



The Intergroup Foundations of Policy Influence

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Abstract

Most decisions about policy adoption require preference aggregation, which makes it difficult to determine how and when an individual can influence policy change. Examining how frequently a judge is cited offers insight into this question. Drawing upon the psychological concept of social identity, we suggest that shared group memberships can account for differences in policy influence. We investigate this possibility using the demographic and professional group memberships of federal circuit court judges and an original dataset of citations among all published search and seizure cases from federal circuit courts from 1990 to 2010. The results indicate that shared professional characteristics do tend to lead to ingroup favoritism in citation decisions while only partial evidence of such a pattern emerges for demographic group memberships. There is evidence of ingroup favoritism among female and minority judges but none for male or white judges. Overall, judges appear to generally have greater influence on judges with shared characteristics. The findings have vital implications for our understanding of the diversification of policy-making institutions.

Keywords

U.S. Courts of Appeals, legal development, citation, race, gender

Ideas transmit more readily between political entities that share features in common. This notion has fueled a robust literature on the diffusion of policies across geographic lines (see, for example, Berry and Berry 1990; Caldeira 1985; Canon and Baum 1981; Hinkle and Nelson 2016). For example, states often adopt policies that have been enacted in neighboring states (Berry and Berry 1990; Hinkle 2015a). Likewise, Caldeira (1985) demonstrates that similarity between state supreme courts explained the transmission of legal ideas across state lines.

The opinions issued by *courts* are written by *judges*. The policy-making power of judges is driven by the principle of *stare decisis*. Judges use their opinions to bind future judges to their chosen interpretation of the law, but they are also constrained by the decisions made by previous judges (Hansford and Spriggs 2006). Judicial influence over policy is driven by judges acknowledging and following the legal rules that other judges make. In this way, the law diffuses from judge to judge (and court to court) over time.

Even though appellate judges make decisions sitting on collegial courts, most opinions are crafted largely by a single, identified, author. While writing their opinions, judges have considerable discretion to select which precedents they address and which they ignore (Hinkle 2015b). Scholars have long recognized the importance of judicial citation practices as a window into patterns of policy adoption among elites (Caldeira 1985; Hansford

and Spriggs 2006). These citation patterns provide an opportunity to examine individual-level policy influence. The flow of legal development is shaped by a complex system of personal and professional relationships. As a result, the influence of a judge might be dependent on her relationships with other judges, most notably her group memberships.

The social psychology literature offers strong reasons to expect that the effects of similarity that manifest between political entities may also operate in terms of person-to-person influence among individual judges. The importance of shared group membership to human behavior is explored by Social Identity Theory which suggests that individuals show favoritism to others who share their group memberships (Tajfel 1970). Applied to the policy-making process, Social Identity Theory suggests a group-based foundation to policy influence which can explain existing biases in policy making and provide a psychological mechanism to ground them.

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We apply the insights of Social Identity Theory to policy development in the judicial branch, arguing that policy makers have multiple and overlapping demographic and professional group memberships and that judges give priority to the views of those who share one or more of these memberships. We test our theory by examining citations among federal circuit judges, the final arbiters of most federal appeals. We estimate the effect of shared group membership on one judge's decision whether to cite an opinion written by another. To account for the fact that not all citations indicate the same level of influence, we differentiate between substantive citations, string citations, and negative treatments of past precedent. Empirically differentiating string citations from more substantive citations represents an important step forward in the study of judicial citations. Our original dataset includes all citations among 7,085 published circuit court search and seizure opinions from 1990 to 2010.

The results indicate that policy influence can be shaped by shared group membership. Judges with the same appointing president, from the same law school, and with mutual prior judicial experience are more likely to cite one another than a judge who does not share the relevant characteristic. Perhaps surprisingly, we discover no evidence that male or white judges show ingroup favoritism in their citation choices. Instead, and in line with psychology's Rejection-Identification Model (Schmitt et al. 2002), we find evidence of ingroup favoritism among female and minority judges. Taken together, our results provide a group-based understanding of judicial influence, one that has important implications for the diversification of the federal courts across demographic and professional lines.

In addition to shedding light on the process of policy influence more broadly, our results complement existing research that suggests the effects of judicial identity are limited to cases in which identity is a salient issue (Boyd, Epstein, and Martin 2010; Haire and Moyer 2015; Kastellec 2011). Although a judge's background may have only minor effects on the outcomes of judicial decisions, our results indicate that such characteristics play a broader role in citation and, by extension, who has an enhanced (or reduced) ability to affect legal development. Moreover, because these patterns emerge even after accounting for the constraining effect of *stare decisis*, there is some reason to believe that similar dynamics may be at play among other political actors. As a result, our findings have implications for how continued diversification may influence the development of policy.

The Social Psychological Foundations of Influence

Social psychologists have long studied the causes and consequences of interpersonal influence. One of the most

prominent theories in this vein is *Social Identity Theory*. The theory has its roots in Tajfel's (1969, 1970) "minimal group paradigm," which found that individuals tend to favor members of their ingroups. *Group membership* is a psychological state that confers a *social identity* to an individual (Hogg and Abrams 1988).¹ Tajfel and others argue that self-esteem provides a mechanism that accounts for this ingroup bias: individuals tend to favor members of their ingroups to enhance the image of that group.

These ingroup biases are especially potent among groups that are important to individual members. Ellemers and Haslam (2011, 382) write,

To the extent that people care about the groups they belong to (i.e., ingroups), they will be motivated to emphasize the distinct identity of those groups, and to uphold, protect, or enhance the value afforded to those groups and their members.

In this way, members of privileged groups in society have particularly high incentives to maintain the esteem in which their groups are held.

How does this happen? People's thinking and information processing is conditioned by a set of cognitive biases (Braman 2009). *Cognitive-dissonance avoidance* makes individuals more likely to seek out information that supports their group's position than to find information that challenges their group's position on issues (Kahan and Braman 2006). Individuals exhibit *biased assimilation* by tending to selectively believe or reject facts based on their congruence with the individual's group memberships (Lord, Ross, and Lepper 1979). Consequently, individuals are more likely to both (1) come into contact with information that supports the views of their group and (2) trust that information. Information that does not comport with their group's views, therefore, is less likely to be believed, assimilated, and employed in their decision-making calculus. Psychologists have presented a bevy of evidence that even experts—making judgments in their areas of expertise—suffer from these cognitive biases (e.g., Kahan 2011).

