our predictions, and find that women and more liberal judges are substantially more likely to write opinions in sexual harassment cases, making it likely that these judges have a disproportionate influence on the development of doctrine in these cases. This pattern is driven by cases in which sexual harassment plaintiffs prevail, which is exactly when our theoretical framework predicts that women and liberals will seek to write if their goal is to develop doctrine congruent with their policy preferences or to derive personal satisfaction, or both. We also find that these patterns of authorship appear to result not from the instrumental choices of assigners, but rather from an institutional environment in which judges seek out opinions they wish to write. In addition to its novel theoretical predictions and empirical findings, the paper has important implications for the relationship between legal rules and opinion assignment, and for the study of diversity and representation on multimember courts.

## 2 Opinion Authorship, Assignment, and Institutional Context

Because the bulk of the literature on opinion assignment has focused on the Supreme Court, it is useful to begin our review there. A primary explanation investigated is the

advancement of policy preferences by the Chief Justice—who makes the vast majority of assignments—through assignment to himself, to ideologically proximate judges, or to the most moderate justice in a minimum winning coalition (Maltzman and Wahlbeck 1996, Davis 1990, Rohde 1972). Many scholars have argued that authorship provides the writing judge with several advantages over her colleagues that can result in the opinion being closer to her ideal point than if another justice in the majority had written it (Maltzman, Spriggs and Wahlbeck 2000, Bonneau et al. 2007, Lax and Cameron 2007). A second explanation for the Chief's assignment decisions has focused on the bureaucratic problem he faces: how to distribute opinions across the justices subject to the twin constraints that the workload of authorship is distributed roughly equally, and that the Court produces final opinions at a reasonable pace (Slotnick 1979, Spaeth 1984, Maltzman and Wahlbeck 2004). A third explanation for the Chief's assignment decisions is issue specialization—the possibility that some justices will disproportionately be assigned to write in particular issue areas. The Chief's motivation, according to this view, is to create and leverage issue specialization to increase opinion quality and writing efficiency (Brenner 1984, Brenner and Spaeth 1988).

Despite the number of careful studies of the Supreme Court, scholars have paid little attention to opinion assignment on the Courts of Appeals. The exceptions have been a few studies examining issue specialization, which found that some judges disproportionately write in certain issue areas (Atkins 1974, Howard 1981, Cheng 2008). While illuminating, these macro-level analyses only examine patterns of authorship statistics by judge and issue area. They do not speak to the micro-level question of how assigning judges choose authors, nor do they assess whether patterns of specialization are associated with more general characteristics of judges, such as ideology or gender.

In developing expectations for how opinion assignment might operate on the Courts of Appeals, it is important to consider three institutional and workload differences between the Supreme Court and the Courts of Appeals. First, on the former, the same nine justices hear

each case, with a single judge—the Chief Justice—making the vast majority of assignments. On the Courts of Appeals, three judges are selected to panels on a rotating basis, via a process that is effectively random, to hear sets of cases across short periods of time. In general, the "senior active" judge on the panel is tasked with making the assignment. Thus, judges on the Courts of Appeals will sometimes be in the assigning role and sometimes in the non-assigning role. In contrast with the Supreme Court, where the assignment power is dominated for long periods by the Chief Justice, this institutional environment is likely to produce assignment norms that incorporate the preferences of non-assigning judges because all judges who wield the assignment power also stand to be subjected to it.

Second, scholars have characterized Courts of Appeals panels as more "collegial" than the Supreme Court. The high rate of separate opinions on the Supreme Court suggests that the justices generally vote sincerely without being influenced by the preferences of their colleagues. In contrast, the vast majority of opinions on the Courts of Appeals are both unanimous and unaccompanied by concurrences, which suggests greater deference to opinion authors (e.g. Hettinger, Lindquist and Martinek 2006, Cross and Tiller 2008). Furthermore, while Supreme Court justices appear to exert little influence upon one another's votes on the merits of cases (Segal and Spaeth 2002), the literature on "panel effects" on the Courts of Appeals shows that judges' votes are often associated with the attributes (such as party, gender, and race) of their *colleagues* on a panel (Farhang and Wawro 2004, Cox and Miles 2008, Kastellec 2011, Sunstein et al. 2006). This suggests that Courts of Appeals judges are more prone to accommodate one another's preferences as compared to Supreme Court justices. A relatively more consensual approach to opinion assignment on the Courts of Appeals would comport with a broadly more collegial institutional environment. As discussed in more detail below, the few scholars who have studied the assignment process on the Courts of Appeals characterize it as an informal, consensual, and voluntarist process (Schick 1970, 100; Howard 1981, 234–35; Cheng 2008, 547–8).

Third, the Courts of Appeals have a much heavier caseload. A Supreme Court justice will hear 80 or so cases and write about 10 majority opinions in any one year. The Courts of Appeals currently render over 300 annual dispositions per judge, a situation that has led many to proclaim a caseload crisis (Levy 2011, 324). Thus, judges on the Courts of Appeals likely will give greater weight to workload considerations than would the Chief Justice. With respect to assignees, a higher workload cuts in two directions, but we think that the net effect is to give Courts of Appeals judges wider latitude when writing opinions. While a judge may have less time to devote to the average opinion, her colleagues also have less time to work on either making suggestions or crafting an alternative opinion. On the Supreme Court, the relatively light workload means that a judge on the other side can more easily propose a credible counter-offer, which can limit the ability of an author to pull an opinion toward her ideal point (Lax and Cameron 2007). On the Courts of Appeals, the fact that an author's two colleagues have heavy caseloads means they may be less able to respond effectively to a draft opinion by an author—especially in cases where she is willing to invest significant time in an opinion. Courts of Appeals judges have observed that it is often not feasible for non-writing judges to spend the time necessary to engage in detailed oversight of opinions that they join (Coffin 1980, 178; Leval 2006, 1262).

## 3 Theory and Hypotheses

With these institutional and contextual factors in mind, we develop hypotheses about opinion assignment on the Courts of Appeals. The assumptions driving these hypotheses are fairly straightforward and flow from the following considerations. We assume that judges on the Courts of Appeals will seek to create and shape legal policy in many cases, but that this policy-driven behavior will be tempered by considerations of collegiality and workload. Regarding the latter, there is a strong norm of rough equity of workload across judges on the Courts of Appeals (Howard 1981, 233–4; Cheng 2008, 527), and thus assigning judges on three-judge panels must balance policy goals against a need to distribute opinions across

the three judges hearing a set of cases. Given the massive caseload of the Courts of Appeals, the need for equitable distribution of work is far more acute than on the Supreme Court.

### 3.1 Ideological proximity

One of the distinctions we noted between the Supreme Court and the Courts of Appeals suggests fewer opportunities for assigners on the Courts of Appeals to advance policy goals through assignment. To the extent that the norms of assignment are more consensual and less top-down, there will be less space for policy driven behavior by assigners. This would not foreclose ideological behavior, of course. An assigning judge who wishes to bring legal policy as close to her ideal point as possible has two options: she can self-assign the opinion, or she can assign it to a like-minded judge.

> *Ideological Proximity Hypothesis*: If an assigning judge wishes to influence an area of law, she will be more likely to self-assign or assign to the judge on the panel with more proximate preferences.

### 3.2 Consensual Assignment

Prior research, as well as the published writings of numerous Courts of Appeals judges, suggest that in an environment characterized by collegial norms, the wishes of potential writers are a material factor in determining writing assignments. Potential writers on a panel can request, or signal their preference for, opinion authorship opportunities in areas in which they particularly wish to write. According to qualitative evidence, when the assigning judge assigns opinions for the bank of cases heard by the panel, she often weighs and grants these requests (Feinberg 1985-1986, 301; Oakes 1990, 1461; Schick 1970, 100; Howard 1981, 232–58; Cohen 2002, 72–3; Cheng 2008, 547). As compared to the Supreme Court, Courts of Appeals judges' regular alternation between assigner and assignee likely contributes to this norm since all judges stand to benefit from having their preferences taken into account in the distribution of work.

In Howard's (1981, 254–55) multi-circuit study of the Courts of Appeal, he suggests that judges may seek opinion authorship due to "affinities between particular individuals and

subjects," a dynamic he characterizes as "more a matter of informal gravitation than of central design." A consensual assignment norm suggests that opinion assignment presents an opportunity for judges to actively seek disproportionate influence, or a leadership role, in crafting circuit doctrine in issue areas they regard as particularly important or interesting. While a consensual assignment norm may diminish policy-maximizing opportunities distinctively within the control of assigners, it simultaneously introduces such opportunities for non-assigners through active pursuit of authorship. While scholars and Courts of Appeals judges alike have suggested the existence of a consensual assignment norm, none have characterized it, as we do, as a potential pathway to advance policy goals associated with such judge characteristics as ideology or gender (as distinguished from the idiosyncratic interests of individual judges). This logic leads us to the following hypothesis:

> *Consensual Assignment Hypothesis*: If a judge has a preference to write in an area of law, she will be more likely to receive assignments to write in that area, regardless of whether a judge is the assigner or a potential assignee.

### 3.3 The Relationship between Dispositions and Authorship

Judicial opinions do two things: they announce a disposition (which party wins and which loses), and they articulate a rationale for that decision, or a legal rule. In this section we argue that the disposition of the case affects both the policy utility and the psychological utility that judges derive from writing the opinion in a particular case.

#### 3.3.1 Policy utility

We present a simple spatial model of doctrinal creation in which the desirability of authorship may depend on the direction of the disposition in the case—a proposition that is new to the literature on opinion assignment. Consider the following simple one-dimensional "case-space" model of sexual harassment law, which we depict in Figure 1. A case (denoted $x$) consists of a set of case facts that maps into case-space, where cases that fall to the right are "more harassing," while cases to the left are "less harassing." A decision of the court first

consists of saying which party wins, which entails deciding whether the case receives the *not harassment* or the *harassment* outcome. In many models of rules, judges are portrayed as writing opinions that completely partition a case-space in a single case (Lax 2007, Carrubba and Clark 2012). In this world, a judge could take one case and say which future cases get the *harassment* outcome and the *not harassment* outcome. Instead, following the logic of incremental partitioning of the case-space, we assume that judges make law in a more step-by-step fashion (Cameron 1993, Gennaioli and Shleifer 2007, Baker and Mezzetti 2010).

