

## Gender, Critical Mass, and Judicial Decision Making

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*We examine the role of gender in legal decision making by applying critical mass theory to the U.S. federal district courts. We analyze whether behavioral differences manifest themselves in the decision-making proclivities of male and female judges, contingent on the existence of a critical mass of female judges at a court point (i.e., each city in which a district court is located). Our results indicate that women jurists exhibit distinctive behavior in certain cases when there is a critical mass of women at a court point. These differences are most significant in criminal justice cases; modest differences between men and women are also identified in civil rights and liberties cases. Gender is not significant in labor and economic regulation cases. These findings suggest that the increasing presence of women on the federal bench could have substantial policy ramifications in the American polity.*

When U.S. Supreme Court Justice Sandra Day O'Connor announced her retirement in the summer of 2005, President George W. Bush was handed the first opportunity in eleven years to fill a vacancy in that august institution. Appointed by Ronald Reagan in 1981, O'Connor was the first woman to serve on the High Court, and she enjoyed a long and distinguished career. Bush promptly nominated John G. Roberts, a judge on the U.S. Court of Appeals for the District of Columbia Circuit, to take her seat. O'Connor found her potential replacement to be an excellent choice, save one important factor. "He's good in every way," she said, "except he's not a woman."<sup>1</sup>

Given O'Connor's statement, it should come as no surprise that gender representation is a topic of keen interest to academics, practitioners, and the public. Indeed, scholars from a variety of disciplines have explored gender representation and its impact on decision making in a wide array of contexts. These studies include analyses of gender representation in corporations (Kanter 1977a, 1977b), law schools (Spangler, Gordon, and Pipkin 1978), academia (Tolbert et al. 1995), elite law firms (Chambliss and Uggem 2000), bureaucracies (Dolan 2002), and legislatures (Thomas 1994), to name but a few lines of inquiry.

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In addition, scholars have published a substantial body of literature examining gender representation in the courts and the role of gender in judicial decision making (Allen and Wall 1987; Collins et al. 2008; Cook 1981, 1988; Cox and Miles 2008; Davis 1992; Gruhl, Spohn, and Welch 1981; Johnson et al. 2008; Martin and Pyle 2000, 2005; McCall 2005; McCall and McCall 2007; Peresie 2005; Segal 2000; Sherry 1986; Smith 1994; Songer and Crews-Meyer 2000; Songer, Davis, and Haire 1994; Steffensmeier and Hebert 1999; Tate 1981; Ulmer 1973; Walker and Barrow 1985; Westergren 2004). While the vast majority of this literature focuses on the American context, a growing number of studies also examine gender representation in other nations (Davis and Williams 2003; Feenan 2008; Kenney 2002; McCormick and Job 1993), no doubt due in part to the increasing number of female judges serving on judiciaries across the globe (Davis and Williams 2003; Kenney 2002). As we discuss below, despite the volume of this literature, the evidence as to whether gender differences exist in terms of the decision making of judges is rather inconclusive. Although some studies have identified gender differences in judicial decision making, others have failed to uncover systematic differences between male and female jurists.

Our purpose is to contribute to this literature by examining whether women jurists exhibit behavior that is distinct from their male counterparts by exploring decision making in the United States federal district courts. The U.S. district courts were established by Congress in the Judiciary Act of 1789. As of 2009, there are 94 such courts throughout the United States, including Puerto Rico, and a total of 678 judges serve on these institutions. District court judges are appointed by the president, with the advice and consent of the Senate.<sup>2</sup> These trial courts represent the basic point of input for the federal judicial system. Although some cases are later taken to the U.S. courts of appeals or the U.S. Supreme Court, most federal cases never move beyond the U.S. trial courts.<sup>3</sup> District court judges are responsible for establishing the primary facts of a case before a ruling is made, and these jurists' principal role is that of norm enforcement, that is, applying judicial rules embodied in statutes, administrative regulations, prior court decisions, and community traditions. When the established judicial rules are unclear or conflicting, however, district court judges engage in policymaking as has been seen in the realms of civil rights, the right to privacy, and freedom of expression (Carp and Rowland 1983).

Distinct from previous studies, we take a largely novel approach by applying critical mass theory (Kanter 1977a, 1977b) to understand possible gender-based differences in decision making on these courts.<sup>4</sup> In brief, critical mass theory posits that until women working within predominantly male professions increase in number beyond "token status," they will largely conform to the characteristics of the dominant group. Once a sufficiently large number of women achieve representation, however, they may begin to exhibit decision-making proclivities that differ from their male counterparts.

As Kanter notes, “Change in the behavior and treatment of token women is strongly tied to shifting proportions” (1977a, 241).

Our motivation for applying critical mass theory to understand possible gender-based differences in judicial decision making is threefold. First, we bring new evidence to bear on critical mass theory’s relevance to decision makers. By exploring the federal district courts, which are, by far, the most gender-diversified courts in the U.S. federal court system (as of 1 March 2009, 26 percent of district court judges were women), we illustrate how Kanter’s (1977a, 1977b) theory is applicable to a new brand of actors. Second, we advance our theoretical understanding of judicial behavior by presenting a theory that focuses on the interaction among judges working in close proximity to one another. In so doing, we illustrate how decision making is very much a function of both who judges are and with whom they interact. Finally, our analysis informs the substantial debate regarding the policy ramifications of a diversified judiciary. To be sure, women have made substantial gains in terms of representation in the courts, both in the United States and in other nations (Davis and Williams 2003; Kenney 2002). In providing evidence that gender-based decision-making differences do not necessarily emerge until a critical mass of women are represented, this research speaks directly to the normative and policy concerns regarding gender representation in the legal system.

This article proceeds as follows. First, we review the extant literature regarding gender-based differences in judicial decision making. Second, we present our theoretical expectations as to why a critical mass of women may be necessary before significant behavioral differences emerge between male and female jurists. Next, we present a discussion of the data and methodology utilized in this study, followed by a discussion of our empirical results. We close with a discussion of the implications of this analysis, in addition to providing directions for future research.