Psychological studies have documented the importance of shared group membership as an important persuasive cue. Mackie, Gastardo-Conaco, and Skelly (1993) demonstrate that even the mere presence of an ingroup source can persuade individuals, causing them to accept the ingroup view on a topic. Cohen (2003, 808–9) summarizes the persuasive nature of group heuristics, writing,

attitudes do not follow from the objective features of the object alone, for those features, to a large extent, inferred on the basis of ingroup judgments and have no intrinsic merit independent of the decision-maker's values . . . [W]hat is

critical is social meaning—the perceived “goodness of fit” between the attitude object and socially shared values.

In this way, group memberships can affect the persuasiveness of a piece of information.

Judges acknowledge that the source of information can affect its persuasiveness. Group membership can function as a heuristic when individuals seek out the opinions or ideas of ingroup members as a time-saving technique. For example, Judge Sutton (2010, 860) of the Sixth Circuit has written of Judge Posner, “I often look to him for insights in resolving difficult cases of my own, telling my clerks, ‘See if Posner has written anything on the topic.’ Other judges, I suspect, do the same thing.” Although Judge Posner is widely recognized as a prestigious judge, this is an example of one Harvard-educated white male judge telling his clerks to look at the decisions of another Harvard-educated white male judge. More generally, Klein (2002, 95) summarizes his interviews with Courts of Appeals judges, writing,

The judges might have said they treated all opinions equally but that some—especially those from prestigious or expert judges—were better than others. They did not. Instead, they reported paying close attention or giving extra weight to opinions simply because they came from colleagues they respected.

Group memberships may play a persuasive role through increased familiarity. Individuals in the same social groups are often more likely to have met in person and, as a result, to have had the opportunity to realize that they share particular group memberships, interests, and beliefs. For example, Courts of Appeals judges interviewed by Klein (2002, 94) made comments like “If it’s a judge I know or who is reputed for his scholarship or legal acumen, I will probably give greater deference” and “Some people you know personally, others just through opinions, but you form a sense of how good they are through their work.”

These effects can also manifest themselves unconsciously, as one of Klein’s (2002, 95, emphasis added) judges recognized: “There are some [judges] I think I’m more simpatico with. Also, I certainly take note of [opinions] from Posner. I’m impressed with Kearse, Oakes, and some others on the Second Circuit. *This is factored in almost unconsciously.*” Shared group membership should, therefore, be associated with increased persuasiveness, and this effect could occur because judges purposely seek out the opinions of judges with whom they share group memberships, because judges are more familiar with judges who share their group memberships, or even unconsciously. Although empirically disentangling these mechanisms is not practical, the potential concerns they raise regarding disproportionate policy influence merit

study of how group memberships affect judicial influence.

Measuring Judicial Influence

Studying the effects of group membership requires a metric of judicial influence between two individual judges. We develop such a metric using the opinions of federal circuit judges. The U.S. Courts of Appeals are the final arbiters for the vast majority of appeals in the federal court system. Although there is some bargaining over opinion content, opinion authors generally have broad discretion over the citations they use to bolster their opinion (Choi and Gulati 2007). The published opinions these judges write are binding law in their jurisdiction, and their decisions can only be overturned by an act of Congress (for statutory cases), a constitutional amendment, their entire court sitting en banc, or a decision of the U.S. Supreme Court (Hazleton, Hinkle, and Jeon 2016). As a result, circuit judges have broad policy-making powers. And as the details of opinion authorship fall squarely on the shoulders of a lone judge, they provide a unique opportunity to investigate person-to-person policy-making influence. That influence manifests in citation usage.

Legal development in a common law system like the United States happens as part of a slow, deliberate process in which judges look to past precedents to guide their current decisions. In any given case, a particular precedent is likely to only incrementally influence legal development. But, such effects accumulate over time. Nascent precedents eventually calcify into hardened law, making certain outcomes harder to defend than others. By nudging judges toward particular outcomes and making other outcomes more difficult, prior precedents influence current judicial decision making. In this way, legal opinions are policy tools: judges have the opportunity to craft legal rules that bind future judges, and judges simultaneously draw upon the policy insights of other judges, as stated in past precedents, to do so.

Measuring judicial influence against a backdrop of incremental policy change is challenging. We root our approach in the observation that judges whose opinions are cited more often have a larger influence on legal policy than judges whose opinions are cited less often (Landes, Lessig, and Solimine 1998). Judicial opinions (like scholarly articles) are laden with references to prior work that provide a foundation for the judicial decision. Citations are the bricks and mortar of a decision that reassure its readers that the decision is structurally sound. We therefore look to citation counts as a measure of influence. Of course, no single citation necessarily reflects dramatic policy influence. Although an individual citation may only provide a slight nudge toward the opinion’s eventual outcome or overall development of

legal doctrine, the accumulated weight of the citations to a particular precedent reflects the incremental impact that precedent has had on the development of law.

The use of citation counts as a measure of influence has been the subject of a lively debate (e.g., Klein and Morrisroe 1999). Although not a perfect indicator of influence, citations provide a comparable metric to assess the relative influence one judge has over legal development compared with another (Landes, Lessig, and Solimine 1998). This view is in line with that of many institutions' academic promotion-and-tenure committees that use citation counts as one indicator of scholarly influence. A citation is a formal acknowledgment that the cited work was part of the accumulated discussion that led to the creation of the citing work.

Existing empirical evidence supports the claim that judges' choices about which precedents to cite reflect influence over legal development. As opinions are cited more frequently, they become increasingly important to future judges and opinions (Hansford and Spriggs 2006; Hinkle 2017; Hinkle and Nelson, forthcoming). Conversely, opinions that are rarely cited have little opportunity to influence future cases. In fact, citation patterns are such strong determinants of an opinion's eventual influence that they can be used to predict an opinion's eventual influence at the time it is issued (Fowler and Jeon 2008).