Assume that $x_1$ is the first sexual harassment case to be decided, and that it will render precedent binding in future cases, meaning that it will give guidance to future litigants and judges regarding whether future cases should be placed on the *harassment* or the *not harassment* side of the partition. (Alternatively, the interval depicted in Figure 1 could represent a subset of the overall case-space—an interval that has not been settled by previous cases.) A decision of *harassment* means that all cases to the right of $x_1$ also receive the *harassment* classification. This results from a straightforward monotonicity assumption, which is analogous to what Lax (2007) calls a "proper rule." Under such a rule, facts that are more extreme than already proscribed activity should receive the *harassment* outcome, while facts that are less extreme than already accepted activity should receive the *not harassment* outcome. If $x_1$ gives rise to sexual harassment liability, then more harassing facts should as well. But deeming one extreme incident as *harassment* has no bearing on the adjudication of less extreme incidents, so all facts to the left of $x_1$ remain in a state of legal *uncertainty* to be resolved by future courts. Conversely, a decision of *not harassment* means that all cases to the left also receive the *not harassment* classification, while all cases to the right remain in a state of legal *uncertainty*. These scenarios are depicted in panel (A) of Figure 1. If this were all a court did, the future legal ramifications of a case would be determined solely by its outcome. It would not matter who writes the opinion, and thus opinion assignment would be inconsequential from a policy standpoint.

However, opinions are not always written narrowly around case facts, and authors enjoy some discretion in deciding how broadly to write the doctrinal rule in the opinion. The creation of legal doctrine is the way judges classify different sets of case facts for different legal treatment (Cameron 1993: 40–49). Doctrinal rules of classification are, by definition, about more than one set of case facts. In Llewellyn's classic formulation, it is among the most elementary aspects of American law that "the court can decide the particular dispute only according to a general rule which covers a whole class of like disputes" (Llewellyn 1930, 42–3). He adds that the task of fashioning the rule raises the "troublesome question" of "how wide, or how narrow, is the general rule" to be. Judges exercise discretion in deciding how encompassing a doctrinal rule of classification will be, and in doing so they influence the development of law (Leval 2006, Stinson 2010, McAllister 2011).

To be sure, this discretion is bounded. Judges are limited in their ability to partition the case-space in a single case, not least because judges in common law systems are supposed to rule only as broadly as necessary to decide the case at hand; excessively overbroad holdings are more likely to be treated by future courts as non-binding "dicta." Further, on multi-member courts judges may be constrained in the breadth of the doctrine they can write by other members of the majority. At some point of excessive deviation from the case facts, the writer may lose a sufficient number of joiners to constitute a precedential majority, thus defeating the policy utility of writing—which is to make law. Thus, we posit that judges have *bounded discretion* in ruling on how cases near $x_1$ should be treated.

Assume that there are two types of judges: liberal judges ($LJ$) and conservative judges ($CJ$). While both $LJ$ and $CJ$ will sometimes rule for the plaintiff and sometimes for the defendant, we characterize $LJ$ as having broad policy preferences in favor of a more expansive sexual harassment doctrine under which more conduct is deemed to be harassment (i.e., a more pro-plaintiff orientation); and we characterize $CJ$ as having broad policy preferences in favor of a less expansive doctrine which deems less conduct to be harassment (i.e., a more

pro-defendant orientation). We assume that the liberal judge is to the left of the conservative judge in doctrine space, and that each will seek to pull the partition toward their ideal point if they have the discretion to do so. To be clear, we are not modeling the assignment of an opinion to $LJ$ or $CJ$ in a given case—rather, our goal is to explore the policy utility gains derived by judges with different preferences across cases with different outcomes.

Consider, first, the case where $x_2$ is decided in favor of the plaintiff, which is depicted in panel (B) of Figure 1. Because $x_2$ falls to the right of both $LJ$ and $CJ$, the judges agree that it should be decided for the plaintiff. Whomever writes, under the monotonicity assumption all cases that fall to the right of $x_2$ must be classified as *harassment*; this is the dark shaded region. A conservative author will write the opinion at her ideal point, just to the left of $x_2$. All cases to the right of $CJ$ will fall under the *harassment* classification, but the full region of the case-space to the left of $CJ$ remains *uncertain*, left to be resolved in future cases. However, a liberal author can craft her opinion more broadly in an attempt to widen the scope of her ruling, sweeping in some cases to the left of $CJ$, up to the point $a$; the expanded scope of the opinion is depicted by the white region. We assume that the liberal author cannot push the opinion beyond $a$ because to do so would result in the opinion being treated as excessive dicta or lose sufficient support to be the majority opinion of the court, or both.

The key asymmetry here is that in a plaintiff win the rule of liability can be stretched beyond $x_2$ toward more liability, but not toward less liability. Given some case facts, in a plaintiff win the statement of the doctrinal rule of classification used to assess liability can be made more encompassing (liberal) than the case at bar, but not less encompassing. A more encompassing rule of liability than $x_2$ would logically embrace the case at $x_2$ by justifying the defendant's liability, but stretch beyond it to less harassing case facts. However, a less encompassing rule of liability than $x_2$ could not logically provide a justification for the

defendant's liability in a case at $x_2$.[1]

Panel (C) illustrates the symmetric scenario for a case where the defendant wins. Because $x_3$ falls to the right of both $LJ$ and $CJ$, both agree that it should be decided for the defendant. A liberal author will write the decision at her ideal point, and everything to the right of $LJ$ remains *uncertain*. A conservative author can craft her opinion to stretch the scope of the *not harassment* region to the point $b$. The asymmetry here has the same structure as before, but now the question can be thought of as how encompassing the doctrinal rule of classification should be for determining non-liability. In a defendant win, the rule to justify a defendant's non-liability may be more encompassing (conservative) than the case at bar, stretching beyond it to more harassing case facts. However, the rule of non-liability cannot be less encompassing than the case at bar. A less encompassing rule of non-liability than $x_3$ could not logically provide a justification for the defendant's non-liability in a case at $x_3$.

Thus, the model suggests that judges' preferences on outcomes and their utility derived from writing in plaintiff versus defendant win cases should be directly related. We assume that judges will place a higher value on writing opinions that yield them more utility, and that they do so in the face of a budget constraint on the total number of writing opportunities they will receive from the pool of cases on which they sit. The constraint arises both from a norm of roughly equal distribution of work, and from judges' limited resources to devote to writing. Under the model, liberal judges can derive greater utility from writing in plaintiff wins versus defendant wins. In a plaintiff win, the liberal judge captures an interval with certainty; in a defendant win, she preserves an equal sized interval in the zone of uncertainty, with its ultimate fate to be determined in future cases.

[1]One possible objection is that the model treats case facts as transparent and fixed, whereas judges actually may be able to manipulate them such that the judge in a plaintiff win can "move" $x_2$ to the left, which would counteract the asymmetry just discussed. However, this does not change the basic asymmetry that the model illuminates provided that the zone of possible manipulation is symmetrical around $x_2$. In this event the case at $x_2$ becomes a zone of feasible characterizations of the facts that are a set of contiguous points on the line with $x_2$ in the center. If that interval is substituted for the point $x_2$, the logic of the model remains identical.

### 3.3.2 Case illustration

We illustrate the logic of the model with an example described from a well-known sex discrimination case. The traditional formulation of the equal protection "intermediate scrutiny" standard is that, to be lawful, policies that discriminate against women must serve an "important state interest" and be "substantially related" to achieving the interest. In *United States v. Virginia* (518 U.S. 515, 1996), the Supreme Court ruled unconstitutional the Virginia Military Institute's male-only admissions policy. The case featured two salient facts, according to the majority. First, VMI was a highly prestigious institution whose graduates enjoyed a valuable and powerful network. Second, the single-sex alternative school for women provided by Virginia was grossly inferior to VMI on every material dimension.

A seven-justice majority ruled the policy unconstitutional, with the opinion written by Justice Ruth Bader Ginsburg—at that time the only woman on the Supreme Court. Two things are notable about Ginsburg's opinion. First, rather than using the traditional "important state interest" formulation of the intermediate scrutiny standard of review, she characterized the appropriate standard as being that the state must proffer an "exceedingly persuasive justification" for its policy. This led Chief Justice Rehnquist (in a concurrence) and Justice Scalia (in dissent) to accuse Ginsburg of attempting to edge the equal protection standard in a more liberal direction by subtly refashioning its language (518 U.S. at 558–60, 571–74). Second, Rehnquist and Scalia also criticized Ginsburg's opinion for going beyond the narrow facts of the case—all-male men's college with ample resources, alongside grossly inferior all-female alternative—to suggest a broader rule limiting single-sex public education even where the alternatives are comparable (518 U.S. at 565–66, 595–600).

Returning to Figure 1, panel (D) depicts the VMI case from the perspective of our model. Both justices believe that case facts falling to the right of their ideal point should receive the *discrimination* classification, and those falling to their left should receive the *not discrimination* classification. In VMI, the case facts ($x_4$) fell to the right of both Rehnquist and

Ginsburg, so they agreed on a plaintiff win. Rehnquist, we can judge from his concurrence, would have written the opinion applying the traditional language of intermediate scrutiny, hewing closely to the case facts and placing the partition at *WR*. To the right of *WR* would be *discrimination*, and to the left would be *uncertainty*. Ginsburg, by comparison, stretched the partition toward her ideal point and placed it at $a$, enlarging the zone of *discrimination* by the white interval from *WR* to $a$.

To see how gaining the same sized interval in a defendant win would render less utility to Ginsburg, consider a similar scenario that is the source of some current legal controversy in the United States: single-sex education in public primary schools. Imagine a case in which a public elementary school provides voluntary options of sex-integrated and sex-segregated classrooms in the same school; assume there are no issues of differential social prestige, networks, or compulsion. Rehnquist, we can judge from his concurrence in VMI, would give this policy the *not discrimination* classification. Suppose that these facts are just to the left of Ginsburg, such that she would agree with Rehnquist on a defendant win. This is depicted in Figure 1, panel (E). If Ginsburg wrote, she would write the opinion at her ideal point *RBG*, very near $x_5$. The region to the left of *RBG* would be *discrimination*, and the region to the right would be remain in *uncertainty*. In contrast, if Rehnquist wrote he would stretch the *not discrimination* region in the direction of his ideal point, to $b$. The region to the left of $b$ would be *discrimination*, and the region to the right would remain in *uncertainty*. Thus, Ginsburg's policy utility gain from writing is to block Rehnquist from capturing the interval from *RBG* to $b$, and preserving it in *uncertainty*. When future cases arise that present future judges the opportunity to rule on that interval it may be converted either to *discrimination* or *not discrimination*, according to their preferences.

