Change over Tenure: Voting, Variance, and Decision Making on the U.S. Courts of Appeals

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Existing scholarship on the voting behavior of U.S. Courts of Appeals judges finds that their decisions are best understood as a function of law, policy preferences, and factors relating to the institutional context of the circuit court. What previous studies have failed to consider, however, is that the ability to predict circuit judge decisions can vary in substantively important ways and that judges, in different stages of their careers, may behave distinctively. This article develops a theoretical framework which conceptualizes career stage to account for variability in voting by circuit judges and tests hypotheses by modeling the error variance in a vote choice model. The findings indicate that judges are more predictable in their voting during their early and late career stages. Case characteristics and institutional features of the circuit also affect voting consistency.

Fascinated with the determinants of choice, scholars study the votes cast by Congress (e.g., Cox and Poole 2002), the decisions made by presidents (e.g., Canes-Wrone and Shotts 2004), the choices of voters (e.g., Bartels 2000), the alternatives selected by military leaders (Mintz, Redd, and Vedlitz 2006), and the decisions made by judges (e.g., Segal and Spaeth 2002), among others. What is not often studied, though, is the uncertainty surrounding those decisions (cf. Alvarez and Brehm 1995, 1997; Collins 2008). That uncertainty is important both substantively and methodologically. Indeed, in models of dichotomous choice (liberal/conservative, vote/not vote, yea/nay), a failure to consider the possibility that there are systematic components in the error variance results in inconsistent and inefficient estimates (Alvarez and Brehm 2002). Substantively, by assuming away or "controlling for" unequal error variance, a very important element of behavior is missed: consistency.

The assumption of ideological stability among judges, in particular, is increasingly being questioned (Baum 2006; Epstein, Martin, Quinn, et al. 2007) and, given that ideology has been deemed a most-important predictor of behavior, instability is a noteworthy phenomenon. Ideological drift on the Supreme Court has not been restricted to the well-publicized shifts of Harry Blackmun and Owen Roberts. Recent research suggests that most justices serving since 1937 have become more liberal or conservative over time (Epstein, Martin, Quinn, et al. 2007). Scholarly accounts also chronicle instances where lower federal court judges shifted their policy positions on civil rights issues during the 1950s and 1960s (Baum 2006, 92–93). These empirical findings argue for additional scholarship that systematically tests for potential causes of variability in judges' positions, especially over the course of their careers. By examining more closely the errors in predictions generated from well-established models of voting on the U.S. Courts of Appeals, potential causes of (in)consistency on these courts can be explored. In particular, this article takes heteroskedasticity into direct account and evaluates whether judges' decisions are more, or less, predictable over the course of their tenure on the bench. By focusing the inquiry on the U.S. Courts of Appeals, courts that represent distinct institutional contexts, the approach will also permit exploration into whether

particular institutional settings contribute to consistency in judicial decision making. The article thus presents a theoretically derived model to evaluate whether there are systematic influences on the predictability of vote choice, finding that, as in many areas of politics, variability in judicial decision making can be as interesting as the vote choice itself.

Voting Behavior on the U.S. Courts of Appeals

The U.S. Courts of Appeals are an increasingly important venue for judicial policy making. Indeed, since the Supreme Court rarely reviews, much less reverses their decisions, the circuit courts provide "the final forum for the resolution of most disputes over the meaning of federal law" (Songer, Sheehan, and Haire 2000, 16). This importance is reflected in the high-stakes nature of judicial nominations and confirmations to these benches as well (Scherer 2005). Given the finality of their decisions and the increased attention to those who staff these courts, it becomes more important to understand why circuit judges make the decisions they do, and also, with what level of variability. Litigants may seek to understand the degree to which the judges' behavior is consistent in deciding to bring a case (de Figueiredo 2005). The legitimacy of these courts also may depend on the perception that judges follow principles of formal justice and practice consistency in their decision making by treating like cases alike (Gribnau 2002). Scholars may seek to understand the degree to which judges' behavior is consistent both in order to make claims about the extent to which these lower courts serve as keepers of the rule of law in this country (Nardin 2001) and to more fully understand the nature of their decision making.