Although academics choose which literature to cite, circuit judges rely on law clerks to perform initial legal research or even draft opinions. This does not necessarily undermine the use of citations to measure judicial influence. The connection between judge and clerk is a principal-agent relationship, characterized by close and careful monitoring because each judge is ethically responsible for the content of any opinion bearing his name (Peppers and Zorn 2008; Wahlbeck, Spriggs, and Sigelman 2002). Lebovits (2004, 35, emphasis added) writes,

Even if the law clerk writes every word of a particular opinion, the judge must agree with and understand every one of those words as if the judge alone wrote each word. Every word *and citation* must be the authentic expression of the judge's thoughts, views, and findings.

The Federal Judicial Center's (2013, 11) *Judicial Writing Manual* admonishes,

Even a distinguished academic record does not qualify a law clerk to practice the craft of judging . . . to make the sometimes delicate assessment of the effect of precedent[] or to recognize subtle distinctions in the applicable law . . . No matter how capable the clerk, the opinion must always be the judge's work.

In short, there are sound reasons to ultimately attribute the content of an opinion to the judge.²

Not all citations demonstrate favoritism. Social Identity Theory predicts that an authoring judge should be more likely to favor the opinion of another judge with whom she shares a group membership. Applied to judicial citations, favoritism can take two forms: the decision to apply or expand a precedent and the decision to *not* criticize or limit it. Although most judicial citations acknowledge a precedent—either neutrally or positively—as the basis for the new opinion, it is also possible to negatively treat a precedent by limiting, criticizing, or questioning its relevance (Spriggs and Hansford 2000). In general, Social Identity Theory predicts that shared group membership should lead to more citation and less negative treatment.

Group Memberships and Judicial Influence

The preceding discussion suggests that shared group memberships may influence behavior because individuals are drawn to those who share their group memberships either through increased familiarity or because they rely—consciously or unconsciously—on shared group memberships as a heuristic. We examine the effect of shared group memberships on judicial influence using citation patterns in the U.S. Courts of Appeals. We turn now to the different types of group memberships judges may have, focusing on demographic and professional characteristics.

First, demographic group memberships—particularly gender and race—are important for many individuals. Social Identity Theory suggests that judges should be particularly likely to cite judges who share their demographic characteristics. Yet, evidence regarding this proposition in the judiciary is sparse. Landes, Lessig, and Solimine (1998), studying Courts of Appeals judges sitting in 1992 (before the diversification of the judiciary accelerated under Clinton and Obama) find no race or gender effects. However, there is some evidence of ingroup favoritism in academic citation patterns. Greenwald and Schuh (1994), studying citation practices in fifteen disciplines, find that scholars are 40 percent more likely to cite an article written by a scholar who shares their ethnicity than one who does not. Similarly, citation patterns in study of international relations reveal that men are less likely to cite articles written by women (Maliniak, Powers, and Walter 2013; Mitchell, Lange, and Bruns 2013). This evidence provides some suggestion that citation patterns are affected by demographic characteristics, in line with the predictions of Social Identity Theory.

Our expectations for gender and ethnicity are nuanced. Psychologists have documented variation in levels of ingroup favoritism tied to social status: high-status groups tend to show higher levels of ingroup favoritism than

low-status groups, especially implicitly (Rudman and Goodwin 2004). For example, whites have higher levels of ingroup favoritism than blacks (Nosek, Banaji, and Greenwald 2002). System Justification Theory provides one theoretical mechanism to explain this discrepancy by positing that minority groups may implicitly adopt society's negative view of the group due to the difficulties inherent in changing societal hierarchies (Jost, Banaji, and Nosek 2004).³ This suggests that we may observe higher levels of ingroup favoritism among white and male judges and comparatively lower levels among minority and female judges.

However, experimental evidence provided by psychologists has also noted some persistent exceptions to this pattern: ingroup favoritism is stronger among women than men (Rudman and Goodwin 2004). Ellemers, Spears, and Doosje (1997) provide one explanation, arguing that members of lower status groups may share a stronger collective bond that, in turn, leads to higher levels of ingroup favoritism. This is the logic underlying psychology's Rejection-Identification Model, which suggests that lower status groups cope with perceived discrimination through increased identification with the group (Schmitt et al. 2002). The theory would, therefore, predict higher levels of ingroup favoritism among historically disadvantaged groups. Iyengar and Westwood (2015, 704) come to a similar conclusion, uncovering "considerable evidence that group identity is heightened among disadvantaged groups, that is, among women and nonwhites." Among advantaged groups, they note, "the sense of gender/racial identity may be insufficiently salient" (Iyengar and Westwood 2015, 704). These findings, combined with the predictions of the Rejection-Identification Model, suggest a contrary prediction: ingroup favoritism may be highest among women and minority judges. In summary, our primary hypothesis regarding demographic group membership is rooted in Social Identity Theory. We expect judges to display ingroup favoritism by citing members of their ingroup more and negatively treating their opinions less. However, there are conflicting expectations for whether privileged groups will exhibit more or less ingroup favoritism. System Justification Theory suggests that levels of ingroup favoritism are higher among whites and men while the Rejection-Identification Model predicts that ingroup favoritism is higher among women and minority judges.

Demographic group memberships are only one type of group membership. By the time a circuit judge ascends to the bench, their life has been shaped by a variety of key professional experiences. We posit that five types of shared professional background can create a sense of group membership.

First, career paths in the legal profession are strongly connected to the prestige of one's law school (Redding

2003). Individuals may lend a hand to those who graduated from the same law school at the expense of nonalumni. Both shared experiences and a common fate form exactly the type of ingroup/outgroup dichotomy that lies at the heart of Social Identity Theory.

Second, after law school many future judges serve as a clerk for a federal judge. Federal judges form "families" of former clerks, having annual reunions and creating networking opportunities for current and former clerks. As former Ninth Circuit Judge Kozinski (1991, 1708) put it, "By accepting a judge's clerkship offer, a young lawyer becomes part of the judge's extended family, a disciple, an ally, quite possibly a friend." As a result, judges may be drawn to the opinions of those who clerked for the same judge.