Assume finally that the white intervals in panels (D) and (E) of Figure 1 are of equal size. By writing in the case where the plaintiff wins, Ginsburg captures the interval with certainty. By writing in the defendant win she preserves the equally sized interval in *uncertainty*, from

which it may in the future be converted into either *discrimination* or *not discrimination*. The key point of this illustration is to stress that, from the standpoint of a liberal judge, the same interval of policy space that can be captured in a plaintiff win can only be preserved in uncertainty in a defendant win.

Of course, the liberal judge in a defendant win also stands to gain some policy utility by retaining the interval in uncertainty, and blocking the conservative from capturing it with certainty. There is, in addition, some probability that the region of uncertainty will be converted to *discrimination* or *not discrimination*, yielding policy utility to the liberal judge in the future. Further, judges who sincerely wish to dissent may sometimes join a majority opinion with the goal of securing authorship in order to influence it (Choi and Gulati 2008). In defendant wins with particularly important issues at stake, more pro-plaintiff judges may seek authorship. However, none of this conflicts with our theory because ours is not a theory of every case, nor is it a theory that judges cannot gain policy utility from authoring opinions in cases with outcomes that are incongruent with their broad preferences. Rather, we only maintain that, *other things equal* (such as the importance of the legal issues presented in particular cases), over the full run of cases, judges can gain more policy utility through authorship in cases with outcomes that are congruent with their broad preferences.

### 3.3.3 Psychological utility

Recent work in judicial behavior, particularly by Lawrence Baum, drawing upon social psychology has challenged the conception of judges as singularly focused upon maximizing policy utility, suggesting that judges are also importantly guided by pursuit of personal psychological utility (Baum 2010, Baum and Devins 2010, Baum 2006, Braman 2009). This work maintains that psychological utility can be an important explanation for judicial behavior, including how judges approach authorship of opinions. It provides an alternative and independent basis to predict that judges will disproportionately seek authorship in cases with outcomes aligned with their broad policy preferences. Two key ideas support this prediction.

First, a well-established line of research in social psychology finds, not very surprisingly, that people have a preference to express "attitudes and beliefs that are congruent with existing self-definitional attitudes and beliefs" (Chaiken, Giner-Sorolla and Chen 1996, 557). Baum argues that this operates upon judges so that they desire to exercise their authority in ways that reinforce "important self-related beliefs," "ideological self-identifications," and more basically their sense of themselves (2010, 17–19 (summarizing evidence in favor of this view); 2006). He further suggests that the act of authorship allows judges to craft opinions so as to enhance this psychic congruence and reinforcement (2010, 10, 18). In line with the idea that this can yield psychological utility for judges, Justice Scalia (1994, 42) has characterized the authorial freedom to decide which issues to address and which not to address, and to craft opinion language to "express precisely" his view of the law, as "an unparalleled pleasure."

To a self-identified champion of civil rights, for example, authoring opinions articulating the vindication of those rights will be more consistent with their "self-related beliefs" and "ideological self-identifications" than authoring opinions rejecting them. As the head of the ACLU's women's rights project, Justice Ginsburg made her early career litigating major gender equal protection cases. Crafting opinions advancing women's constitutional rights (as in the VMI case) is likely a source of psychic utility, even aside from moving policy toward her ideal point. Of course, even self-identified civil rights champions will sometimes regard a plaintiff's claim as weak and rule for the defendant without hesitation. But the point is that, on average, they will derive less satisfaction from writing such opinions.

Second, Baum also maintains that judges, being human, want to be respected and even revered by audiences outside the court that they care about, such as politicians, civic groups, and academics that pay attention to the content of their opinions (Baum and Devins 2010; Baum 2006). On this account, Justice Ginsburg cares about how she is regarded by civil rights activists and groups, and Justices Thomas and Scalia care about their stature among the Federalist Society. Judges can gain satisfaction by advancing their standing and prestige

among relevant groups through opinion authorship—especially when an opinion is congruent with group preferences, compared to when the judge is engaged in damage control as the strategic writer of an opinion with an incongruent outcome. "[J]udges who are concerned with impressions that they make on relevant audiences may find it easier to make favorable impressions by casting votes *and writing opinions* that those audiences favor than by taking strategic positions that require justification" (Baum 2010, 22) (emphasis added).

The strong form of the social psychological claim about judicial behavior is that in some circumstances it has more explanatory power than the strategic or attitudinal models. We stress that we need not make the strong claim that judges will sacrifice apparent policy utility in favor of psychic utility in order to predict that judges will, other things equal, prefer to author opinions with outcomes congruent with their broad preferences. First, we predict that authorship in congruent outcome cases maximizes policy utility, and thus the psychological utility derived from authorship reinforces policy utility. Second, even if, on average, *there were no systematic policy utility gains associated with authoring in congruent cases* (contrary to our model's prediction), the psychological utility to be gained from authorship would not work *against* policy utility. When a panel of three judges is distributing the workload of writing over a set of cases where the outcomes have been decided, and judges' policy utility is *not* associated with authorship, then it seems eminently reasonable that psychological utility would influence writing preferences. If the mechanism exists, it surely will operate when there are no policy utility costs.

### 3.3.4 Summary of the relationship between dispositions and authorship

In this section we have argued that judges, on average, can gain both greater policy and psychological utility by writing in cases with outcomes that are congruent with their broad preferences. To be clear, our empirical analysis will not seek to differentiate between the mechanisms. Rather the logic of both stories leads to the same empirical prediction that the ideological proximity and consensual hypotheses should be *conditional on dispositions*:

judges should be most likely to seek to influence assignment in cases where the disposition accords with their overall preferences.

## 4 Examining Sexual Harassment Cases

Given the norm of rough workload equity, and the corresponding budget constraint on the number of decisions a judge will write, if assignment and authorship decisions are influenced by the desire of judges to shape and control the law, and to derive personal satisfaction, these effects will likely be concentrated in salient cases. Judges on appellate panels seeking to shape law cannot write opinions for all the cases on which they sit, and thus they will prioritize authorship in the cases they regard as most important. When seeking to identify cases likely to be regarded as salient by judges, researchers have often studied civil rights cases (e.g. Brenner 1984, Brenner and Spaeth 1988, Hettinger, Lindquist and Martinek 2006, Lindquist, Martinek and Hettinger 2007). In all three studies showing disproportionate authorship by Courts of Appeals judges in particular issue areas, civil rights was an area in which such disproportionality was found (Howard 1981, 232–58; Atkins 1974, Cheng 2008). Accordingly, we focus on a subset of civil rights cases: sexual harassment cases.

In addition to salience, this area of law give us added traction for hypothesis testing along several dimensions. First, sexual harassment constitutes a coherent body of law, eliminating the possibility that heterogeneity across case types will confound our empirical inferences. Second, there is a clear ideological divide in sexual harassment law, with liberals historically favoring greater expansion of sexual harassment protections and remedies, and conservatives favoring a less expansive doctrine (Sunstein et al. 2006, Peresie 2005, Moyer and Tankersley 2012). Third, even controlling for ideology, we would expect women to view sexual harassment cases as more salient than men, and we discuss research below that supports this expectation. Fourth, also controlling for ideology, some studies have found that in sex discrimination cases in general (Farhang and Wawro 2004, Sunstein et al. 2006), and sexual harassment cases in particular (Peresie 2005), men are more likely to vote in

favor of plaintiffs in such cases when they sit with a woman judge, compared to when they sit on all-male panels. This dynamic—whereby the voting decisions of men are affected by women—may also affect the likelihood that men assign opinions in such cases to women.

Our data comprise the universe of published sexual harassment cases decided under Title VII of the Civil Rights Act of 1964 that are contained in the Westlaw database from 1977 (the first year a relevant case was decided) to 2006. Our search, explained in detail in the appendix, rendered 570 usable cases in which we could analyze the assignment decisions. We focus exclusively on published cases because they make binding circuit law, whereas unpublished cases, while resolving the issues between the parties, do not make circuit law. Only about one quarter of all Courts of Appeals decisions are published and thus create law, and judges accordingly view them, on average, as much more salient than unpublished cases (Law 2005, Weisgerber 2009). More importantly, because unpublished opinions carry no precedential weight, the main function of the opinion in an unpublished case is to report the disposition, making authorship much less consequential in these cases.

Since we use published cases to test theories about the relationship between judge attributes (gender and ideology) and authorship, we are mindful of the potential problem of endogeneity. This problem would arise if the decision to publish depended on the gender or ideology of the author. We tested a battery of models predicting publication and found no evidence that gender or ideology is associated with the decision to publish (see the appendix for details).

In each case in our data, two or three judges are available to receive the assignment, including through self-assignment. We removed dissenting judges from the data since dissenters cannot be assigned to write the majority opinion (dissents occurred in only 6% of cases), leaving us with 1,680 possible assignees across the set of 570 cases. For each case, we coded the panel's outcome as either "liberal" or "conservative." Following the Sunstein et al. (2006) protocol, we coded case outcomes as liberal whenever the plaintiff was granted

any relief, and conservative otherwise. For each judge, we collected a battery of demographic information, including their gender, the date they took the bench, the party of their appointing president, and their ideology. With respect to judges' characteristics, the key variables in our analysis will be *female*, meaning the judge is a woman, and *liberalism*, for which we reverse the ideology scores of Giles, Hettinger and Pepper such that higher scores denote more liberal judges (Giles, Hettinger and Peppers 2001; 2002); we measure this variable in terms of deviations from the sample mean to make it easier to interpret coefficients. We also coded whether each judge was the assigning judge under the rules of the circuit in which the case was decided, which is generally the senior active judge on the panel; the variable *assigner* takes on the value of 1 when a judge is the assigner and 0 otherwise. (See the appendix for details on assignment rules.)