On the U.S. Courts of Appeals, a myriad of goals shape judicial choices (Klein 2002) so that "judges' decisions are a function of what they prefer to do, tempered by what they think they ought to do, but constrained by what they perceive is feasible to do" (Gibson 1983, 9). This view of judging on these courts is well supported by empirical research. Studies suggest that judicial ideology matters (Giles, Hettinger, and Peppers 2001; Goldman 1975) and that other motives, including those that take into account legal policy, matter as well (Songer, Ginn, and Sarver 2003). Institutional features of the circuit have been found to be influential (Hettinger, Lindquist, and Martinek 2004), and the circuits' mid-level position in a hierarchical judicial bureaucracy also affects their decision making (Songer, Segal, and Cameron 1994). Finally,

studies indicate that litigant strength and case characteristics are powerful predictors of circuit judges' votes (Benesh 2002; Songer and Sheehan 1992).

To evaluate the variance around the choices made by circuit court judges, a model of decision making which takes into account the complex portrait of judging, as suggested by these brief references to existing scholarship, must first be specified. Vote choices are expected to reflect this mix of influences. Judges with more liberal policy preferences will be more likely to cast a liberal vote. The probability of a liberal vote will also be more or less likely depending on the ideological predisposition of the three-judge panel and the circuit majority as well as the ideological direction of the circuit's precedent. In addition, liberal voting will be more likely when recent Supreme Court doctrine supports such an outcome. Finally, the model of vote choice takes into account the case context and, therefore, includes controls for the deference accorded to trial court decisions, to the position taken by the U.S. government if it is a litigant in the case, and to case type.[1]

Explaining the Variance

Questioning the assumption that judges on the same court respond to the same influences to the same degree, Baum suggests that scholars adopt "statistical models that allow for differences among judges in the determinants of choice... (to) facilitate more precise explanations of judicial behavior" (2006, 174). Consistent with this view, the model specified below tests hypotheses that account for the variance around vote choice. Career effects are posited as central to understanding predictability in decision making, especially given the current system of judicial selection. The variance model also takes into account the effects of institutional considerations and case-specific characteristics.

Career Stage

To date, most judicial studies examining the impact of career stage have focused on exploring the nature of judicial behavior during a judge's first few years on the bench (but see Higgins and Rubin 1980). Indeed, many scholars

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[1] See Appendix A for a full discussion of these variables, the expectations regarding them, and their operationalization. Although both the choice and variance models deal with voting behavior and together offer an integrated portrait of judging, they are, as seen in the text, both conceptually and operationally distinct.

have examined "freshman" or "acclimation" effects on judges in attempts to discern whether judges experience a freshman period that is unique in some respect from their behavior in later years (e.g., Bowen and Scheb 1993; Brenner and Hagle 1996; Heck and Hall 1981; Hettinger, Lindquist, and Martinek 2003; Hurwitz and Stefko 2004; Shipan 2000; Snyder 1958; Wood et al. 1998).

Although much of this research is focused on the freshman effects experienced by Supreme Court justices, Hettinger, Lindquist, and Martinek (2003, 794–95) argue that institutional features of circuit court decision making (e.g., decision making in rotating three-judge panels and possible review of decisions by the circuit sitting *en banc*) along with caseload pressures might result in heightened freshman effects for circuit judges. Moreover, as Wasby noted in his interview-based study of Ninth Circuit judges, the process of acclimating to the role of circuit judge might be more difficult as the result of judges being "dispersed throughout the circuit" (1989, 12).

Understanding career effects on the consistency of vote choice, however, should not be limited to a focus on acclimation and therefore should consider other changes over the course of a judge's entire tenure on the bench. Vocational studies, for example, often focus on the effects of "career stages" (e.g., Allen and Meyer 1993; Aryee, Chay, and Chew 1994; Brooks and Sears 1991; McElroy, Morrow, and Wardlow 1999). As McElroy, Morrow, and Wardlow describe this research, "the basic premise is that employees pass through distinct stages over the course of their careers," with their "expectations, attitudes, and goals" varying across the stages (1999, 508). It is quite likely that a judge's experience on a given circuit bench is also marked by various stages in which the judge is influenced by different concerns to different degrees.