Next, there are other key experiences that shape judges' self-concept. We expect both prior prosecutorial experience and prior judicial experience before serving on the U.S. Courts of Appeals will be particularly important (Epstein, Knight, and Martin 2003). Judges with prior prosecutorial experience may be more likely to appreciate each other's firsthand experience working with law enforcement. Similarly, service on a trial court provides judges with experiences seeing their rulings affect litigants directly; Czarnecki and Ford (2006, 869) note that "Judges with similar trial court experience may more readily agree with each other about the types of decisions deserving of deference and the types of decision that do not."

Finally, scholars have noted distinctive behavior among groups of judges appointed by the same president (Slotnick, Schiavoni, and Goldman 2017). Each White House vetting process prioritizes certain characteristics, making "Obama judges" different than "Trump judges." These criteria create a cohort effect. For example, noting Ronald Reagan's "commitment to the idea that the third branch of the federal government was not another legislative branch," Sixth Circuit judge Alice Batchelder (2012) stated, "I'm not just a judge, though. I'm a *Reagan* judge." Overall, we hypothesize that individuals who share any of these five professional background characteristics will cite each other more often than they cite other judges (and negatively treat each other less often).

Data and Research Design

Judges do not merely cite judges. They cite opinions. Those opinions are written to address a wide range of factual and legal situations. A variety of case-level factors influence decisions about using precedent (Hansford and Spriggs 2006; Hinkle 2015b). Consequently, we structure our research design at the case level.

Each year federal circuit courts issue thousands of opinions. Exploring which potential precedents judges

cite (and how) turns consideration of a few thousand cases into a dataset of millions of dyads. To create a dataset that is tractable while still covering a substantial time frame, we focus on one broad issue area: Fourth Amendment search and seizure law. This topic incorporates a discrete set of legal issues that are routinely raised in litigation, and relevant cases can be identified by the simple expedient of finding cases that cite the Fourth Amendment. Using Lexis, we collected every published search and seizure opinion from a federal circuit court⁴ from 1990 to 2010.⁵ After excluding all opinions that do not address the merits, do not identify the author, or do not contain the word “search” or the word stem “seiz*” at least once, the resulting dataset contains 7,085 cases. Table 2 in Appendix A provides an overview of how these opinions (as well as citations thereto) are distributed across different author characteristics.

For each case, we explore the author’s decisions regarding which precedents to cite and how.⁶ This analysis requires identifying a choice set of precedents that could be cited (Niblett 2010). For each treatment case, the choice set potentially includes every precedent that was issued prior to the treatment case. However, many of these precedents do not bear any relevance to the treatment case in spite of being within the same broad issue area. To narrow down the choice set in a practicable and objective manner, we follow Hinkle (2015b) and utilize cosine similarity scores to generate a similarity percentile measure that ranks every potential precedent in terms of its similarity to a particular treatment case.⁷ We include an observation for each pair between a treatment case and every precedent in the top 50 percent of the similarity ranking. As our focus is how judges relate to one another, we exclude dyads in which an authoring judge wrote the precedent.⁸

Our unit of analysis is a treatment case-precedent pair. Variables relating to the treatment case are indicated using an index of i while the index j denotes features of the precedent. We used *Shepard’s Reports* to obtain a list of citations within the majority opinion for each treatment case. If the treatment case does cite the precedent, we classify it as one of three types. First, we classify as negative citations those which are coded by *Shepard’s* in one of their negative treatment categories: “Distinguished,” “Criticized,” “Limited,” “Questioned,” “Overruled,” or “Disapproved” (Spriggs and Hansford 2000). To the extent that such citations criticize or reject the legal analysis in a precedent, they seek to constrain the impact of a precedent. Second, we account for the limited importance of string citations by constructing another classification for when the only reference (or references) to a precedent are contained within a string citation that also cites other sources.⁹ The remaining category represents nonstring citations. This category contains substantively important

citations with significant judicial participation (rather than simply being included by law clerks, perhaps with minimal supervision).¹⁰ We term these citations “Substantive Citations.” Perhaps surprisingly, only 35 percent of citations are string citations and only 4 percent are negative citations. The majority of citations in our data (61%) are substantive citations. We model the decision of whether to cite a precedent, and how, using a multinomial logit model. The baseline category is no citation. We estimate robust standard errors clustered on the treatment case.

Our main explanatory variables measure the relationship between the majority opinion authors in each treatment case-precedent dyad. We evaluate the effect of ingroup and outgroup status based on both demographic characteristics and shared professional backgrounds. First, we account for whether the judges have a shared gender or racial/ethnic group membership.¹¹ Although we focus primarily on the effects of ingroup and outgroup status, our theoretical framework suggests the group membership of the citing judge may have an influence as well. Consequently, our approach for both gender and race is to examine four possible types of dyads based on whether the author in the treatment case is in an historically excluded group and whether the precedent author shares their relevant demographic characteristic. For example, the baseline for gender is a male judge citing an opinion written by a member of his ingroup (i.e., another male judge). Our model includes an indicator variable for each of the remaining three types of dyads. We employ the same approach for race. For nonwhite judges, a precedent author is only classified as ingroup when they share the same race or ethnic identity as the author of the treatment case. For example, an observation in which an African American judge considers a precedent written by an Asian American judge is classified as *nonwhite citing outgroup*. We measure the judge’s race or ethnic identity rather than pooling minority judges together.

Next, we explore the impact of a series of professional experiences that two judges might have in common. They may have attended the same law school. After graduation, they may have clerked for the same judge. Prior to joining the federal circuit court, they might have both had job experience either as a prosecutor or as a judge in another court. Finally, the two judges may have been appointed to the circuit by the same president. To capture these possibilities, we create five binary variables that indicate the presence (or absence) of a particular type of shared professional background. These variables equal one if judge _{i} and judge _{j} share the relevant characteristic and zero otherwise.¹²