### 4.1 Gender, Ideology and Assignment

Our expectations regarding the effects of gender on assignment and authorship derive from existing literature and our theoretical predictions. Many scholars have argued that women judges have a distinctive perspective, grounded in their life experiences, which makes them more concerned with claims of discrimination in general, and sexual harassment in particular (e.g., Sherry 1986; Martin 1990; Beiner 1999, 50–5; Kruse 2004; Feenan 2009, 4). Numerous women judges themselves have expressed the same view (Panel 1990, 145; Tobias 1990, 177–8; Abrahamson 1998, 210–11; Werdegar 2001, 35; Wald 2005, 989; Panel 1991, 259–62). This self-reporting is consistent with survey research findings that women judges perceive discrimination to be a more widespread social problem (Panel 1991, 259–62), and social psychological experimental research finding the same with respect to women's perception of sexual harassment (Rotundo and Sackett 2001, Wiener et al. 1997). Moreover, it has been found that women judges on the Courts of Appeals have both a greater probability of ruling for the plaintiff in sexual harassment claims (Peresie 2005) and of adopting pro-plaintiff legal doctrines (Moyer and Tankersley 2012). In our data, male judges vote in favor

of the plaintiff 42% of the time, while female judges do so 49% of the time. Accordingly, we anticipate that women will be more likely to seek a disproportionate role in authoring sexual harassment opinions, and that the effects will be greater in cases decided for the plaintiff.

Our expectations regarding the effects of ideology on assignment and authorship are less clear. While there is ample evidence that liberalism is associated with advocacy for more expansive job discrimination regulation (Farhang 2010), this does not necessarily mean that the issue is more salient to liberals. Conservatism is associated with advocacy of a less expansive approach to job discrimination regulation in the name of business autonomy. Thus, job discrimination laws are a site of partisan conflict. Indeed, studies have found that liberal judges on the Courts of Appeals are more likely to vote for the plaintiff in job discrimination cases (Farhang and Wawro 2004, Sunstein et al. 2006). In our data, Democratic-appointed judges vote in favor of the plaintiff 53% of the time (69% when sitting on unified all Democratic panels), as compared to just 37% of the time for Republican-appointed judges (31% on unified all Republican panels). Accordingly, returning to our conditional predictions based on case outcome, we can expect that in sexual harassment cases more liberal judges will be more likely to seek a disproportionate role in authoring opinions in cases decided for the plaintiff, and more conservative judges will seek a disproportionate role in authoring in cases decided for the defendant.

### 4.2 Descriptive Statistics for Gender, Party, and Authorship

We begin our analysis with a descriptive look at who writes opinions. Figure 2 breaks down the judges in our data, first by party and gender, then by each of the four party-gender combinations. The top panel looks at all cases. For each type of judge, the points depict the number of cases each type has authored divided by the number of cases each type has heard, reflecting the rate of authorship. The vertical lines fall at .33. If opinion assignment were not associated with the gender or party of assignees, all the dots would be clustered at that line. Instead, we see that female judges are most likely to write, followed by Democratic

appointees; Democratic women write the most, on average. In addition, the figure reveals that this pattern is not simply due to the fact that women are more likely to be Democratic appointees, as Republican women author opinions at a comparable rate to Democratic men.

The bottom panel in Figure 2 looks separately at cases where the plaintiff wins and cases where the defendant wins. Strikingly, we see that the relationship between gender, party and authorship is much more pronounced in plaintiff wins. In such cases, Democratic women write opinions at a rate of nearly 50%, compared to less than 30% for Republican men. In defendant wins, by contrast, the respective rates are about 40% and 33%. Republican men are unique in authoring more in defendant wins than in plaintiff wins. Of course, just looking at authorship cannot shed light on who assigns to whom, for which we turn to statistical models of the assignment decision.

### 4.3 Regression Models

Modeling assignment choice at the individual level presents some unique challenges. The judge who is assigning the opinion can assign it to one and only one judge on a given panel. If we use judges as the unit of analysis and measure the assignment choice as a dichotomous variable (1 if assigned to write; 0 otherwise), only one judge on a panel can have the value of 1; the values for the other judges are by definition equal to 0. Thus, our analysis requires a model that imposes restrictions on the values that the dependent variable can take across judges serving on the same panel, rendering a simple dichotomous logit model that pools the data across panels inappropriate. While a categorical choice model is appropriate, another challenge is that the choice set for each chooser (i.e., the assigning judge) varies across panels, since each panel involves a different set of judges. McFadden's (1974) conditional logit model can accommodate these data peculiarities, although for the most part it limits us to including explicitly in the model only choice-specific characteristics—in this case, variables that vary by judge.[2] However, the model implicitly accounts for any factors that do not vary within

[2]We can identify coefficients on variables that do not vary by judge (e.g., case facts) only by interacting them with variables that do. But even then we can run into collinearity/"curse of dimensionality" problems

a case even though we do not explicitly estimate parameters for such variables. To see this, note that the probability that judge $i$ on case $j$ is assigned the opinion is modeled in conditional logit as

$$\Pr(y_{ij} = 1) = \frac{\exp(\boldsymbol{\beta}'\mathbf{x}_i)}{\sum_j \exp(\boldsymbol{\beta}'\mathbf{x}_j)} \tag{1}$$

where $\mathbf{x}_i$ represents characteristics of judge $i$. If we include case-level or circuit-level variables (denoted by a $c$ subscript), we could write this probability as

$$\Pr(y_{ij} = 1) = \frac{\exp(\boldsymbol{\beta}'\mathbf{x}_i + \boldsymbol{\gamma}'\mathbf{z}_c)}{\sum_j \exp(\boldsymbol{\beta}'\mathbf{x}_j + \boldsymbol{\gamma}'\mathbf{z}_c)}. \tag{2}$$

But since the $\boldsymbol{\gamma}'\mathbf{z}_c$ terms appear in both the numerator and denominator in a way that permits us to factor them out, we can cancel them to obtain equation (1). Thus, case-level and circuit-level factors are in a sense accounted for in the model even though we do not estimate parameters for them, which should help avoid spurious inferences for the variables that are explicitly included in the model.[3] In practice, then, conditional logit identifies the effects of characteristics on assignment choice using only within-case variation. To explore whether effects vary by case outcome, we can divide our data by case outcome and assess differences across subsets of the data.[4]

In addition, inferences in the conditional logit framework are not affected by time trends

if we do not have sufficient variation in the values of the interaction terms. Another way to get a sense of the role of case-level variables, which we employ below, is to subset the data by the different values of such variables.

[3]In an alternative specification presented in Table A-4 in the appendix, we follow the lead of Maltzman and Wahlbeck (2004) and employ a random effects logit to model assignment, in which we also explicitly incorporate circuit fixed effects. The results are statistically and substantively the same as those we obtain with conditional logit.

[4]The conditional logit model must satisfy the independence from irrelevant alternatives (IIA) assumption, which in this case is a strong assumption about the independence of disturbance terms across judges within a case as well as across cases. While we think random assignment of judges to panels and random assignment of cases to panels helps to make the IIA assumption realistic for our analysis, it is nevertheless important to test for it. The standard test of the IIA assumption is to conduct a Hausman test, which essentially involves dropping choices to see if they are indeed irrelevant to the remaining choices. To test the IIA assumption for our analysis, we considered all possible ways of dropping non-assigning judges from every panel to construct restricted choice sets to compare with the full choice sets. We then computed Hausman statistics to see if we could reject the null of IIA. We saw no evidence that IIA was violated for any of the models that we estimated.

in the ideological or gender composition of Courts of Appeals. Since probabilities of being chosen to write are estimated in the model relative to the choice set within each case, estimates of those probabilities are not corrupted by longitudinal changes in the composition of the Courts of Appeals. This is also true with respect to time trends in the outcome of cases. Thus, for example, growth over time of women on the bench, alongside an increase over time in the rate of plaintiff wins, would not lead the model to report a spuriously significant association between gender and authorship in plaintiff win cases. And, in fact, while the number of women on the federal bench has increased over the time, the rate at which plaintiffs win in sexual harassment cases has *declined.* Thus, even if conditional logit was compromised by time trends, we expect that the trends in our data would bias against finding support for our gender predictions.

To evaluate our theoretical predictions, we include *female* and *liberalism* in our models. We also include the interactions *female* $\times$ *assigner*, and *liberalism* $\times$ *assigner*; the former takes on the value of 1 for female assigners and zero otherwise, while the latter takes the value of the assigner's liberalism score and is zero for non-assigners. We also evaluate whether assigners are more likely to assign to more proximate judges in terms of ideology. We include a variable that captures the *ideological distance* between the assigner and other judges in the majority, measured as the absolute value of the difference of their liberalism scores. These variables enable us to assess (1) whether assigners, or particular types of assigners, are more likely to self-assign than assign to others; (2) whether assigners tend to assign opinions to more proximate judges; and (3) whether gender and ideology are associated with authorship. Thus, we can test both the ideological proximity and consensual assignment hypotheses.

Past research has found a positive association between the frequency of a justice's past writing experience in an area and her subsequent likelihood of being assigned to write in that area, suggesting that issue specialization may serve the institutional goals of rendering higher quality opinions with less work (Maltzman and Wahlbeck 1996; 2004). For each judge in

each case, we computed the number of published sexual harassment opinions that the judge had previously authored; we call this variable *experience*. This is a critical control in our evaluation of hypotheses relating to associations of authorship with gender and ideology. For example, to the extent that women write frequently in sexual harassment cases, it is plausible that their past writing experience would increase the probability of receiving additional assignments, independently of any role that gender plays. In that event, not controlling for *experience* would risk spurious inferences about the effects of gender on authorship.

Past work also suggests that judges with longer tenures on the bench may have greater influence with colleagues that makes them more likely to secure opinion authorship in salient cases, and that they may be more efficient writers owing to experience, leading them to carry more of the workload (Howard 1981, 232–58). We thus include a variable called *seniority* that reflects the length of service for Courts of Appeals judges at the time of a given case.[5] While one might anticipate problems of collinearity with *experience* and *seniority*, the correlation between these variables is relatively modest, at .32. Finally, we include an indicator variable, *outside judge*, that is coded 1 if a judge is a member of the circuit where the case was heard, versus a Courts of Appeals judge visiting from another court, or a District judge sitting by designation. We do this to account for the possibility that members of the circuit hearing the case, as compared to outside judges, will be more likely to write in salient cases. In alternative specifications, we dropped all cases with outside judges (as defined above) and the statistical significance and substantive impact of other variables in the model did not change materially. Descriptive statistics are presented in Appendix Table A-2.