#### GENDER AND JUDICIAL DECISION MAKING

As noted above, the issue of gender representation and its impact has attracted the interest of a host of scholars from a wide range of academic disciplines. Perhaps not surprisingly, much attention has been dedicated to focusing on areas in which women have made substantial gains in terms of representation. For example, Chambliss and Uggem (2000) have explored how gender representation among partners in elite law firms influences minority associate representation, while Spangler, Gordon, and Pipkin (1978) have investigated how female representation in law schools influences the performance of female students. In the political arena, Dolan (2002) has examined gender-based differences in the decision-making behavior of bureaucrats, while Thomas (1994) has provided a detailed view of the role of gender in legislative politics—two areas that exhibit substantial increases in gender diversification.

In addition, scholars have dedicated a good deal of attention to investigating the role of gender in influencing judicial behavior. Of course, questions regarding gender and judicial decision making are not new. Women first achieved representation on the U.S. federal bench when President Franklin D. Roosevelt appointed Florence Allen to the Sixth Circuit Court of Appeals in 1934. However, the extent to which the representative presence of women on the bench results in substantive differences rather than symbolic “tokenism” is a different matter. Representation can take many different forms (Pitkin 1967), and judicial scholars have generally focused their attention on the extent to which the presence of women on the bench results in significant differences in terms of decision-making patterns.

For quite some time, research in this area was hindered by the lack of women on the bench. Cook (1981) lamented this fact when she inquired whether women would eventually make a difference on the bench. Nevertheless, over the past two decades, a number of studies have attempted to determine whether women judges bring different perspectives to their jobs and decide cases in distinctly different ways from their male colleagues. Considered collectively, the result of research subjecting gender effects to empirical scrutiny in the judicial arena has been decidedly mixed. Some scholarship has identified no significant gender differences in judges’ voting behavior. For example, Davis examined gender and judicial behavior in the U.S. Court of Appeals for the Ninth Circuit and concluded that her results “do not provide empirical support for the theory that the presence of women judges will transform the very nature of the law” (1992, 171). Westergren (2004) did not find significant differences between the genders in U.S. courts of appeals decision making, Walker and Barrow (1985) likewise failed to identify hypothesized gender differences among federal district court jurists, and Martin and Pyle (2000) reached similar conclusions regarding Michigan Supreme Court decision making. Similarly, in her analysis of President Clinton’s judicial appointees, Segal (2000) found no significant differences between women and men.

On the other hand, some have found important differences between the genders under certain circumstances. In an analysis of state trial court decision making, Gruhl, Spohn, and Welch (1981) found no differences between the genders in their rate of convicting criminal defendants, but these scholars did find that men were more likely than women to be lenient toward female defendants in the sentencing process. At the state supreme court level, Allen and Wall (1987) found that women jurists were more inclined to support women’s positions. In other studies of state supreme court judges, Songer and Crews-Meyer (2000) identified gender as a predictor of decision making in obscenity and death penalty cases, while McCall (2005) found that gender is significant in police brutality disputes, and McCall and McCall (2007) provided evidence that gender is important in Fourth Amendment controversies. In an analysis of judges on the U.S. courts of appeals, Songer, Davis, and Haire (1994) concluded that while gender was not significant in obscenity

or search and seizure cases, it was a predictor in employment discrimination cases. With regard to federal district courts, Collins et al. (2008) found that female judges were more likely to render liberal decisions in wartime, while male judges were not influenced by international conflicts. Studying these same bodies, Johnson et al. (2008) uncovered evidence that female judges exhibit behavior that is unique from their male counterparts, when compared to judges who share the same political party affiliation.

Given these varied results, it should not come as much of a surprise that scholars have been unable to reach definitive conclusions on these questions. What all the existing gender and judicial behavior studies have attempted to do, however, is discern whether women are different from men with regard to the way judges' decisions are approached and made. We suggest that, by failing to consider the theoretical leverage offered by critical mass theory, these studies may have omitted an important consideration in understanding how gender differences might manifest themselves with regard to judicial decision making.

#### CRITICAL MASS THEORY

The concept of a behavioral critical mass has been discussed in a wide variety of contexts and applied to a very diverse set of research questions in the social sciences. Critical mass theory lends itself to many different interpretations and applications (Oliver and Marwell 2001), but at its root the theory posits that once a certain level of minority representation (i.e., a critical mass) has been reached, group interactions will change and substantive differences in the behavior of the involved groups will begin to emerge. Specifically, the theory posits that once minority groups reach critical mass, their members will become more assertive in their shared interests and perspectives, and, consequently, exhibit more distinctive behavior (Kanter 1977a, 1977b). According to critical mass theory, the nature of group interaction depends at least to some extent upon the size of the groups involved. Prior to the reaching of a critical mass threshold, the theory suggests that a minority group would not likely exhibit behavior that is distinct from that of the larger majority. Such a group would instead tend to conform its behavior to the larger, majority norm (Martin and Pyle 2000, 1215). In her groundbreaking work on the subject, Kanter describes the importance of reaching a critical mass in terms of the manifestation of behavioral differences among members of a minority group as follows:

Yet it seems clear that numbers, especially relative numbers, can strongly affect a person's fate in an organization. This is a *system* rather than an individual construct—located not in the characteristics of the person, but in how many people, like that person in significant ways, are also present. (1977a, 241)

In applying this critical mass theory to a judicial context, we are interested in learning if women jurists are more likely to exhibit distinctive decision-

making patterns when they serve with other women. Although a substantial body of work has applied critical mass theory to the role of gender in a wide array of settings (Chambliss and Uggan 2000; Dolan 2002; Kanter 1977a, 1977b; Spangler, Gordon, and Pipkin 1978; Thomas 1994; Tolbert et al. 1995), its application to judicial decision making is much more limited.<sup>5</sup> In this study, we seek to apply critical mass theory to the level of the U.S. federal judiciary where women have made the most representational progress in recent years—the federal district courts.