Finally, we include a range of control variables. Analogical reasoning means that citation to a precedent will be more likely as its similarity to the treatment case increases (Aldisert 1989; Schauer 1987). We control for

this using the same similarity measure used to narrow down the choice set (Hinkle 2015b). The legal doctrine of *stare decisis* requires circuit judges to cite relevant precedents from within their own circuits, but judges have discretion regarding the citation of precedents from other circuits (Aldisert 1989). Circuit judges may also be more aware of precedents from their own circuit. For either reason, citation is more likely to in-circuit precedent than to out-of-circuit precedent (Hinkle 2015b). The third dyadic feature we account for is the ideological distance between the judges who participated in the treatment case and those who handed down the precedent. Although our focus here is primarily on the characteristics and choices of the opinion author, circuit judges operate within a collegial environment.¹² As such, all participating judges play a role in shaping each case. Consequently, we use the median of each court to measure the ideological position of each case. A precedent is more likely to be cited when its ideological location is closer to the citing court compared with when it is farther away. We measure this *Ideological Distance* using Judicial Common Space (“JCS”) scores.¹³

We parse the effect of shared identity from that of overall prestige. Precedents written by judges with subject expertise or a more prestigious reputation may be relied upon more. As former prosecutors may have issue-specific expertise in search and seizure law, we control for prosecutorial experience. Judges with previous judicial experience might also have greater general expertise or an established reputation. Therefore, we control for whether the author of the precedent served as a judge on another court before coming to the circuit court. Furthermore, Landes, Lessig, and Solimine (1998) note that a diploma from a prestigious law school correlates with receiving more citations. Consequently, we account for whether the precedent author obtained their law degree from a top-14 law school.¹⁴

Next, we control for a number of characteristics of the precedent: whether there was a dissent, whether it was decided en banc, its vitality,¹⁵ the total number of times it has been cited and treated (within its own circuit), its age (and age squared), and its length (logged number of words) (Hansford and Spriggs 2006; Hinkle 2015b, 2016; Spriggs and Hansford 2002). Accounting for past citations is particularly important because Internet search services such as Lexis and Westlaw rank search results taking into account a variety of factors including citation counts. In other words, opinions that have been cited more in the past are likely to rise in the search ranking, making it more visible to others and, therefore, more likely to be cited in the future (LexisNexis 2012; WestlawNext 2010). Therefore, it is important to control for this source of path dependency. We also control for the length of the treatment case (logged number of words)

because a longer opinion provides greater opportunity to cite (Black and Spriggs 2008). For similar reasons, we control for the logged number of available precedents in the dataset. The more that are available, the less likely each is cited (Hinkle 2015b). Table 3 in Appendix A shows the summary statistics for each variable including the percentage of dyads within each type.¹⁶

Results

The results of our model are presented in Figure 1, which shows the regression coefficients (and corresponding 95% confidence intervals) for negative citation, string citation, and substantive citation in turn. Our hypotheses anticipate that judges will negatively cite members of their ingroup less often and that all other citations will be more frequent for ingroup judges. We begin our discussion of the results by assessing our hypotheses as they relate to shared professional experiences. Although there is no evidence of such variables affecting negative citation, most of them do affect the other two types of citation. Both string and substantive citations are significantly more likely when two judges attended the same law school or were appointed by the same president.¹⁷ String citations are more common between former prosecutors but less common between judges who arrived on the circuit bench having previously worked as judges. Finally, unlike the unexpected finding for string citations, shared prior judicial experience significantly increases the number of substantive citations. In short, putting negative citations aside, six of the ten coefficients for shared professional background are positive as expected and statistically significant.

Now we turn to a closer examination of how race- and gender-based group membership affect citation decisions. Because we measure gender and race-based group effects using four mutually exclusive categories, directly examining regression estimates is of limited utility. We therefore explore the role of race and gender using predicted probabilities. Figure 2 illustrates the predicted probability of outgroup and ingroup citation for male, female, white, and minority judges in turn for each type of citation.¹⁸ Our primary focus is examining whether judges exhibit ingroup favoritism. To this end, the predicted probabilities in Figure 2 are in black if the predicted probability of ingroup citation lies outside the confidence interval for outgroup citation (and gray otherwise). The evidence is broadly consistent with the predictions of the Rejection-Identification Model. There is evidence that both women and nonwhite judges are less likely to negatively cite members of their ingroup compared with members of their outgroup. For minority judges, the evidence consistent with our hypotheses extends across all three types of citations. They are also