Table 1 presents two sets of three parallel conditional logit models. In each set, the first model is run on all cases, the second on cases decided for the defendant, and the third on

[5]This variable is measured in terms of years, where we count the total number of days from appointment date until the date of the case and divide by 365. We give this variable a value of 0 for district judges and non-Article III specialized judges sitting by designation. We then add one to all of the values and take the natural log.

cases decided for the plaintiff. The first three models present our "full results," while the next three are "sparse" models. We begin with the full models, and return to the sparse models below.

In the discussion of the results, we focus first on the role of gender in assignment, and then we turn to ideology. There are four gender-assigner "types": male assigners, female assigners, male non-assigners, and female non-assigners. Male non-assigners serve as a reference category, due to the inclusion of *female*, *assigner*, and their interaction in the model; thus, we interpret relationships among these variables with respect to this class of judge. Beginning first with the "All cases" model, the coefficient on *female* is positive but statistically insignificant at the .05 level (p=.07). Due to the inclusion of the *liberalism* $\times$ *assigner* interaction and the fact that *liberalism* is demeaned, the *assigner* variable is interpreted with respect to a male judge with a liberalism score of zero. The coefficient is statistically insignificant, indicating that male assigners are no more likely to author opinions than male non-assigners. Finally, the *female* $\times$ *assigner* interaction indicates the change in the probability that female assigners write opinions, relative to the female main effect. The coefficient on this interaction is not statistically distinguishable from zero, meaning that female assigners do not have a different probability of writing than female non-assigners.

Turning next to the "Defendant wins" model, all of the gender-related variables are statistically insignificant (indeed, all the variables in this model are insignificant and a chi-squared test indicates that the explanatory variables do not improve the fit of the model over a null model). However, when we examine the "Plaintiff wins" model, the results are striking. The coefficient on *female* achieves statistical significance at the .05 level even though we have fewer than half the observations than we had in the "All cases" model, and its substantive effect increases sharply in magnitude. In cases where plaintiffs win, women are significantly more likely to write opinions than are men.

To assess the substantive importance of gender, we simulated probabilities by creating a

representative panel comprised of judges who have sample median values for the variables in the model, except that one of the judges is designated to be the assigner. We then change the values of explanatory variables of interest and see how this changes the value of the predicted probability that a given judge is assigned to write. While we focus on on statistically significant results, the full set of predicted probabilities is reported in the Appendix in Table A-1, with 95% confidence intervals depicted in brackets. Since one cannot assess the statistical significance of the difference between two predicted probabilities by simply examining whether respective confidence intervals overlap (Austin and Hux 2002), we compute confidence intervals directly for these differences. Whereas the regression models were used to evaluate statistical significance of coefficient estimates, the purpose of this analysis is to focus on the magnitude of the effect of gender and ideology on the propensity to write opinions. The substantive magnitude of the differences across women and men in the "Plaintiff wins" model is quite large. The predicted probabilities indicate that women are 21 percentage points more likely to write than men; the probability that women write is .53 with a 95% confidence interval of [.40, .64], compared to .32 [.26, .38] for men. The 95% confidence interval for the difference between these probabilities ranges from .08 to .33. Since this interval does not include zero, we infer that this difference between men and women is both statistically and substantively significant.

In the "Plaintiff wins" model, the *assigner* main effect remains statistically insignificant. The *female* $\times$ *assigner* interaction is also statistically insignificant, suggesting that women assigners do not have a different probability of writing than women non-assigners.

Turning next to the role of ideology, the three models reveal a pattern parallel to gender. The coefficient on *liberalism* in the "All cases" model is positive and statistically significant, indicating that *among non-assigning judges*, more liberal judges are more likely to receive the opinion. To convey the ideology effects in a meaningful way, we assess the difference in probability of writing between judges with the average *liberalism* score among Democratic

appointees and among Republican appointees. The predicted probabilities indicate that Democrats are 5 percentage points more likely to write than Republicans; the probability that Democrats write is .37 [.32,.44], compared to .32 [.28,.35] for Republicans. The confidence interval for this difference ranges from .01 to .11, and thus does not include zero. *Assigner* $\times$ *liberalism* is statistically insignificant. No ideology-related variables have statistically significant coefficients in the "Defendant wins" model. In the "Plaintiff wins" model, the coefficient on *liberalism* is positive and significant. The predicted probabilities indicate that Democrats are 9 percentage points more likely to write than Republicans; the probability that Democrats write is .41 [.31, .50], compared to .32 [.26, .38] for Republicans. The confidence interval for this difference is .01 to .18, thus indicating a statistically significant difference. It is evident that the liberalism effects associated with authorship are driven by plaintiff wins (as with gender). *Assigner* $\times$ *liberalism* remains statistically insignificant.

Moving to the remaining predictors in the models, we find no evidence that assigning judges are more likely to assign to ideological proximate judges. The coefficient on the experience variable, measuring the frequency of past writing experience in sexual harassment cases, is statistically insignificant in every model. While women and liberals write more frequently, judges' past frequency of writing in general is not itself associated with future assignments. Neither judges' seniority nor outside judge status appear to be associated with probability of assignment.

Finally, we turn to the last three models in Table 1. These report results from a set of sparse models, dropping insignificant controls and retaining only the assigner variable, the gender and ideology variables, and their interactions. The results for gender and ideology remain the same, with the exception that the coefficient on gender edges into significance at the .05 level in the "All cases" model. However, given their respective standard errors, the coefficients across both models are statistically indistinguishable. Finally, we noted earlier that correlation among several of the explanatory variables may be a concern; the sparse

models show that our main results on the effects of gender and liberalism are not affected by the presence of the controls.

### 4.4 Evaluation of Hypotheses

With these results in hand, we can now evaluate our hypotheses. In contrast to studies of assignment on the Supreme Court, our results provide no support for the proposition that judges on the Courts of Appeals wield the assignment power in a manner that is calculated to maximize the realization of policy goals. First, we find no evidence that judges on the Courts of Appeals are more likely to assign to ideologically proximate colleagues. Second, we find no evidence that judges use self-assignment to disproportionately control opinions. Since our study is the first to test these hypotheses on the Courts of Appeals, we stress that other researchers may reach different findings with a different set of cases. Our findings, covering only one policy area, certainly do not rule out the possibility of instrumental use of the assignment power in others.

Taken together, the results are most consistent with the consensual assignment hypothesis, as applied to women and liberals, but not to conservatives. We acknowledge that the evidence is indirect. We lack a direct measure of opinion-seeking behavior by judges. We infer such behavior from the fact that, in the context of the oft-asserted practice of consensual assignment, judges' preferences (measured by ideology and gender) predict assignment, whereas assigner preferences do not. Further, the preferences of judges who tend to be more pro-plaintiff robustly predict assignment only in plaintiff wins, precisely where our theory predicts that, if consensual assignment were operative, they would seek authorship in order to maximize policy or personal utility, or both. Female and more liberal judges, regardless of whether they are the assigner, and regardless of the identity of the assigner, write more frequently than men and conservatives, respectively, in cases in which plaintiffs win, but not in cases in which defendants win.

With respect to the gender effects we note that one alternative interpretation may be

that (predominantly male) assigning judges perceive women, regardless of past writing experience, as more appropriate recipients of the assignment. It has been argued that Courts of Appeals judges may show greater deference on matters of law to colleagues that they perceive as more competent, a dynamic that Klein (2002) characterizes as "cue taking." In attempting to explain gender panel effects in civil rights cases, where male Courts of Appeals judges vote more liberally when they serve with female colleagues, some have suggested that male judges may exhibit cue taking deference to female judges (Peresie 2005, 1783–84). Social psychological research has found that in areas in which men perceive women as more knowledgeable, they are more prone to defer to their judgment (Lockheed 1985, 409–10; Meeker and Weitzel-O'Neill 1985, 390–91). If this cue taking dynamic is present when panels apply sexual harassment law, then male assigning judges may perceive their female colleagues as more capable authors and thus may be more likely to assign to them. Female assigners may also regard women as more competent writers of sexual harassment law.[6]

This dynamic could result in disproportionate assignments to women even though they do not actually seek assignments. A social psychological explanation such as this cannot be ruled out by our data. Even under the operation of this mechanism, of course, the net effect would be the same: women being placed in a role of disproportionate authority in crafting sexual harassment law. Viewing the results as a whole, however, we believe that such a psychological mechanism, if operative, would be contributing to the gender effect along with the consensual assignment mechanism, rather than providing the sole explanation.

We regard this interpretation as most plausible for two reasons, while acknowledging that our data cannot decisively answer the question. First, to the extent that disproportionate female authorship is driven by perceptions among (predominantly male) assigners that women are more competent in this field, then one would expect to see the effects in

[6]We note that we lack a sufficient number of cases in which female assigners sit with female co-panelists in order to allow a meaningful comparison of the effect of assignee gender on the assigning behavior of male versus female assigners.

both plaintiff and defendant wins. A theory of assignment decisions motivated by the assigner's perceptions of women's capability as writers does not predict the *asymmetric effects* we observe across plaintiff and defendant wins. If women's gender gives rise to some form of cue taking deference by male judges, which would lead to increased writing assignments to women, such cue taking deference should also be evident in defendant win cases. The suggestion has never been made in the literature on perceived expertise or cue taking that a judge may be regarded as especially competent, for example, as an analyst of anti-trust, environmental, or bankruptcy law, but only when one party or the other wins. There is no basis for such a theory in sexual harassment law either.

Second, the close parallel in the ideology and gender results points away from assigner perceptions of women as the sole explanation. Both more liberal and women judges are more likely to write in plaintiff win cases, while neither are more likely to write in defendant win cases. Moreover, when in the assigning role, liberals and women are not more likely to write opinions. We have not discussed the possibility of a social psychological explanation for the ideology effects because we regard it as implausible that more conservative judges regard more liberal judges as possessing superior judicial ability (controlling for actual writing experience) in the field of civil rights. Both gender and ideology operate in the model as measures of judge preferences. Cue-taking is potentially pertinent only to gender. The close parallel in the gender and ideology findings suggests that cue-taking is likely not the full explanation for the observed gender effects. We reiterate that our interpretation of the relationship between gender and consensual assignment is compatible with the possibility that assigner perceptions of women contribute to higher rates of assignment to women as well. The two mechanisms operating together may explain why the magnitude of the gender effect is substantially larger than the ideology effect.