Women have long been significantly underrepresented on the bench (Cook 1988). Though they remain underrepresented, in the past thirty years women have made substantial gains in securing federal judgeships in the United States. As of March 1, 2009, there were 624 active federal district court judges, 164 (26.3 percent) of whom were women. Whereas women constituted less than one-half of 1 percent of federal judges when President Jimmy Carter was inaugurated in 1977, today women account for roughly one of every four federal district judges.<sup>6</sup> Women currently serve, often in multiples, on district courts in every federal circuit. This breakthrough in representation now allows us the opportunity to test for potential critical mass effects as a means of shedding new light on the question of gender and judicial decision making.

One may reasonably ask, why would working in the same city with another jurist be a reason to believe that the judges would interact with each other often and intimately enough so as to affect the other's decision-making propensities? After all, trial judges hold court as individuals—not as part of a collegial process, as is the case with appellate courts. Prior research suggests that the mere presence of decision makers from an underrepresented group in the overall decision-making environment may be enough to have a discernable effect on the output of that environment, so long as a certain "critical mass" is reached (Kanter 1977a, 1977b; Meier 1993). Furthermore, research on the socialization process of federal district judges also provides evidence that U.S. trial judges interact with each other in meaningful ways so that there may be some "cross-pollination" in the values and orientations that the jurists bring to their jobs. Carp and Wheeler (1972) found that federal district judges are the primary source for the socialization of their fellow trial jurists, and this is accomplished because most judges hold court in a city with at least one other federal district judge. Indeed, they found that when a jurist wants to share information or ask advice of one another, he or she can easily "walk down the hall and confer with a colleague in the next office" (375).

Given what we have learned from prior work investigating the impact of gender and judicial decision making, along with that which we know about critical mass theory, we propose a combination of these two approaches as a possible means of understanding the effect of gender on judicial decision making. Accordingly, we hypothesize that gender will be a predictor of judges' decisions in critical mass situations. When women serve in a federal district court location with other women, they will exhibit behavior distinctive from that of male judges.

## DATA AND METHODOLOGY

In order to subject our hypothesis to empirical validation, we collected data from decisions of U.S. district court judges published in the *Federal Supplement*. The district courts provide an opportune level of the judiciary to investigate—of the 264 appointments of women to federal judgeships since 1977, 222 (84 percent) served at the district court level.<sup>7</sup> Our study analyzes final case rulings in 38,639 cases handed down by 1,310 judges over a 24-year span, from 1977 to 2000. This time span was selected because it represents the period during which over 99 percent of the women appointed the federal bench have served. The case set includes 3,168 decisions by women jurists, with a mean number of decisions per judge of 39.5 (standard deviation = 42.5).<sup>8</sup> The cases were heard in 240 cities in all 50 states, plus the District of Columbia. Cases decided in U.S. territories and possessions were excluded.

Data regarding judges' gender and the gender composition of each court were obtained from the biographical information reported by the Federal Judicial Center (2009). The number of women was computed as a count of female federal district court judges in each city at the time of the decision, which we refer to as the *court point*. Note that the number of women was calculated for each city, not the number of women serving at each district court designation. For example, the Massachusetts District Court has court locations in Boston, Springfield, and Worcester. We calculated the number of women judges in each of these three locations separately. Critical mass theory tacitly assumes that individual interaction is an integral part of the manifestation of distinctive behavior by minority groups, and it is logical to conclude that such interaction is more likely to occur when jurists are in close proximity with one another.

Our dependent variable indicates the ideological direction of the decision, scored 1 for a conservative decision and 0 for a liberal decision. Cases in which there is no clear outcome, or the liberal-conservative dimension is unclear, are excluded from analysis. The coding of our dependent variable, and use of published opinions, is based on a well-established methodology and has been used in comprehensive data sets on the U.S. Supreme Court (Spaeth 1999) and U.S. courts of appeals (Songer 1998).<sup>9</sup> For cases involving civil rights and liberties, liberal decisions support the civil rights claimant, as well as those seeking an expansive interpretation of civil liberties doctrines, such as the freedoms of speech and religion, and the right to privacy. Conservative decisions are the opposite thereof. In the realm of criminal justice, liberal decisions support the criminally accused, while conservative decisions favor the government. For cases involving labor and economic regulation, liberal decisions favor the interests of labor, the government, or the economic underdog, while a conservative decision is pro-business.

In the analyses that follow, we initially examine the validity of critical mass theory by investigating decision-making patterns in all issue areas the federal district courts confronted during the time period under investigation. In

addition, we also examine subsets of cases falling into three issue areas: civil rights and liberties, criminal justice, and labor and economic regulation. Civil rights and liberties controversies constitute 43.7 percent of cases in our data, criminal justice litigation accounts for 23.5 percent of the cases under analysis, and labor and economic regulation disputes represent 32.8 percent of cases in our data.