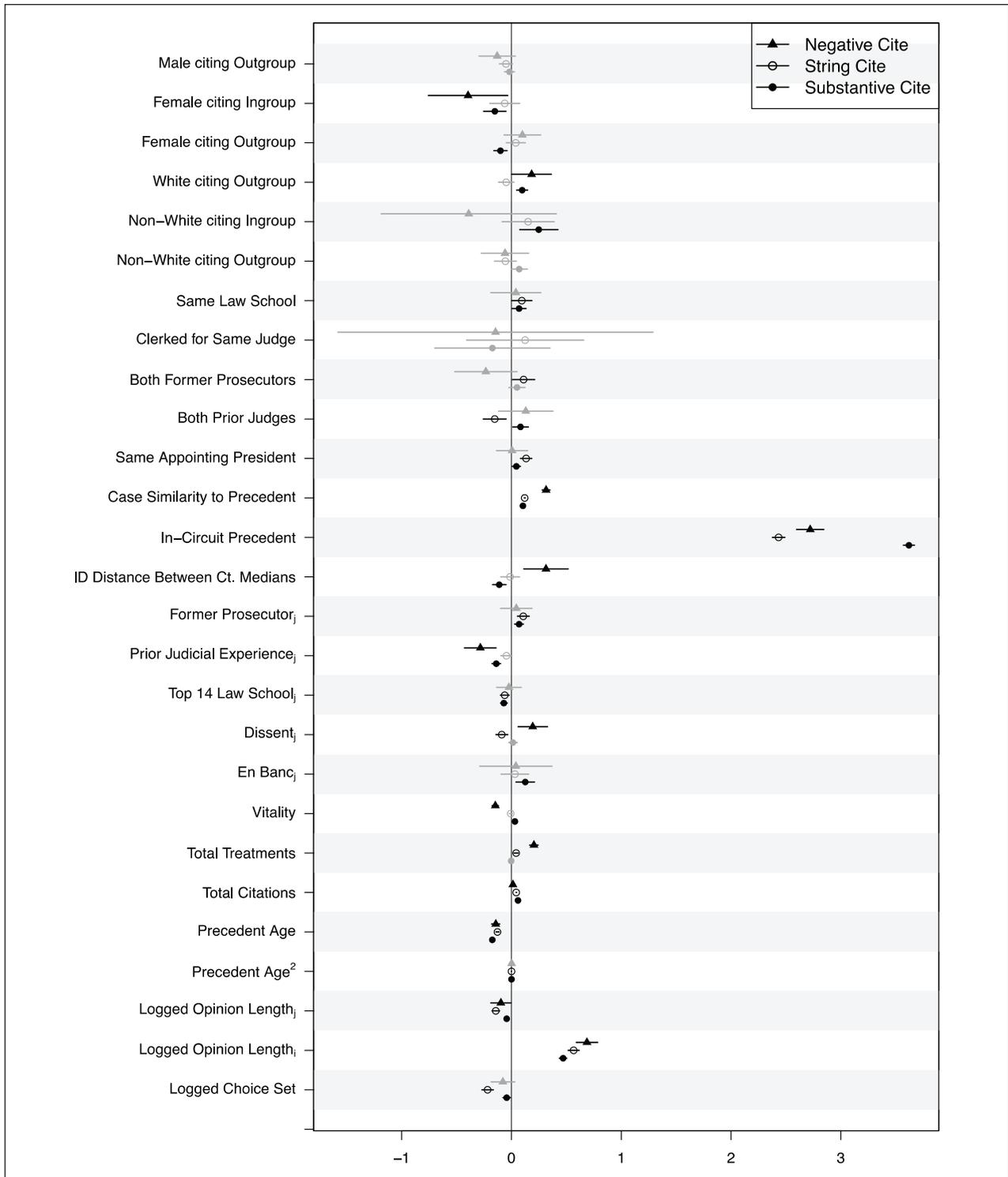


Figure 1. Multinomial logit regression estimates of the effect of shared group characteristics and control variables on whether judge_i negatively cites (solid triangles), ignores, string cites (empty circles), or otherwise cites (solid circles) a precedent written by judge_j.

The baseline category is no citation. Bars display the 95% confidence interval around each coefficient. Bars and estimates in black denote statistical significance. Full regression results are available in Appendix A.

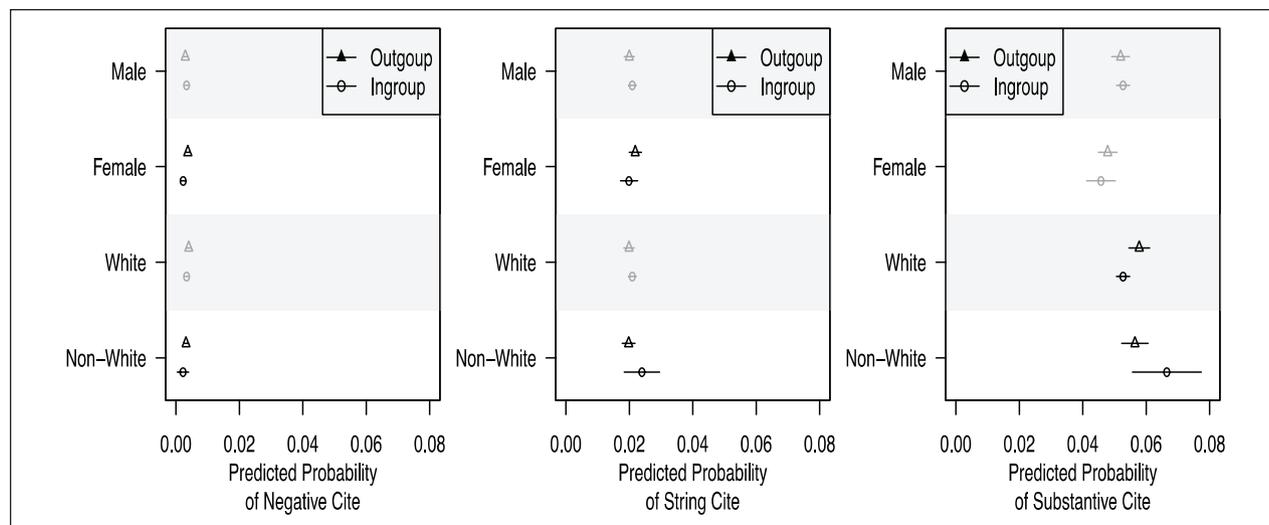


Figure 2. Predicted probability of negative citation (left panel), string citation (middle panel), and substantive citation (right panel) when a judge with each demographic characteristic is citing a member of their outgroup (triangle) or ingroup (circle). Bars display the 95% confidence interval around each estimate. Bars and estimates in black denote that the relevant estimate for ingroup citation lies outside the 95% confidence interval for the corresponding estimate of outgroup citation.

more likely to both string cite and substantively cite ingroup members compared with outgroup members. In contrast, there is no evidence the white or male judges favor ingroup members. In fact, white judges are significantly more likely to substantively cite their outgroup than their ingroup. There is one other unexpected result as well. Female judges are more likely to string cite outgroup judges. However, as string citations can be reused from case to case as part of boilerplate language, this pattern may reflect a combination of path dependence and a historically male judiciary rather than contemporary judicial choices.

Next, we turn to exploring the substantive size of the effect that shared professional experiences have on citation decisions. To do so, we look not only at predicted probabilities for each variable in turn but also at the impact of various combinations of these shared group membership. The regression results show that four variables lead to an increase in the probability of substantive citations: being from the same law school, sharing a background as a prosecutor or prior judge, and being appointed by the same president. Table 1 shows the predicted probability of substantive citation under all possible combinations of these characteristics. When two judges share all four characteristics, the predicted probability of citation is .062, which is a 27 percent increase over the .049 predicted probability of citation when none of these four identities are shared with the author of a precedent. As expected, each additional shared characteristic further boosts the probability of citation. Using the

most frequently observed combinations, one shared identity moves the probability to .051, two moves it to .056, and three bumps it up still further to .058. Although these differences appear to be quite small, they are calculated at the level of a single case. Any given opinion authored by a circuit judge may have thousands of opportunities to be cited over time, and each judge writes a considerable number of opinions. A 27 percent discrepancy that appears negligible in absolute terms when viewed in the microcosm of a single decision can multiply into something much more serious at the aggregate level.