At the same time, none of our hypotheses that bear upon ideology are supported as applied to more conservative judges. Consistent with our argument, at a descriptive level

Republicans are more likely to author in defendant wins than in plaintiff wins (per figure 2), but their greater propensity to write in defendant wins is not a statistically significant result. Given the heavy and roughly equally distributed workload on the Courts of Appeals, imposing a budget constraint on the number of opinions that judges will write, we stress that our hypotheses are only sensible in issue areas regarded as salient by judges. One possibility is that sexual harassment law is more salient to liberal than conservative judges, just as it seems likely that it is more salient to female than male judges. Baum (2010) argues that issue salience may vary across types of judges. It is, moreover, a familiar idea in political science that different political parties focus upon and emphasize distinct sets of issues as salient to their core partisan identities and the success of their parties, and that the mass electorate also has distinct rankings of issue salience associated with party. This work has identified civil rights and non-discrimination issues as more likely to be regarded as salient by the Democratic party and its constituents (Petrocik 1996, 832; Petrocik, Benoit and Hansen 2003, 625). We do not claim that issue salience necessarily operates in the same way for federal judges, in relation to party or ideology, as it does for elected officials or the mass electorate. Still, this work suggests the possibility that issue salience will not be fixed across liberal and conservative judges. While, of course, we cannot directly observe salience, the asymmetric results we see across liberals and conservatives in our data is consistent with the possibility that more conservative judges do not regard published sexual harassment cases as sufficiently salient, relative to other cases on the Courts of Appeals docket, to pursue authorship in them. That Democratic-appointed judges would regard civil rights and non-discrimination issues as more salient than their Republican-appointed colleagues is consistent with the broader research on issue salience.

## 5 Conclusion

This paper presents the first systematic evidence that particular groups of judges are more likely to author opinions on the Courts of Appeals in a given area of the law. Our

results demonstrate that women and liberal judges are more likely to write opinions in federal sexual harassment cases, making it likely that these judges have a disproportionate influence on the development of doctrine in these cases. Notably, as predicted by both policy utility and psychological utility theory, we only find this effect in cases where the plaintiff wins, suggesting that authorship is mainly important in carving out when harassment occurs, not in saying when it does not. Such a conditional effect that varies by case outcome is new to the literature on opinion assignment.

It has been casually observed in the Courts of Appeals literature for decades, both by scholars and members of the court, that the assignment process is consensual, voluntarist, and informal. Our study is the first to bring a theory to bear upon this norm stressing how it provides opportunities for judges to pursue policy and personal preferences grounded in the kinds of judge-attributes that empirical legal scholars study, such as gender and ideology. Consensual assignment norms on the Courts of Appeals—which distinguish it from the Supreme Court—create opportunities for judges to play a leadership role in fashioning circuit doctrine by seeking to author binding law in cases they regard as especially important.

Our paper also speaks to the literature on the relationship between diversity and representation on appellate courts (Farhang and Wawro 2004, Cox and Miles 2008, Kastellec 2013). Recent studies have shown that the random assignment of a woman to a three-judge panel in employment discrimination cases significantly increases the likelihood that men will support plaintiffs; that is, there exist gender-based "panel effects" on three-judge panels. While women are significantly underrepresented on the Courts of Appeals in comparison with their numbers in the general population, random assignment combined with such panel effects means that their influence exceeds what their relatively small numbers on the federal bench would suggest. Our results push this story a step further, focusing on an aspect of lawmaking on the Courts of Appeals that is missed by analyses that focus only on judicial votes and case outcomes. Not only can the presence of a woman on a panel increase the

likelihood that the plaintiff will prevail in civil rights cases, but, in our data, women are disproportionately likely to write the opinion in published cases where they prevail. As we have argued, there is ample basis to believe that opinion authors on the Courts of Appeals enjoy significant latitude, which is grounded in their first mover position, norms of collegial deference, and colleagues' heavy workload. Thus, the random assignment of a woman (or women) to a panel may well have a "multiplier" effect in terms of their influence on both case outcomes and doctrine.

Of course, we have only studied the assignment decision itself, not how the content of opinions may vary across different author types. This is one logical next step for future research. Unfortunately, measuring the substantive content of judicial opinions remains in its infancy. While Clark and Lauderdale (2010) have developed a method for content analyzing Supreme Court opinions via citation analysis, it has yet to be applied to the Courts of Appeals. Another possibly fruitful avenue is text analysis, in which computers are used to analyze and measure the content of judicial opinions (Owens and Wedeking 2012). If content or text analytic methods could effectively place Courts of Appeals opinions in a meaningful ideological or policy space, we could then determine whether different types of judges not only are more likely to write opinions in certain areas of the law, but also how such patterns relate to substantive doctrine. Such inquiries could yield worthwhile advances in our understanding of how judges on the Courts of Appeals make and control law, and of the policy effects of judicial diversity.

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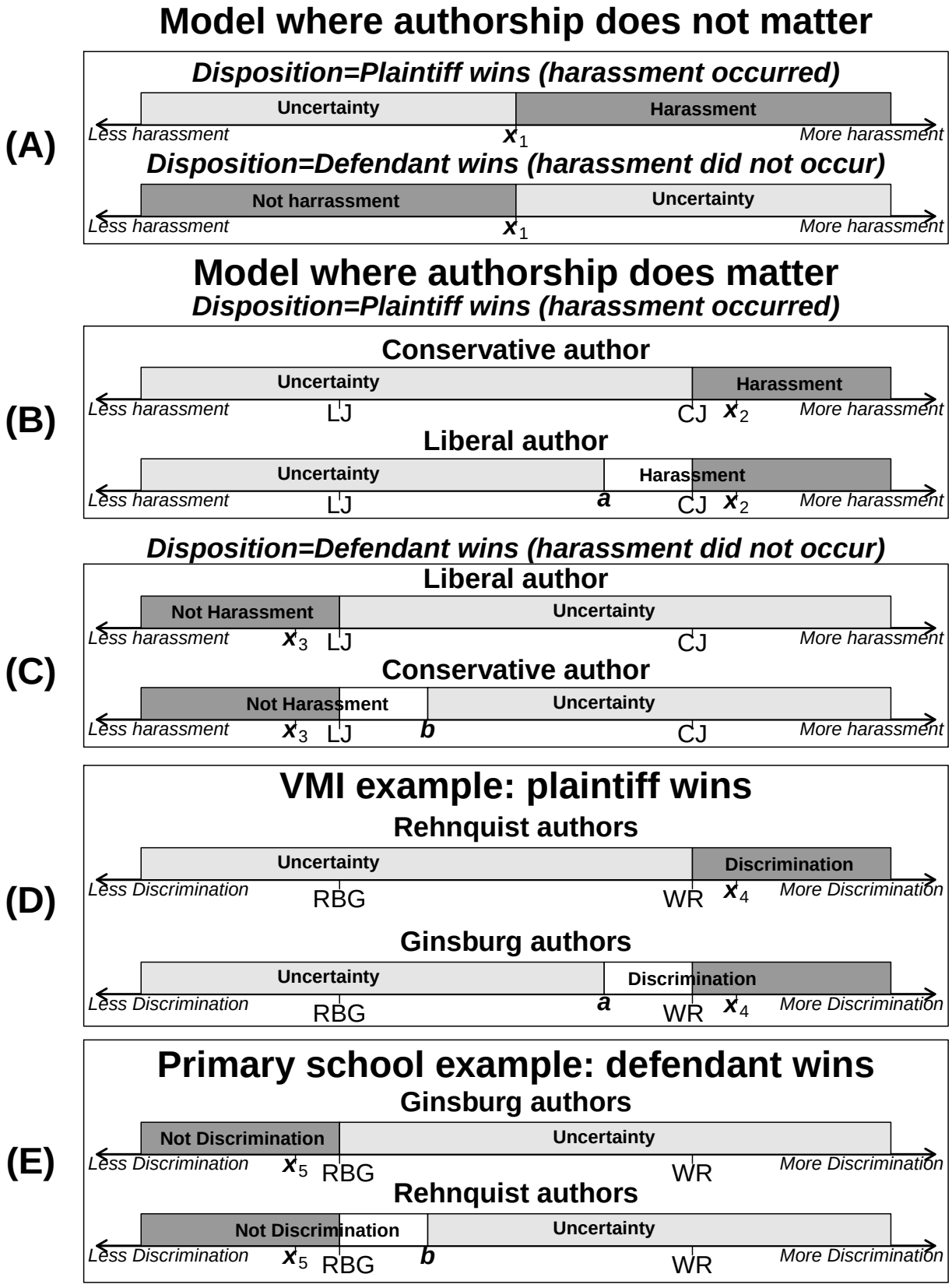


Figure 1: The relationship between case outcomes and the desirability of authorship. See text for more details.