In order to test whether critical mass environments shape the decision making of female federal district court judges, we estimate the following model:

$$\begin{aligned} \text{Ideological Direction of Decision} = & \beta_0 + \beta_1 \text{ Judge's Ideology} + \\ & \beta_2 \text{ Supreme Court Ideology} + \beta_3 \text{ Court of Appeals Ideology} + \\ & \beta_4 \text{ Female} + \beta_5 \text{ Minority} + \beta_6 \text{ Number of Women at Court Point} + \\ & \beta_7 \text{ Female} \times \text{Number of Women at Court Point} + \varepsilon \end{aligned}$$

*Female* is scored 1 for a female judge and 0 for a male judge. *Number of Women at Court Point* is a simple count of the number of female jurists serving at each court point at the time of the decision. Note that we have no expectations for the signs of these variables alone. This is the case because our test for whether critical mass environments shape the decision making of female judges rests on the inclusion of an interaction term in the model, *Female*  $\times$  *Number of Women at Court Point*, which renders the parameter estimates for the *Female* constituent variable substantively meaningless (Braumoeller 2004).<sup>10</sup> Through the inclusion of this interaction term, we are able to provide a rigorous test for our theory without resorting to establishing an arbitrary cut-off point as to exactly how many women constitute a critical mass situation. Thus, this is a particularly useful modeling strategy as it makes possible the investigation of the influence of gender in varying contexts (i.e., with different numbers of women judges serving at the same court point), without becoming involved in the difficult practice of setting some numerical quota of female judges as a deterministic critical mass.<sup>11</sup> Since we cannot necessarily infer from the direction and significance of the interaction term whether critical mass situations influence the decision making of female jurists (Ai and Norton 2003; Brambor, Clark, and Golder 2006), it is necessary to calculate the marginal effect and confidence intervals for this interaction term, holding the control variables at their mean or modal values. Given the probit distribution, the marginal effect is calculated as follows:

$$\frac{\partial \Phi(\cdot)}{\partial \text{Female}} = (\beta_4 + \beta_7 \text{ Number of Women at Court Point}) \Phi'(\cdot)$$

As the model above indicates, we also include a critically important control variable serving as a proxy for each judge's policy preferences. Although attitudinal scholars have generally focused on appellate courts in their investigations of the role of attitudes in judicial decision making (Segal and Spaeth 2002; Songer and Haire 1992), it is equally important to account for nonlegal



influences in federal district court decision making (Carp and Rowland 1983). While trial jurists are expected to follow the legal precedents established by the courts of appeals and the Supreme Court, they are often charged with first interpreting what those precedents mean. This becomes especially important when “ambiguous or vague statements, multiple opinions, inconsistent precedents, and the like make the task of interpretation difficult and leave more room for discretion” (Johnson and Canon 1984, 71).

Traditionally, scholars investigating the role of attitudes in the lower federal courts utilize either the party affiliation of the judge or that of the president who appointed the judge as a surrogate for a judge’s policy preferences (Pinello 1999; Songer and Haire 1992; Stidham and Carp 1987). However, these measures of judicial ideology suffer from an obvious concern: party-based measures assume that there is no variation in the policy preferences of members of the same political party. Nevertheless, as one group of scholars put it, “Eisenhower is not Reagan. Indeed, the empirical record demonstrates that the voting propensities of the appointees of some Democratic and Republican presidents do not differ significantly” (Giles, Hettinger, and Peppers 2002, 3). Accordingly, we utilize a measure of policy preferences based on common-space scores (Poole 1998), which allows us to account for the dynamics of the appointment process.<sup>12</sup> To do this, we adopt the method created by Giles, Hettinger, and Peppers (2001) to compute the policy preferences of courts of appeals judges. As these authors note, “the role of home-state senator is greatest in the nominations of Federal District Court judges” (2001, 4), thus making the application of this surrogate for judicial ideology particularly valuable. To create this variable, we use Poole’s (1998) first dimension common space scores to capture the preferences of the appointing president and pertinent senators. This variable takes on the value of the president’s common space score if senatorial courtesy is absent (i.e., the home-state senators are not members of the president’s party). If only one senator from the home-state delegation is a member of the president’s party, this variable is assigned that senator’s common space score. If both of the home-state senators are members of the president’s party, this variable takes on the mean value of the two senators’ common space scores. Because these scores are based on the norms of senatorial courtesy, and because Washington, DC, does not have any senators, we assign judges serving in the District of Columbia their appointing president’s score. This variable, *Judge’s Ideology*, ranges from  $-.784$  to  $.656$ , with higher scores representing more conservative ideologies. Thus, the expected direction of this variable is positive, indicating that conservative judges are more likely to render conservative decisions than their liberal counterparts.<sup>13</sup>

Because the federal district courts sit at the bottom of the federal judicial hierarchy, it is important to account for the possibility that district court judges might be constrained by the ideological proclivities of the circuit courts of appeals under which they operate and the Supreme Court (Baum 1980).<sup>14</sup> Accordingly, we control for the preferences of these courts by includ-

ing two variables in the model, *Supreme Court Ideology* and *Court of Appeals Ideology*. We adopt these variables from Epstein et al. (2007), who provide ideological surrogates for these courts on the same metric we utilize to capture the preferences of district court judges. That is, the scores for the relevant court of appeals are the median Giles, Hettinger, and Peppers (2001) for each year, while the Supreme Court scores are a transformation of the Martin and Quinn (2002) ideal point estimates, mapped onto the same dimension as the Giles, Hettinger, and Peppers scores. These scores range from  $-.524$  to  $.567$  for the courts of appeals and  $-.103$  to  $.180$  for the Supreme Court, with higher scores reflecting more conservative ideologies. If the district courts follow the ideological preferences of these higher courts, we expect the signs of these variables will be positive in direction, indicating that the ideological direction of district court decisions move in tandem with the ideological proclivities of the supervisory appellate courts.<sup>15</sup>

Finally, we also include a variable that captures a judge's *Minority* status. This variable is scored 1 for African American, Asian American, Hispanic, or Native American judges, and 0 for white judges. Extant research indicates that civil rights proponents advocated for the appointment of minority judges, in part, under the belief that such judges would act to reduce inequality in the justice system in an attempt to contribute to a more just society (Crockett 1970; Sisk, Heise, and Morriss 1998; Welch, Combs, and Gruhl 1988). And, indeed, some recent research provides evidence that minority federal district court judges are more likely to render liberal decisions than their white counterparts (Carp, Manning, and Stidham 2004; Collins et al. 2008; cf. Segal 2000). Consistent with these findings, we expect this variable will be negatively signed.