Specifically, when one accounts for the relationship between judicial selection processes and liberal or conservative voting, newcomers will more likely exhibit consistency in voting attributed to the appointing administration. These judges, recently minted through an extremely partisan process (Epstein and Segal 2005) but without the institutional knowledge and/or commitment that tenure can bring, will more likely vote in accordance with their preferred policy disposition. In other words, judges are conditioned to think ideologically by the process through which they obtain their seat. Circuit Judge Carolyn King lends credence to this argument, arguing that judges are selected today because they can be "relied upon to further the activists' policy agendas" (King 2007, 15).

Nevertheless, the influence of ideology and other predictors of voting may vary over a judge's career. Although there are important differences in the nature of career models put forth by scholars, "three-stage models" are frequently employed (Brooks and Seers 1991, 54, citing Rabinowitz and Hall 1981 and Slocum and Cron 1985).[2] As Brooks and Seers describe, "most three-stage models appear to distinguish employee needs to get established, to advance, and finally to play out their roles in a terminal position" (1991, 54). Taking these types of studies into account, much can be gained by examining circuit judges who are new to the bench, those who are in the middle stage of their organizational tenure, and, finally, those who are nearing the end of their circuit careers. While the selection process for circuit judges tends to yield individuals with well-formed ideological preferences that match their appointing president's and, thus, who are more likely to vote in accordance with their preferences, as circuit judges gain experience on the bench, they develop an understanding of the institutional responsibilities of the circuit. To the extent that the process of judicial socialization fuels competing goals and conflicting values, one would expect to find less predictable voting with increased experience on the bench as the effect of judges' policy preferences becomes tempered by institutional considerations. For example, one prominent judge has repeatedly stressed how workload shapes judicial choices (Posner 1995). As "time on the job" accrues, one would expect to see a cumulative effect associated with workload constraints as "overworked" judges develop strategies to maximize leisure time (Posner 1995). In doing so, they may be less likely to achieve their ideal decision (Baum 2006).

Studies also suggest that judges are motivated by collegiality and winning the respect of one's colleagues on the circuit (Baum 2006; Klein 2002). Attachment to informal norms which advance these shared goals should become more entrenched with tenure. Thus, it is expected that those judges who are in the early stage of their careers will be more predictable, responsive to ideological concerns, whereas midcareer circuit judges will become more variable in their decision making, responsive to concerns other than policy-related ones.

Judges in a midcareer stage may behave distinctively from more senior judges in ways that are reflected in the variance of vote-based models of judicial choice as well. Since most circuit judges are not promoted to the Supreme Court, the vast majority will spend the remainder of their judicial careers as circuit judges, with many opting to take "senior status," a role that allows such judges to continue participating in case dispositions without the weight of administrative obligations and heavy caseloads (Yoon 2005). Consequently, like freshman judges, those judges nearing the end of their careers have firmly entrenched

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[2] Brooks and Seers (1991), however, felt it more appropriate for their research question to employ a five-stage model.

policy positions but, unlike their freshmen colleagues, they have been thoroughly socialized in the norms of their circuit. Unlike their midcareer colleagues, however, they are facing retirement. This may affect the predictability of their vote choices.

Regardless of the situation in which a judge finds him- or herself, career stage matters. Consequently, the first hypothesis tested is that newer judges will behave distinctively; they will exhibit less variability (largely due to ideological priming from their confirmation) in their decision making than their more senior colleagues. In other words, the career stage (here, the number of *years on bench*) in which a judge finds him- or herself will affect the extent to which the judge votes in a consistent ideological fashion. However, given the possibility that influences on circuit behavior might vary across multiple stages of a judge's career, this variable should have a nonlinear component as well. Consequently, a variable that squares the years on bench variable is included to further explore this possibility. This variable is expected to be negative, reflecting the more variable decision making of those in midcareer, because of the additional institutional commitment they have relative to circuit newcomers and the voting ramifications of such. Those with the most tenure, however, while having firm policy preferences and institutional knowledge, may either begin to more consistently vote according to their political preferences as they become free of administrative obligations, or they might be more consistently influenced by circuit institutional variables.[3] Either situation, however, should result in a lower error variance surrounding votes cast by these judges.