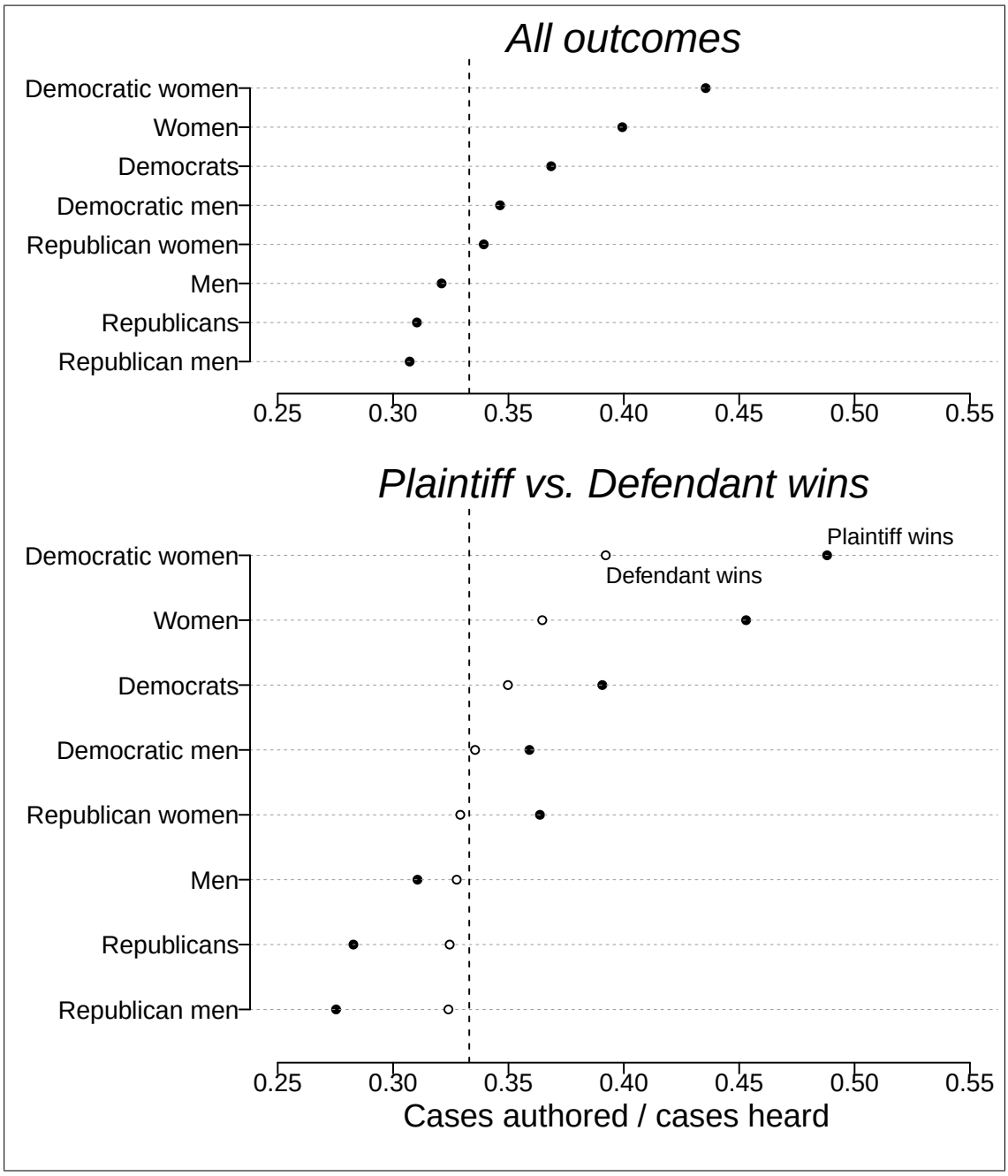


Figure 2: Authorship rates, by party and gender. For each type of judge, the dots depict the number of cases each type has authored divided by the number of cases each type has heard, or their rate of authorship. The top panel looks at all cases, while the bottom panel looks separately at plaintiff wins (solid dots) and defendant wins (open circles). Vertical lines fall at .33, which would indicate an equal share of opinions on a three-judge panel. Consistent with our expectations, female judges are most likely to write, followed by Democratic appointees.

Table 1: Conditional Logit Results for Opinion Assignment in Sexual Harassment Cases with Published Opinions

| | **Full Model** | | | **Sparse Model** | | |
|---|---|---|---|---|---|---|
| | **All Cases** | **Defendant Wins** | **Plaintiff Wins** | **All Cases** | **Defendant Wins** | **Plaintiff Wins** |
| Female | 0.33 | 0.03 | 0.67* | 0.41* | 0.13 | 0.71* |
| | (0.18) | (0.25) | (0.27) | (0.17) | (0.24) | (0.25) |
| Liberalism | 0.38* | 0.18 | 0.62* | 0.34 | 0.12 | 0.63* |
| | (0.18) | (0.25) | (0.28) | (0.18) | (0.23) | (0.28) |
| Assigner | 0.12 | 0.16 | 0.13 | 0.19 | 0.18 | 0.21 |
| | (0.14) | (0.18) | (0.22) | (0.1) | (0.13) | (0.16) |
| Female × assigner | −0.18 | 0.29 | −0.79 | −0.24 | 0.21 | −0.82 |
| | (0.3) | (0.41) | (0.46) | (0.3) | (0.41) | (0.45) |
| Liberalism × assigner | −0.13 | −0.21 | 0.14 | −0.09 | −0.17 | 0.14 |
| | (0.3) | (0.41) | (0.47) | (0.29) | (0.4) | (0.46) |
| Ideological distance | −0.12 | −0.14 | 0.04 | | | |
| | (0.23) | (0.3) | (0.36) | | | |
| Authorship experience | 0.02 | 0.02 | 0.02 | | | |
| | (0.03) | (0.03) | (0.05) | | | |
| ln(Seniority) | −0.11 | −0.18 | −0.02 | | | |
| | (0.09) | (0.12) | (0.13) | | | |
| Outside judge | −0.51 | −0.37 | −0.6 | | | |
| | (0.26) | (0.36) | (0.4) | | | |
| $N$ | 1680 | 961 | 719 | 1680 | 961 | 719 |
| *Deviance* | 1209 | 695 | 502 | 1214 | 698 | 507 |
| −2LLR (Model $\chi^2$) | 19 ($p = 0.03$) | 8 ($p = 0.58$) | 23 ($p = 0.01$) | 15 ($p = 0.01$) | 5 ($p = 0.44$) | 19 ($p = 0$) |

*Notes*: * $p \leq 0.05$. Maximum likelihood point estimates with standard errors in parentheses.

# A Appendix

In this appendix we report the complete results for predicted probabilities based on the estimates reported in Table 1, present more information on our data collection procedure, discuss in detail the rules for coding assigners, and present several robustness checks of our empirical model.

## A.1 Data collection

To obtain our dataset of sexual harassment cases in the Courts of Appeals, we conducted the following keyword search in Westlaw: (SEX! /5 HARASS!) (HOSTILE /5 ENVIRONMENT) (WOM! /5 HARASS!) (FEM! /5 HARASS!) (MALE /5 HARASS!) (MAN /5 HARASS!) (MEN /5 HARASS!) (GEN! /5 HARASS!). Coders then went through all cases and kept only cases in which the court had a complaint before it with a sexual harassment claim under Title VII of the Civil Rights Act of 1964. We did not include education sexual harassment claims, or employment sexual harassment under state law only. We also did not keep Tile VII claims of retaliation for having complained of sexual harassment if there was not a sexual harassment claim before the court. This can happen if someone makes a sexual harassment complaint to an employer, is retaliated against, does not pursue legal action on the sexual harassment claim, but does pursue a claim of illegal retaliation. Thus, our data only comprises cases where there was actually a Title VII sexual harassment claim before the court.

This search left us with 577 published cases. There were seven published sexual harassment cases that were not used because the assigner was in dissent (below we discuss rules governing assigning from dissent). In the conditional logit framework that we use to analyze the data, the assigner must be within the set of potential recipients of the assignment, and therefore these seven cases were dropped from our analysis. Thus, there were 570 usable cases for analysis. Table A-2 reports descriptive statistics for these cases.

Table A-1: Predicted Probabilities for Authoring Opinions

| All Cases | | | |
|---|---|---|---|
| | Male | Female | Difference |
| Non-assigning judge | 0.32 | 0.41 | 0.09 |
| | [ 0.28 , 0.35 ] | [ 0.32 , 0.49 ] | [ 0.01 , 0.18 ] |
| Assigning judge | 0.37 | 0.41 | 0.04 |
| | [ 0.30 , 0.44 ] | [ 0.30 , 0.53 ] | [ -0.06 , 0.16 ] |
| Difference | 0.05 | 0.00 | |
| | [ -0.05 , 0.16 ] | [ -0.14 , 0.15 ] | |
| | Republican | Democrat | Difference |
| Ideology | 0.32 | 0.37 | 0.06 |
| | [ 0.28 , 0.35 ] | [ 0.32 , 0.44 ] | [ 0.01 , 0.11 ] |
| Cases Decided for the Defendant | | | |
| | Male | Female | Difference |
| Non-assigning judge | 0.31 | 0.32 | 0.01 |
| | [ 0.27 , 0.35 ] | [ 0.22 , 0.43 ] | [ -0.09 , 0.11 ] |
| Assigning judge | 0.38 | 0.46 | 0.08 |
| | [ 0.30 , 0.47 ] | [ 0.29 , 0.62 ] | [ -0.08 , 0.24 ] |
| Difference | 0.07 | 0.14 | |
| | [ -0.05 , 0.20 ] | [ -0.06 , 0.33 ] | |
| | Republican | Democrat | Difference |
| Ideology | 0.31 | 0.33 | 0.03 |
| | [ 0.27 , 0.35 ] | [ 0.26 , 0.42 ] | [ -0.04 , 0.10 ] |
| Cases Decided for the Plaintiff | | | |
| | Male | Female | Difference |
| Non-assigning judge | 0.32 | 0.53 | 0.21 |
| | [ 0.26 , 0.38 ] | [ 0.40 , 0.64 ] | [ 0.08 , 0.33 ] |
| Assigning judge | 0.35 | 0.38 | 0.02 |
| | [ 0.25 , 0.48 ] | [ 0.21 , 0.56 ] | [ -0.14 , 0.19 ] |
| Difference | 0.03 | -0.15 | |
| | [ -0.13 , 0.22 ] | [ -0.34 , 0.09 ] | |
| | Republican | Democrat | Difference |
| Ideology | 0.32 | 0.41 | 0.09 |
| | [ 0.26 , 0.38 ] | [ 0.31 , 0.50 ] | [ 0.01 , 0.18 ] |

*Notes*: Table entries are predicted probabilities with 95% confidence intervals in brackets. The values are based on 1000 draws from the estimated distribution of the coefficient estimates.