Before discussing the results from our analyses, it should be noted that the primary goal of this study is to test for the effects of one particular variable, gender, in critical mass and noncritical mass situations. Consistent with other studies that have explored the effect of only one or two judicial attributes (Segal 2000; Walker and Barrow 1985), this article is not an effort to create a fully developed model of judicial behavior that provides general explanations for why judges decide the way they do. Numerous studies have identified a seemingly innumerable quantity of variables that may, in any given context, influence judicial decisions.<sup>16</sup> Rather than attempting to construct a comprehensive decision-making model in this article, our more modest goal is to investigate the extent to which gender is a predictor of judicial behavior and to test for potential critical mass effects.

## EMPIRICAL RESULTS

Table 1 reports the results of our probit models. Since we derive the core test of our hypothesis from the interaction terms, which cannot be interpreted as unconditional marginal effects, we limit our discussion of this table to

Table 1. Probit Models of Decision Making on the Federal District Courts

Variable	All Issue Areas	Civil Rights and Liberties	Criminal Justice	Labor and Economics
<b>Judge's Ideology</b>	.369*** (.019)	.469*** (.028)	.329*** (.041)	.311*** (.032)
<b>Supreme Court Ideology</b>	.319*** (.099)	.409*** (.156)	.326* (.212)	.291** (.169)
<b>Court of Appeals Ideology</b>	-.012 (.033)	.119** (.050)	-.255 <sup>†</sup> (.073)	-.047 (.055)
<b>Female</b>	-.043 (.040)	-.091** (.053)	.163** (.082)	-.082 (.070)
<b>Minority</b>	-.147*** (.024)	-.193*** (.036)	-.117** (.058)	-.051 (.044)
<b>Number of Women at Court Point</b>	.023*** (.005)	.021*** (.007)	.037*** (.010)	.0002 (.009)
<b>Female × Number of Women at Court Point</b>	-.006 (.013)	.020 (.018)	-.088*** (.026)	.008 (.027)
<b>Constant</b>	.144*** (.010)	.191*** (.015)	.439*** (.020)	-.110*** (.017)
$\chi^2$	556.7***	427.6***	96.6***	122.3***
N	38,639	16,880	9,096	12,663

Entries are probit coefficients. Dependent variable is the ideological direction of the decision (1 = conservative, 0 = liberal). Numbers in parentheses indicate standard errors.

\* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$  (one-tailed tests); <sup>†</sup> $p < .01$  (two-tailed test).

evaluating model fit and interpreting the results of the control variables. First, as is evidenced by the result of the chi-square tests, all of the models provide a statistically significant improvement over their constant-only analogues. Second, we find strong evidence for the important role of ideology in shaping the choices federal district court judges make. In our analysis of all issue areas, a one standard deviation change in ideology results in a 5 percent increase in the likelihood of observing a conservative decision.<sup>17</sup> Changing ideology from its minimum to maximum value in this model increases the chances of observing a conservative decision by more than 21 percent. Indeed, this effect holds across all issue areas examined, although it is especially robust in civil rights and liberties cases: a one standard deviation change increases the probability of observing a conservative decision by 7 percent (26 percent minimum to maximum). Thus, we can conclude that, similar to their appellate court counterparts, attitudes significantly shape the decision-making patterns of federal district court jurists.

The results of the variables that control for the ideological preferences of the Supreme Court and supervisory court of appeals are particularly interesting. While there is a statistically significant influence of Supreme Court ideology on district court judges across all issue areas, the substantive effect

of this influence is limited. Specifically, a one standard deviation change in this variable increases the likelihood of observing a district judge render a conservative decision by only 1 percent, and this finding holds across all of the issue areas under analysis. Unlike the Supreme Court, district judges' responses to the ideological makeup of the supervisory court of appeals are more erratic. For civil rights and liberties cases, a one standard deviation change in the ideological makeup of the relevant circuit in the conservative direction increases the likelihood of observing a conservative decision by 1 percent. However, for criminal justice cases, as a circuit court becomes more conservative, district court judges actually become more liberal (a 2 percent increase in the chances of observing a liberal decision is associated with a one standard deviation change in circuit court ideology), and the preferences of the court of appeals do not appear to influence decision making in labor and economics cases. Thus, regardless of whether one considers the Supreme Court or the relevant court of appeals, the ideological proclivities of these appellate bodies have little substantive impact on district court decisions (see also Baum 1980).<sup>18</sup>

Table 1 also provides evidence that minority district court judges are more likely to render liberal decisions than their white counterparts, although this result does not achieve statistical significance in labor and economics cases. In all issue areas, minority judges are 6 percent more likely to decide cases liberally; in civil rights and liberties cases, they are 7 percent more likely to render liberal decisions; and in criminal justice cases, minority judges are 4 percent more likely to decide cases in the liberal direction, as compared to white judges.

Figure 1 provides the results of our tests for the effects of critical mass theory on the decision making of female district court judges. The solid, sloped line in each figure indicates the change in the predicted probability of observing a female jurist render a conservative decision (as compared to a male judge) as the number of women serving on a court point increases, holding the control variables constant at their mean or modal values. Significance levels are denoted by the 90 percent confidence intervals drawn around these lines. The marginal effects are significant whenever the upper and lower bounds of these confidence intervals are both below or equal to (or above or equal to) the zero line. Beginning with the analyses of all issue areas (the upper left-side graph), the results provide general support for our contention that female judges' decision making is significantly different from that of male judges as the number of women serving at a court point increases.<sup>19</sup> Contrary to what we expected, however, we do find a modest gender gap in cities with only one woman serving on a court: at these court points, female judges are 2 percent more likely to render liberal decisions than their male counterparts. More importantly, as the number of women serving at a court point increases, the difference between the decision making of male and female jurists grows. For example, compared to court point with a lone woman, for a court point with four other women the likelihood of female