Other Judge-Based Factors

In addition to length of service on the circuit bench, judicial experience prior to appointment may affect decisional variance. Since the Carter administration, a majority of appointees to the U.S. Courts of Appeals have had previous experience on another court (Goldman et al. 2003). That previous experience can be expected to be a source of consistency in judicial voting. For administrations advancing a policy agenda with judicial appointments, a nominee with a trial court record may be attractive insofar

as it reduces the uncertainty associated with predicting the subsequent behavior of the nominee (Savchak et al. 2006). In this respect, the trend toward selecting circuit judges with previous judicial experience (either at the lower federal or state court levels) may result in a stronger observed empirical relationship between presidential policy preferences and appointees' decision making and, thereby, reduce unobserved variability in models of judicial choice (but see Szmer and Songer 2005). Hence, voting by judges with *prior experience* on the bench will exhibit less variability than those with no prior judicial experience.[4]

For judges on the U.S. Courts of Appeals, it has been noted that the process of recruitment, viewed broadly, tends to "homogenize the social composition, training and value structure of members of circuit courts" (Howard 1981, 102). Over time, appointees to the courts of appeals have been predominantly Caucasian, affluent, politically active, 50-year-old males who attended prestigious educational institutions (Goldman et al. 2003). In recent years, the demographic makeup of the bench has shifted slightly as administrations have appointed more women and minority candidates. The policy consequences of greater diversity on the federal bench have been difficult to evaluate. Scholarship testing for differences in decision making on the federal courts has found that votes of women and minority judges are often similar to their Caucasian male colleagues (Walker and Barrow 1985). Yet, a few sharp differences have emerged in decisions dealing with claims of discrimination (Peresie 2005; Segal 1997; Songer, Davis, and Haire 1994). Although some research suggests that these differences are attributed to socializing experiences (Demo and Hughes 1990; Gilligan 1982), it is also possible that varying paths to the bench by female and minority appointees contribute to these narrowly defined differences in voting behavior (Slotnick 1984). Here, rather than modeling policy outcome-based behavior, this analysis tests the argument that female and minority appointees will exhibit more variability in decision making. Indeed, the process by which these judges are recruited may have less to do with policy preferences as administrations seek additional goals with these appointments, including those associated with symbolic representation. Hence, voting by *women and minority judges* will exhibit greater variability when compared to votes by Caucasian male judges.

Finally, the extent to which a given judge is "ideological" should affect the predictability of his or her vote (Collins 2008). In other words, judges who are extremely

[3]Relatively few judicial studies exist to guide expectations about senior judges. As Yoon (2005) describes, certain institutional practices of the circuits may tend to foster a stronger commitment to the organization as the judge accrues more experience. For example, active judges with longer tenures are more likely to be tapped for additional administrative tasks and/or posts within the circuit (Yoon 2005). We also acknowledge the possibility that judicial behavior might be influenced by concerns of a judge's personal legacy (see Higgins and Rubin 1980).

[4]It could be that the multiplicative effect of early career stage and prior judicial experience affect variance in combination; however, a multiplicative term is never influential in the models tested.

liberal or extremely conservative will be more consistent in their decision making. For these judges, models of decision making that account for individual policy preferences will successfully predict their votes; the probability of a liberal vote will not be accompanied by a large standard error. In contrast, the likelihood of a liberal vote will be more variable for those judges with moderate policy views as their voting record will be more balanced, with decisions that support both liberal and conservative policy outcomes. Hence, voting by *ideologically extreme judges* is expected to exhibit less variability than more moderate judges.

Institutional Characteristics of the Circuit

Circuits are institutions with independent identities, which bind appeals court judges through organizational norms and practices (Lindquist, Haire, and Songer 2007). Formal and informal structures of individual circuits therefore establish the parameters of the decision-making environment for appeals court judges (Cohen 2002). For example, by deciding cases in rotating three-judge panels, voting often reflects cooperative behavior with deference to the majority position (Posner 2005).[5] Given the potential for rehearing *en banc*, judges on the courts of appeals also must take into account the preferences of the circuit majority in their decision making. In ideologically homogenous circuits, one would expect to see less variable decision making as judges can more successfully gauge the preferences of their colleagues. A measure of *circuit heterogeneity* is therefore included, which considers the variability surrounding the mean ideological predisposition of the judges in any given circuit for any given year.