Table A-2: Descriptive Statistics for Opinion Assignment in Sexual Harassment Cases, 1977–2006

| | Mean | Median | Std. Dev. | Min. | Max. |
|---|---|---|---|---|---|
| Author | 0.34 | 0.00 | 0.47 | 0.00 | 1.00 |
| Female | 0.15 | 0.00 | 0.36 | 0.00 | 1.00 |
| Liberalism | 0.00 | -0.07 | 0.37 | -0.53 | 0.68 |
| Assigner | 0.34 | 0.00 | 0.47 | 0.00 | 1.00 |
| Female × assigner | 0.05 | 0.00 | 0.22 | 0.00 | 1.00 |
| Liberalism × assigner | 0.00 | 0.00 | 0.21 | -0.52 | 0.68 |
| Ideological distance | 0.25 | 0.10 | 0.31 | 0.00 | 1.15 |
| Authorship experience | 1.75 | 1.00 | 2.55 | 0.00 | 16.00 |
| ln(Seniority) | 2.16 | 2.42 | 0.98 | 0.00 | 3.70 |
| Outside judge | 0.10 | 0.00 | 0.30 | 0.00 | 1.00 |

$N$ =1680; number of cases = 570.

Note that Liberalism is measured in terms of deviations from the mean.

### A.2 Rules for coding assigners

28 U.S.C. § 45 provides that "presiding judge" status on a panel is conferred in the following order of priority: (1) the chief if sitting, (2) the senior judge "in regular active service," with seniority determined by commission date, and (3) in the event of a tie for senior active judge, the judge senior in age. The language "in regular active service" was added in 1982, becoming effective October 1st of that year. Prior to that, being in active service was not a condition of presiding. We coded presiding judges according to the forgoing rules. In all circuits other than the Fourth, either the presiding judge on the panel, or the presiding judge in the majority, assigns (Cheng 2008, 526, fn. 35; Baker 2008, 102, fn. 123). In only seven of 577 published sexual harassment cases was the presiding judge in dissent. Our review of circuit assignment rules revealed that these cases arose in circuits that allow presiding judges to assign from dissent. They were thus dropped from the analysis because in our conditional logit analysis assigners must be within the choice set of authors.

Ambiguities in coding assigners arise only in the Fourth Circuit, where assignment rules

provide that all assignments are made by the Chief Judge (even when not on the panel) "on the basis of recommendations from the presiding judge" (Cheng 2008, 526, fn. 35), meaning the senior active judge on the panel. Consequently, it is not entirely clear whether the chief or the senior active judge on the panel should be treated as the assigner. In the models presented, we coded the senior active judge on the panel as the assigner because the conditional logit framework we use to analyze the data requires that the assigning judge be a potential writer on the panel, and thus treating the chief as the assigner when not on the panel would require excluding the Fourth Circuit from our analysis. In an alternative specification, displayed in Table A-3, we drop cases that were heard in the Fourth Circuit, which comprise five percent of our data. There was no meaningful change in the results.

Table A-3: Conditional Logit Results for Opinion Assignment in Sexual Harassment Cases with Published Opinions, Fourth Circuit Omitted

| | **All Cases** | **Defendant Wins** | **Plaintiff Wins** |
|---|---|---|---|
| | Estimate | Estimate | Estimate |
| | (S.E.) | (S.E.) | (S.E.) |
| Female | 0.29 | 0 | 0.6* |
| | (0.19) | (0.26) | (0.27) |
| Liberalism | 0.41* | 0.16 | 0.69* |
| | (0.19) | (0.25) | (0.29) |
| Assigner | 0.12 | 0.19 | 0.1 |
| | (0.14) | (0.18) | (0.22) |
| Female × assigner | −0.11 | 0.32 | −0.66 |
| | (0.31) | (0.42) | (0.47) |
| Liberalism × assigner | −0.07 | −0.15 | 0.28 |
| | (0.3) | (0.41) | (0.48) |
| Ideological distance | −0.14 | −0.19 | 0.07 |
| | (0.23) | (0.31) | (0.37) |
| Authorship experience | 0.02 | 0.02 | 0.01 |
| | (0.03) | (0.03) | (0.05) |
| ln(Seniority) | −0.11 | −0.19 | −0.01 |
| | (0.09) | (0.12) | (0.14) |
| Outside judge | −0.43 | −0.28 | −0.54 |
| | (0.27) | (0.37) | (0.41) |
| $N$ | 1596 | 918 | 678 |
| *Deviance* | 1149 | 662 | 473 |
| −2LLR (Model $\chi^2$) | 17 ($p = 0.04$) | 9 ($p = 0.45$) | 23 ($p = 0.01$) |

*Notes*: * $p \leq 0.05$

### A.3 The use of only published cases

As we noted in the text, choosing to analyze only published decisions raises the question of whether the publication decision might be endogenous to the author. While circuit rules governing the decision to publish do not give the author more authority to effectuate publication than other panel members (Serfass and Cranford 2001), it may be that, in practice, informal norms afford the author disproportionate influence on the decision. If, for example, women are assigned to write equally in plaintiff and defendant wins, but they disproportionately succeed in effectuating publication in plaintiff win cases, studying only published cases

could lead to misleading inferences. To assess this possibility, we analyzed all published and unpublished sexual harassment cases in order to assess whether gender and ideology of the author, or panel composition, are associated with publication.

Specifically, using case-level data, we ran two sets of logit models with publication as the dependent variable. The first set of models had the following independent variables: (1) gender of the author; (2) liberalism score of the author; dummy variables reflecting whether there was (3) one woman on the panel, or (4) two women on the panel, leaving all male panels as the reference category (there were only two cases with three women on the panel); (5) the mean ideology score of the panel; (6) circuit fixed effects; and (7) a linear time trend. In these models we included both gender and ideology of the author, and gender and ideological composition of the panel, in order to allow for either to influence publication. Because per curium cases do not designate an author, such cases were necessarily excluded from the analysis, and the models thus compared published and unpublished cases with designated authors. In a second set of models we added per curium cases and dropped the variables measuring author gender and ideology, keeping all the rest. These models allowed us to assess, when per curium cases are added, whether the gender and ideological composition of the panel and panel are associated with publication. Both the first and second set of models were run on all cases, plaintiff wins only, and defendant wins only, rendering six regressions in total.

In the first set of models (including authorship variables and excluding per curium cases), the gender and ideology of the author, and variables measuring the gender and ideological composition of the panel, were statistically insignificant at the .1 level in every model. In the second set of models (excluding authorship variables and including per curium cases), the variables measuring the gender and ideological composition of the panel remained insignificant at the .1 level. Interestingly, at a descriptive level, women authors are slightly less likely than male authors to publish in both plaintiff and defendant wins, though the

differences are not statistically significant. Thus, it is clear that disproportionate liberal and female authorship in published plaintiff win cases is not driven by women and liberals disproportionately effectuating publication when they write in plaintiff wins.

We considered running the analysis presented in our paper on only unpublished cases in order to compare authorship dynamics with those we report for published cases. However, 64% of the unpublished sexual harassment cases are per curium, meaning that no author is designated, and thus such cases cannot be used to study authorship. Consequently, there are too few unpublished opinions where the author is designated for meaningful analysis. There are 92 such cases in our data, of which only 13 were decided for the plaintiff.

### A.4 Robustness check: Random Effects Logit

As we noted in footnote 3, as a robustness check to ensure that unobserved circuit-level heterogeneity is not driving our results, we can follow the lead of Maltzman and Wahlbeck (2004) and employ a random effects logit to model assignment, in which we explicitly incorporate circuit fixed effects. The results are presented in Table A-4, and are statistically and substantively the same as those we obtained with the conditional logits presented in the paper.

Table A-4: Random Effects Logit Results for Opinion Assignment in Sexual Harassment Cases

| | **All Cases** Estimate (S.E.) | **Defendant Wins** Estimate (S.E.) | **Plaintiff Wins** Estimate (S.E.) |
|---|---|---|---|
| Female | 0.37* | 0.04 | 0.75* |
| | (0.18) | (0.26) | (0.27) |
| Liberalism | 0.36* | 0.14 | 0.60* |
| | (0.18) | (0.25) | (0.28) |
| Assigner | 0.22 | 0.29 | 0.18 |
| | (0.15) | (0.20) | (0.23) |
| Female × assigner | −0.21 | 0.25 | −0.81 |
| | (0.31) | (0.43) | (0.46) |
| Liberalism × assigner | −0.10 | −0.17 | 0.22 |
| | (0.31) | (0.42) | (0.49) |
| Ideological distance | −0.12 | −0.13 | 0.06 |
| | (0.22) | (0.30) | (0.34) |
| Authorship experience | 0.01 | 0.01 | 0.00 |
| | (0.02) | (0.03) | (0.04) |
| ln(Seniority) | −0.11 | −0.16 | −0.04 |
| | (0.09) | (0.11) | (0.13) |
| Outside judge | −0.54* | −0.32 | −0.73 |
| | (0.27) | (0.36) | (0.42) |
| 1st Circuit | 0.05 | −0.10 | 0.20 |
| | (0.31) | (0.51) | (0.43) |
| 2nd Circuit | −0.09 | −0.13 | −0.04 |
| | (0.26) | (0.45) | (0.33) |
| 3rd Circuit | −0.06 | −0.13 | 0.05 |
| | (0.31) | (0.59) | (0.37) |
| 4th Circuit | 0.03 | −0.03 | 0.04 |
| | (0.30) | (0.48) | (0.40) |
| 5th Circuit | 0.06 | −0.11 | 0.20 |
| | (0.26) | (0.42) | (0.38) |
| 6th Circuit | 0.04 | −0.06 | 0.20 |
| | (0.31) | (0.49) | (0.44) |
| 7th Circuit | −0.03 | −0.09 | 0.01 |
| | (0.23) | (0.39) | (0.34) |
| 8th Circuit | 0.04 | −0.08 | 0.07 |
| | (0.22) | (0.39) | (0.30) |
| 10th Circuit | −0.01 | −0.13 | 0.15 |
| | (0.25) | (0.41) | (0.37) |
| 11th Circuit | 0.06 | −0.03 | 0.17 |
| | (0.29) | (0.50) | (0.38) |
| 12th Circuit | −0.02 | −0.05 | −0.14 |
| | (0.36) | (0.50) | (0.76) |
| Constant | −0.49 | −0.31 | −0.79 |
| | (0.28) | (0.44) | (0.42) |
| $\ln \sigma_\nu^2$ | −17.99 | −18.00 | −17.95 |
| | (217.53) | (287.65) | (332.42) |
| $N$ | 1680 | 961 | 719 |

*Notes*: $^*$ $p \leq 0.05$