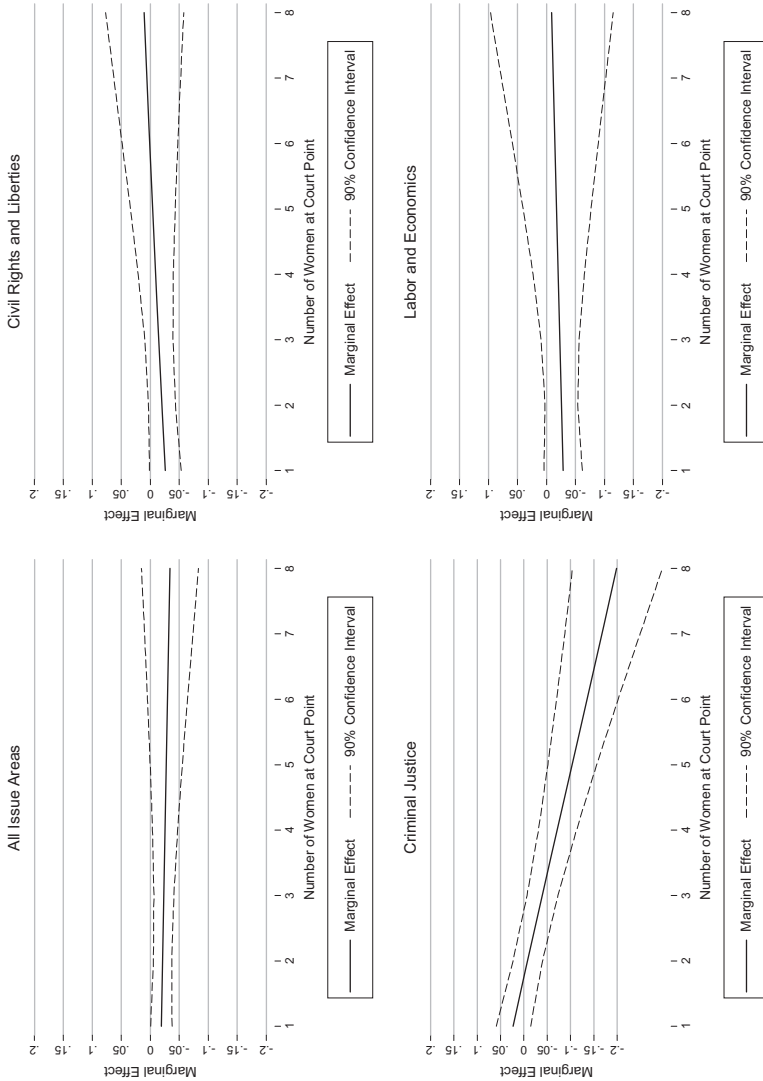


Figure 1. The Marginal Effect of Gender on the Probability of Voting Conservatively (Conditional on the Number of Women at a Court Point).

judge rendering a liberal decision increases by 1 percent. Thus, compared to a male jurist, a female jurist serving with four other women is 3 percent more likely to decide cases in the liberal direction.

Turning now to civil rights and liberties cases (the upper right-side graph), we find similar results. First, we again uncover a difference between male and female decision making for court points in which there is only a single woman judge. In these cities, women are about 3 percent more likely to render liberal decisions than their male counterparts. Second, we find that this result generally holds for court points with one additional woman judge. With the addition of a third woman, however, the difference between male and female decision making falls out of statistical significance.

The lower left-hand graph indicates the effect of gender on the probability of rendering a conservative decision conditional on the number of women at a court point in criminal justice cases. Far and away, criminal justice cases provide the most compelling evidence supporting critical mass theory. In particular, the results indicate that there is no statistically significant effect of gender on decision making until three women serve at a court point. Once this occurs, there is a dramatic change in the likelihood of observing a female jurist render a liberal decision. For example, at a court point with four women, a female judge is 7 percent more likely to render a liberal decision, compared to a male jurist. This effect increases quite dramatically: the effect of gender is 13 percent at a court point with six women and 20 percent at a court point with eight women. Thus, not only do we find strong evidence for critical mass theory in criminal justice cases, but this effect is so strong that it rivals ideology as a predictor of federal district court decision making: the minimum to maximum change in ideology results in a 15 percent increase in the likelihood of observing a conservative decision in criminal justice cases. As such, there are two implications of this finding. First, it provides clear evidence that, absent a critical mass of at least three women, women judges do not appear to exhibit behavior that is distinct from the majority norm, which, in the case of criminal justice disputes, is to overwhelmingly decide cases in the conservative direction. In the time period under analysis, almost 70 percent of such cases were decided in favor of the government. Consequently, it provides strong confirmation that a critical mass was necessary before female jurists could break with the prodigious tendency to rule against the criminally accused. Second, it suggests that behavioral differences between male and female judges are particularly applicable to issues areas in which there is a clear upperdog/underdog dichotomy. This difference is perhaps no more evident than in cases in which an individual accused of a crime squares off against the government (Galanter 1974). Therefore, our analysis of criminal justice decisions confirms the generally held perspective that female judges are more liberal than their male counterparts (Allen and Wall 1987; Davis 1992; Gruhl, Spohn, and Welch 1981; Martin and Pyle 2000; Peresie 2005; Smith 1994; Songer and Crews-Meyer 2000; Walker and Barrow 1985). This suggests that theoretical arguments contending that

female judges will act more conservatively than male judges in cases that can be viewed as harming the community (Sherry 1986), such as criminal justice disputes, do not stand up to empirical scrutiny in the federal district courts.