Although rules and informal norms are designed to promote consensus in the lower federal courts, numerous studies document variation in dissensus by circuit, which also affects the extent to which predictions over outcomes can be made with certainty (Songer 1982). Scholars have suggested that these intracircuit interactions may correspond to stability and predictability in circuit law (Hellman 1999). As described by one appeals court judge, "(I)n our circuit there is an institutional value and belief in being unanimous if possible. Predictability in the law is viewed as an important value, so we work hard to find common ground" (Lindquist, Haire, and Songer 2007, 7). Indeed, a judge who decides a case in an environment characterized by dissensus is more likely to face a question on which he will be less certain of the circuit's position and, hence, more variable in decision making. In appeals courts characterized by near unanimity, judges will be more certain

[5]This is tested in the choice model. See Appendix A.

of the decision favored in the circuit and, hence, variability in decision making decreases. As a circuit's *dissent rate* increases, variance in voting by judges sitting on that court is also expected to increase.

For similar reasons, the size of the circuit may affect the ability of any given judge to make decisions that accord with the preferences of the circuit as a whole. Sitting circuit judges also perceive a connection between size of court and clarity in precedent (Tjoflat 1993). The *number of judges* in the circuit is a proxy for circuit size, included in order to determine whether votes by judges sitting in larger circuits are less predictable.

Case Characteristics

Finally, certain types of cases could engender more variability than others. Indeed, one would anticipate that variability in judicial voting will increase in "hard" cases where litigants on both sides offer persuasive arguments. For this analysis, complex cases are defined as those requiring more attention to the development of legal reasoning in published opinions. In these situations, judges might respond to different influences depending on their framing of the issues and, thus, exhibit more variability in their decision making. Hence, decision making in *complex cases* should be more variable than decision making in more routine cases.

Additionally, certain issue areas might be "easier" to decide than those which potentially bring about value conflict. Because of the mandatory nature of the circuit courts' docket and the resultant large number of criminal appeals with little merit, there should be greater consistency associated with decision making in criminal cases than in other case types. In addition, issues raised in criminal cases are more likely to fall along a single policy dimension where judges have well-established values concerning crime control and concern for due process. For these reasons, decision making in *criminal cases* should be less variable. In contrast, *civil rights or civil liberties cases* are more likely to raise contested issues, potentially requiring judges to weigh competing values. Compared to other case types, these claims also vary more in terms of litigant resources. For example, plaintiffs in civil rights cases vary from pro se prisoners to those being represented by the EEOC. Decision making, then, will be more variable than decision making in other issue areas. Finally, models of decision making in *tax, patent, and copyright cases* may yield more predictive errors as this issue area is not only technically complex, but also captures multiple, and changing, dimensions of policy preferences over time (see, e.g., Ducat and Dudley 1987).

Methodology

The analysis employs a heteroskedastic probit model[6] to test whether variability in decision making is predicted by these influences. The heteroskedastic probit model differs from the conventional probit model in that the latter assumes constant variance. Since the probit model uses the normal distribution, this amounts to assuming the variance is homoskedastic and equal to 1. However, if that assumption of homoskedasticity does not hold, the MLEs of the probit model are inconsistent (meaning they do not equal the true population parameters) and the covariance matrix is wrong (Alvarez and Brehm 1995, 2002). Therefore, in order to obtain consistent (correct) estimates, one must explicitly control for the nonconstant variance. In this specification, one can simultaneously model predictors of both the vote choice (i.e., liberal or conservative vote) and the variance.

By employing a heteroskedastic probit model, it is simple to test for the correctness of this proposition about unequal variance. Using a likelihood ratio test, one can discern whether adding the variance equation is necessary or not and, hence, gain perspective on the theoretical expectation that some judges in some situations behave differently in terms of the consistency of their judicial voting (especially with respect to their career stage). Warnings about the poor small sample properties of this method are heeded, and close attention is paid to model specification (Davidson and MacKinnon 1984; Keele and Park 2004). The analysis is based on a large sample (n = 17,224), and the carefully specified choice model is well grounded in theories of judicial decision making and fits the data well.[7]