Finally, the control variables in the model perform largely as expected. All three citation types are more likely for both more similar precedents and binding precedents. Ideological distance makes negative citation significantly more likely, substantive citations significantly less likely, and does not significantly predict string citations. Precedents written by judges from elite law schools and judges with prior judicial experience are actually less likely to be cited, but former prosecutors are cited more frequently in these search and seizure cases. *En banc* precedents, those that have been cited more frequently in the past, and those with greater vitality are substantively cited more often. Opinions accompanied by a dissent are more likely to be negatively cited. The age of a precedent has the expected nonmonotonic effect. Finally, longer treatment opinions make citation more likely and larger choice sets make citation less likely, as expected.

Our divergent findings for general and subject expertise are perplexing. Subject expertise operates precisely

Table 1. Predicted Probability of Ingroup and Outgroup Substantive Citation Based on Combinations of Group Identities Linked to Professional Experience.

Law school	Former prosecutor	Prior judge	Appointing president	Pr(Cite)	95% CI	n
				0.049	[0.047, 0.052]	8,451,107
One shared group identity						
X				0.053	[0.048, 0.057]	402,254
	X			0.052	[0.048, 0.055]	564,628
		X		0.054	[0.050, 0.057]	641,850
			X	0.051	[0.048, 0.054]	2,004,773
Two shared group identities						
X	X			0.055	[0.050, 0.060]	17,409
X		X		0.057	[0.052, 0.062]	11,936
X			X	0.055	[0.050, 0.059]	77,076
	X	X		0.056	[0.052, 0.061]	101,723
	X		X	0.054	[0.050, 0.058]	144,480
		X	X	0.056	[0.052, 0.060]	161,007
Three shared group identities						
X	X	X		0.060	[0.054, 0.066]	2,791
X	X		X	0.057	[0.052, 0.063]	3,963
X		X	X	0.059	[0.054, 0.065]	1,915
	X	X	X	0.058	[0.053, 0.064]	26,276
Four shared group identities						
X	X	X	X	0.062	[0.056, 0.069]	506

Pr(Cite) = probability of citation.
CI = confidence interval.

as we would expect. Yet, judges with indicators of general expertise receive significantly *fewer* substantive citations. We are at loss to explain this pattern. There is only modest overlap between subject and general expertise. Thirty percent of judges from top law schools have prosecutorial experience compared with 35 percent from other law schools. Looking at judicial experience, 38 percent of judges who have been on the bench were also prosecutors, while only 30 percent of those without a judicial background were prosecutors. Our two general expertise measures are correlated with subject expertise in different directions, yet they both have negative coefficients. This suggests the unexpected pattern is not variable-specific. Perhaps it is an artifact of search and seizure cases in particular. Although these are merely control variables here, these findings present a puzzle ripe for future analysis.

Discussion and Conclusion

Judges have a considerable amount of discretion when deciding which precedents to cite. Moreover, there are a tremendous (and ever-increasing) number of precedents available. This study of how that discretion is exercised provides a window into broad questions concerning how elites determine which of their peers to rely upon.

Looking at how the development of policy is shaped by shared group identities sheds light, by extension, on the impact and importance of the diversity of policy makers. Policy makers both in and outside the judiciary routinely face novel policy issues that may benefit from the wisdom of their peers. If policy in general, like citations specifically, diffuse more easily within groups, it is important to make sure a wide range of groups are substantially represented within the policy-making ranks.

The overall contribution of this piece is to establish the important role of shared group memberships between two judges. Social Identity Theory predicts that shared identities, brought about by shared group memberships, lead individuals to favor those with whom they share a group membership. Our analysis of the citation decisions of judges on the U.S. Courts of Appeals in published search and seizure cases demonstrates that shared group memberships can have statistically and substantively meaningful effects on judges' citation decisions. These results suggest that legal development is shaped by the shared connections and group memberships of those on the bench.

The arc of the law appears to be altered by the types of judges that presidents place on the bench. Ideology unsurprisingly plays an important role in the extent to which judges choose to rely upon each other's opinions, but our data further demonstrate that the path of the law is also

steered by other, perhaps less obvious, considerations. For example, commentators often wonder about the lack of geographic, experiential, and educational diversity on the federal bench. Previous studies (e.g., Tate 1981) suggest that such factors play a negligible role, if any, in the choices judges make. Our results reveal an important limitation of this conventional wisdom: while such considerations may not directly affect case outcomes, they do affect the influence that individual judges have on the development of the law. Shared group memberships—especially one’s law school, prior judicial experience, and appointing president—play a key role in individuals’ citation decisions. These findings are consistent with the predictions of Social Identity Theory. In this way, our results suggest that the influence of any new appointee to the federal judiciary is, in part, tied to his or her similarity to the other judges on the federal bench.

The findings here also develop our understanding of the role of race and gender play in how federal circuit judges cite one another. Recall that we noted diverging expectations from theory regarding how race and gender would affect citation patterns. On one hand, Social Justification Theory suggests that the comparatively low group status of women and minority judges should lead to lower levels of ingroup favoritism (Jost, Banaji, and Nosek 2004; Ridgeway 2001). On the other hand, the Rejection-Identification model suggests that minority and female judges identify more strongly with their group memberships, leading to higher levels of ingroup favoritism. Our results are consistent with the latter prediction. In fact, only women and minority judges showed any statistically significant ingroup favoritism. There is no evidence of male or white judges showing favoritism toward their own demographic group. In fact, white judges are actually *more* likely to substantively cite minority judges. We, like Iyengar and Westwood (2015), conclude that these null results for advantaged groups are likely the result of low levels of group salience for white and male judges. Because those two groups have made up the bulk of the federal judiciary for its entire history, levels of group identity on these dimensions are likely lower for white and male judges. Instead, the salient group memberships they hold are those professional identities—like one’s law school and prior judicial service—that have historically been seen as signifiers of judicial status.

Although there is only limited direct evidence of race and gender affecting citation decisions, a deeper exploration of our findings underscores the importance of judicial diversity. Although we examine the effects of race, gender, and professional backgrounds as separate factors, the reality on the ground is more complicated. For example, two judges of the same race are also more likely to have attended the same law school or been appointed by the same president than a pair of judges

from different racial groups. However, minority judges are in a position to enjoy the advantages of such networks much less frequently when there are disproportionately few judges of the same race on the federal bench. The tendency of minority judges to cite each other more often may help make up any such disparities, but their relatively small number limits the effectiveness of this strategy. Thus, our findings related to professional experience provide another rationale for diversifying the judiciary: broader descriptive representation in the judiciary is necessary to enhance the presence of minority voices in legal development.