Finally, as the lower right-hand graph in Figure 1 indicates, the effects of gender on decision making in labor and economic regulation cases are decidedly different. Regardless of whether a critical mass situation exists, there is no difference between the decision-making patterns of male and female judges in these cases. Thus, this analysis suggests that while liberal and conservative judges approach labor and economic cases differently, women and men tend to decide these cases in similar patterns. When considered in light of the strong evidence for critical mass effects uncovered in criminal justice cases, and the more modest results in civil rights and liberties disputes, this null finding provides further evidence that behavioral differences are particularly acute in issues in which there is a clear upperdog/underdog dichotomy. As such, gender-based differences resulting from a critical mass of women serving together at a court point may be inapplicable to issue areas in which the upperdog/underdog distinction is blurred. As Galanter (1974) notes, since labor and economics cases typically involve two high resource litigants (e.g., business versus government, business versus labor), the delineation between the upperdog and underdog is unclear, particularly as compared to criminal justice litigation, where we find strong evidence for gender differences once female judges achieved a critical mass at a given court point.

#### CONCLUSION

Do women judges decide cases differently from men? That has been the central question of this analysis and the answer, like so many others, depends on the circumstances. And critical mass theory suggests that circumstances matter. That is to say, critical mass theory asserts that the presence (or absence) of significant numbers of members of a minority group can have an important influence upon the behavior of that group. If this theory is valid, then questions about gender differences among judges will have to take into account, at least to some degree, the extent to which women are represented on the bench. That is what we have attempted to do here, and our results provide evidence indicating that this is a useful approach to a question that has dogged legal scholars for some time.

We hypothesized that women will decide cases differently from men when they serve on the bench with other women (i.e., in critical mass environments). We identify evidence to support this hypothesis. Interestingly, however, the impact of gender and critical mass environments is not uniform across all policy areas. Without a doubt, gender differences appear to be greatest in criminal justice cases, where women were significantly more likely to hand down a liberal decision than their male counterparts once a critical mass was achieved. In addition, we also find that gender plays a role in cases

concerning civil liberties and rights, although support for critical mass theory in this issue area is modest. When it comes to labor and economic regulation, however, our results indicate that gender is not a predictor regardless of the decision-making environment.

The results presented herein may provide some explanation for the inconsistencies among previous studies that have explored the connection between gender and judicial decision making. While it is clear that the influence of gender varies across policy areas, it is also evident that the impact of gender may be, in part, contingent upon the presence of other women in the decision-making environment. It will be interesting to determine if this trend continues over time. Women continue to make strides in overcoming past discrimination they have faced in the legal field, and there are expectations that women will command a greater presence on the bench in the future. As women occupy a greater proportion of judicial positions, both in the United States and in other nations, we might begin to see subtle but important changes in decision-making patterns. Thus, the presence of more women on the bench in specific locales could have significant policy ramifications throughout the world. Perhaps retiring U.S. Supreme Court Justice Sandra Day O'Connor recognized this when she offered her comments—tinged with regret—on the nomination of her replacement on the Court.

While this analysis provides novel insight into the role of gender in judicial decision making, in addition to speaking to the explanatory capability of critical mass theory, it raises at least as many questions as it answers. In focusing on how the decision making of female judges shifts as women jurists serve with other female judges on a court point, we have not provided evidence as to under what circumstances an increasing number of female jurists might shape the decision making of their male counterparts. Given the increasing number of women serving on judiciaries throughout the globe, this question certainly deserves attention. In addition, as the number of judges representing racial and ethnic minorities increases, it will surely be useful to explore the relevance of critical mass theory to their decision-making proclivities. Thus, we see this article as an important first step in investigating the application of Kanter's (1977a, 1977b) seminal theory to a new brand of actors.

#### NOTES

1. Quoted in Balz and Fears (2005, 15). Upon the death of Chief Justice William Rehnquist in September of 2005, Bush withdrew Roberts's nomination to replace O'Connor and instead tapped Roberts to replace Rehnquist as chief justice. Bush then named White House Counsel Harriet Miers to replace O'Connor, but her nomination was withdrawn after much controversy. It was another man, Samuel A. Alito, Jr., who ultimately filled O'Connor's seat on the bench.
2. While the president is charged with appointing federal district court judges, in practice, senators play a very active role in the process. Under the norm of senatorial courtesy, senators from the state in which the vacancy is being filled



- who are members of the president's political party have substantial input in the president's selections.
3. In terms of sheer numbers of cases handled, the district courts are the workhorses of the federal judiciary, adjudicating over 300,000 cases per year (Mecham 2005). Their jurisdiction includes all federal criminal cases, and their civil docket is composed of cases involving federal questions where the monetary amount in controversy exceeds \$75,000, as well as suits between citizens of different states and/or citizens of foreign countries where a similar dollar amount is at stake.
  4. Our purpose in this article is to explore whether behavioral differences manifest themselves in the decision-making proclivities of male and female jurists, contingent on the existence of a critical mass of female judges at a court point. Given this goal, and to maintain the focus of the article, we do not wade into the debate as to why female political actors might behave differently from their male counterparts. To be sure, the field of feminist theory on this latter topic is a significant and controversial one, with conflicting viewpoints and contradictory studies on the matter. Though our work touches upon this thorny theoretical dispute, it is ultimately tangential to our fundamental purpose in this article: to explore the differences in judicial decision making between men and women judges based not on feminist theory but rather on interdisciplinary critical mass theory.
  5. A notable exception is a study by McCall and McCall (2007), which found that women state supreme court justices were more likely to hand down a liberal decision in search and seizure cases when they sat on the bench with at least one other woman. In fact, this study found that, apart from the facts of the case, the presence of multiple women on the bench was the most reliable predictor of a liberal vote (*ibid.*). Though not an application of critical mass theory, Smith (1994, 200) indirectly alluded to the concept when she speculated that "increased gender and racial diversification [in courts] beyond tokenism may indeed have substantive policy ramifications."
  6. These figures, provided by the *Federal Judicial Center* (2009), include active judges and do not include those on senior status. Judges on senior status are semiretired, generally participating in a limited number of case dispositions each year. Judges achieve senior status as a function of their age combined with the number of years they have served on the federal bench (Block 2007).
  7. The actual number of women who served is slightly lower due to the appointment of individuals who, having been elevated to higher posts in the judiciary, served in two judicial positions.
  8. In the data under analysis, 39.7 percent of female district court judges were appointed by Republican presidents, while 60.3 percent were appointed by Democratic presidents. Thus, while Democratic appointees constitute a majority of female district court judges, the data are not dominated by Democratic judges.
  9. While their use is standard in the literature, we recognize, of course, that the inclusion of only published decisions has the potential to bias the findings in this study in that differences might exist with respect to unpublished versus published decisions. It is important to note, however, that any potential for bias is not attributable to ideological factors, but instead involves the broader social relevance of the case (Swenson 2004). This reflects district guidelines for publishing opinions in that published opinions are intended to reflect those disputes that have substantial import beyond the parties to litigation. As such, we believe these decisions are well suited for investigating the affect of gender on judicial decision making, with the caveat that our results may not be applicable to unpublished opinions.
  10. That is, the coefficient associated with the *Female* variable indicates the difference in the decision-making patterns of male and female judges at a court point with no women. Clearly, such a scenario is impossible. With regard to the parameter

estimate for *Number of Women at Court Point*, this indicates the effect of an increasing number of women serving at each court point for male jurists; we have no theoretical expectations for this relationship. Nonetheless, we include these constituent terms in the model because failure to do so leads to biased and inconsistent estimates of our interaction term (Brambor, Clark, and Golder 2006).

11. See Kanter (1977b) and Studlar and McAllister (2002) for discussions of the wide range of quotas researchers utilize to define a critical mass and the confusion resulting from these deterministic strategies. While the above model is the most appropriate test for our hypothesis, as critical mass theory assumes interactive effects but does not provide definitive criteria for identifying a critical mass environment, it is, of course, only one way to subject it to empirical validation. Accordingly, we also examined alternative modeling strategies by defining a critical mass of women as a court point with two or more female jurists, following McCall and McCall (2007). We then ran both split-population and interactive models, finding substantively identical results to those presented here.
12. Common space scores place members of Congress along a one-dimensional ideological space, based on information from congressional roll call votes. Using information from the presidents' stated vote intentions on congressional legislation, common space scores situate presidents on the same ideological dimension (Poole 1998).
13. Unfortunately, Poole's (1998) common space scores are only available for presidents starting with Eisenhower. As such, we were forced to eliminate 308 decisions, rendered by 18 judges, from this analysis, which make up less than 0.8 percent of total opinions published in the *Federal Supplement* from 1977 to 2000.
14. In addition, there are general constraints on judges implied by the rule of the law and judicial impartiality.
15. To investigate if any temporal effects alter the results presented here, we ran models including a dummy variable for each year in the data, save one, as suggested by Beck, Katz, and Tucker (1998), in addition to running a separate model with a counter variable for each year in the data, scored such that 1977 = 1, 1978 = 2, etc. None of those model specifications altered the substance of our findings. Because of the high amount of collinearity between these temporal controls and our proxies for *Supreme Court* and *Court of Appeals Ideology*, which are yearly measures, and because it is more theoretically important to control for the ideology of the supervisory appellate courts, we do not include these temporal controls in the models reported here. For example, if we introduce dummies for each year in the data, save one, we are unable to control for *Supreme Court Ideology* since this variable varies only between years. In addition, to ensure our results are not unduly sensitive to cohort effects, we performed alternative analyses by including dummy variables for the year in which each judge was confirmed to the federal district court. The results of those auxiliary analyses are substantively identical to those reported below.
16. For example, extant research has demonstrated the importance of case facts in predicting judicial voting behavior (McCall and McCall 2007; Segal and Spaeth 2002). However, the inclusion of case facts in models of judicial decision making can only be accomplished when one examines a particular issue area, such as search and seizure law. Given that we analyze district court decision making in both the aggregate and in broad issue areas, it is inappropriate to include variables based on the facts of cases falling within a specific issue area.
17. Marginal effects are calculated holding all other variables at their mean or modal values, as appropriate.
18. While our primary purpose here is not to engage this debate, a brief explanation of these seemingly anomalous findings is in order. That is, this apparent irregu-

larity can be explained by the fact that the likelihood of reversal, which is the primary explanation for why district court judges might suppress their own ideological behavior depending on the preferences of appellate tribunals (Songer, Segal, and Cameron 1994), is practically nonexistent for district court judges. For example, in recent years, district courts have disposed of more than 300,000 cases per year, while the Supreme Court hears fewer than 100 cases (Mecham 2005). As such, the probability that a district court decision will be accepted on appeal to the Supreme Court, much less reversed, is practically zero. With regard to the courts of appeals, because they overwhelmingly affirm those district court decisions that are appealed, particularly in criminal justices cases where the affirmation rate is nearly 70 percent (Songer 1998), the likelihood of reversal is minimal. Moreover, since circuit court judges are randomly assigned to three-judge panels, this makes it particularly difficult for district court judges to accurately gauge the ideological preferences of these courts, limiting the ability of district court judges to engage in anticipatory behavior.

19. The parameter estimates corresponding to the *Number of Women at Court Point* variable indicate the effect of an increasing number of women serving at a court point for male judges. As explained in note 10, we have no theoretical expectations for the direction of this variable, but include it in the models for methodological reasons. The significant and positively signed coefficients for this variable in the models that include all issue areas, civil rights and liberties cases, and criminal justice disputes indicate that, as the number of female judges serving at a court point increases, male judges are more likely to render conservative decisions. While statistically significant, the marginal effects of this influence are rather small: an increase from one to three female judges at a court point corresponds to approximately a 2 percent increase in the likelihood that a male judge will decide a case conservatively (for each of the models in which this variable attains statistical significance).

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