Advances in legal research technologies seem likely to amplify the disparities we uncover here. The complicated “Relevance” algorithms used by services such as Lexis and Westlaw take citations into account in a nuanced way. As a result, getting a handful of initial citations may lead an opinion to rise in search rankings for a topic, making it more likely to be cited subsequently. Moreover, the importance of “prestige” on these algorithms is likely to only grow over time. In a whitepaper discussing future directions for online legal research, Lexis states, “The relationships between courts can also make a difference. Different judges have different levels of expertise, and will get recognized in the legal case data” (LexisNexis 2015, 5). Should legal algorithms begin to prioritize judicial reputation in their calculations of relevance, we would expect these disparities to only grow over time.

Although our results provide a range of answers to questions about how and when judges cite one another, they also raise a number of follow-up questions. For example, in light of our finding that total past citations are significant, investigation into patterns of self-citation has the potential to shed further light on how variation in self-citation might combine with path dependency to shape how a precedent is used. Another area of potential follow-up concerns generalizability. Our data include only search and seizure cases, but previous studies of judicial identity have identified strong issue area-specific effects (Boyd, Epstein, and Martin 2010; Glynn and Sen 2015). Search and seizure cases are a good venue to test our hypotheses because they represent a broad area of criminal law in which identity is not as directly implicated as in, for example, sex or racial discrimination cases. Thus, to find background-specific effects in this area of law suggests that these effects are generalizable to other areas of law (see also Tillman and Hinkle, forthcoming). But, it is possible that race- and gender-specific effects are stronger in the areas of law in which judicial identities prime voting behavior, or that these effects dissipate in areas of law in which technical expertise trumps demographic concerns. These topics are ripe for future research.

In addition, though our data concern judges, the broader questions that motivate this research lie behind some of the most contentious representational debates in politics: those over the effects of diversity. Our focus on judges provides insight into the individual-level characteristics of policy makers, traction that can be difficult to find in other policy arenas. As a result, the conclusions that we draw with respect to mutual group membership have wide-ranging implications both within the judiciary and in legislative, bureaucratic, and executive settings. Although all of our findings may not be directly applicable across institutional settings, the results suggest the importance of future exploration of the extent to which institutional features might condition the effect of shared characteristics on policy outcomes.

Authors' Note

Data and code necessary to replicate the analyses in this paper are available at <http://rachaelkhinkle.com/research.html>.

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Notes

1. Social Identity Theory acknowledges that group memberships are not synonymous with shared identities, although there is some degree of overlap. We focus our discussion on shared group memberships—which we can measure objectively—over shared identities, which we are unable to measure. To the extent that individuals' group memberships do not overlap with their social identities, there is measurement error in our independent variables, which should bias against a statistically significant finding.
2. Nevertheless, out an abundance of caution, we separate string citations as a distinct category. These citations are most likely to come from clerks and possibly evade judicial oversight.
3. Expectation States Theory suggests another potential mechanism: that shared beliefs about one group's status lead to the enactment of social hierarchies that limit the influence of lower status groups (Ridgeway 2001).

4. We exclude the Federal Circuit due to its subject-specific jurisdiction.
5. We exclude unpublished opinions because some circuits previously prohibited citation to such opinions and because those from before 2005 are not systematically available.
6. Following Hansford and Spriggs (2006), we refer to the analyzed cases as treatment cases to distinguish them from precedents.
7. See Appendix B for technical details of this measure.
8. Research indicates that self-citation patterns can vary based on demographic characteristics (Maliniak, Powers, and Walter 2013), but in our data neither gender nor race significantly predict self-citation.
9. We wrote Python code to extract and evaluate the context of every Federal Reporter citation and determine which cites were string citations.
10. Westlaw's KeyCite reports include a star rating that denotes the depth of treatment given a precedent. Brief reference to a precedent earns only one star while discussion earns two stars ("some discussion"), three stars ("substantial discussion"), or four stars ("extended discussion"). Table 5 in Appendix A contains an alternative analysis in which we model negative citations, citations with one Westlaw star, and citations with multiple Westlaw stars. The results are substantially similar.
11. The courts are not yet diverse enough to allow us to probe intersectionality. Only 2 percent of our opinions are written by the fourteen women of color in the data. Less than 0.02 percent of dyads include two women of color.
12. We leave for future work an exploration of how panel composition may condition the effects of Social Identity Theory.
13. Judicial Common Space (JCS) scores are based on the ideology of the political elites who appointed a judge and are located on a scale from -1 (liberal) to 1 (conservative) (Epstein et al. 2007; Giles, Hettinger, and Peppers 2001; Poole 1998).
14. Fourteen law schools (Berkeley, Chicago, Columbia, Cornell, Duke, Georgetown, Harvard, Michigan, New York University [NYU], Northwestern, Penn, Stanford, University of Virginia [UVA], and Yale) have consistently ranked at the top of the U.S. News rankings over the history of the rankings (Hinkle et al. 2012).
15. Vitality of a precedent is the number of positive treatments minus the number of negative treatments (at the time of the treatment case) (Hansford and Spriggs 2006).
16. We obtained all demographic, educational, and career data from the Federal Judicial Center's Biographical Directory, which is available at <https://www.fjc.gov/history/judges>.
17. All discussion of statistical significance is at the .05 level.
18. It is often sensible to calculate predicted outcomes using median values. However, our research design includes a large number of precedents in the choice set, most of which will not be addressed. Consequently, we use baseline values that are central within the subgroup of precedents that are cited. For example, the median value of *Similarity Percentile* in the entire dataset is 75, but the median value for those precedents that are not ignored is 97. Focusing on the latter subgroup frames the predicted probabilities in terms of how the model influences the use of precedents most likely to make it into an opinion.

Supplemental Materials

Replication data for this article are available with the manuscript on the *Political Research Quarterly (PRQ)* website.

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