Data

The observations used for this analysis were drawn from the widely employed U.S. Courts of Appeals Database[8]

for the years 1968–96.[9] Votes in the database are coded in terms of the policy content associated with the judge's position along a liberal-conservative continuum. The dependent variable for this analysis is the likelihood of a judge's vote in support of the liberal position.[10] Data on judicial appointments and career experiences were drawn from the Multi-User Database on the Attributes of United States Appeals Court Judges (hereafter, the Auburn database),[11] with updated information for appeals court judges and district court judges (which are used in the calculation of panel majority membership) drawn from the Federal Judges Biographical Database.[12]

Operationalization: The Variance Model

To test for the effects associated with multiple career stages, two variables are included, a running tally of the number of years on the bench and the number of years on the bench, squared. The squared term allows for the effect to be nonlinear, as per the theory, i.e., for newly appointed and the most senior judges to behave more predictably. As time on the bench increases, the variance is expected to increase. However, an expected negative coefficient on the squared term will reflect the lower variance at early and late career stages posited by the model.

To test the hypothesis that those who come to the courts of appeals with judicial experience will be associated with a reduction in the error variance, the model includes a dichotomous measure of prior judicial experience

[9]All substantive issue areas were included in the analysis. Cases with mixed ideological outcomes are excluded, and the analysis is confined to votes cast by regular appeals court judges on active and senior status. The unit of analysis is the individual circuit judge vote. Since the U.S. Courts of Appeals Database samples only decisions accompanied by a published opinion, the results of this analysis should be interpreted with caution as the observations are limited to appeals court decisions with presumably greater policy content.

[10]For example, a vote supporting the position of a litigant claiming a civil rights violation is coded as "liberal" whereas a vote against that position is coded as "conservative." Although it is acknowledged that tax, patent, and copyright decisions may be difficult to classify, liberal votes are defined in the present analysis to be those in favor of government tax claims and for a patent or copyright claimant. The documentation to the U.S. Courts of Appeals Database provides more detail on this coding.

[11]The Multi-User Database on the Attributes of United States Courts of Appeals Judges, Gary Zuk, Deborah J. Barrow, and Gerard S. Gryski (Co-Principal Investigators), NSF# SBR-93–11999. The database and documentation are available at the S. Sidney Ulmer Project at the University of Kentucky (www.as.uky.edu/polisci/ulmerproject/auburndata.htm).

[12]See History of the Federal Judiciary at www.fjc.gov; Federal Judicial Center, Washington, DC.

[6]The probability density function is as follows: Prob (y = 1) = Φ (Σ (Xβ)/EXP(Σ (Xγ))), where Φ is the standard normal distribution, βs are the coefficients in the choice model, and γs are the coefficients in the variance model (Alvarez and Brehm 1995).

[7]In order to statistically test the specification of the model, a simple probit model was estimated. In so doing, the following fit statistics obtain: the area under the ROC curve is 0.7101, and the model reduces error in prediction by 14.85%, correctly predicting 68.71% of all cases.

[8]The U.S. Courts of Appeals Database, Donald R. Songer (Principal Investigator), NSF# SES-89–12678. The database and documentation are available at the S. Sidney Ulmer Project at the University of Kentucky (www.as.uky.edu/polisci/ulmerproject/appctdata.htm).

at the federal or state level. Information on both a judge's appointment year and previous career experience is found in the Auburn database.

Beyond experience, the model also tests for other judge-related factors. To test whether women judges and minority judges are more variable in their decision making, relative to their Caucasian male colleagues, two variables are included. The judge-gender variable indicates whether the judge is a male, and the variable measuring race indicates whether the judge is Caucasian. Given the construction of these variables, they are expected to be associated with decreases in the error variance. To test whether more ideologically extreme judges will be more predictable in their decision making, the model includes a variable which represents an existing measure of judge ideology, squared. The Giles, Hettinger, and Pepper (GHP; 2001) scores of the judges are based on the common space NOMINATE scores for presidents and senators developed by Poole (1998).[13] Higher values should be associated with decreases in the error variance.

To evaluate whether institutional features of the circuit affect predictability in judicial voting, the model included variables to test the expectation that circuits characterized by high levels of dissensus, extensive ideological heterogeneity, and large numbers of authorized judgeships increase the error variance. Dissensus is operationalized as a three-year moving average of dissent in published decisions for each circuit (computed from the sample of cases available in the U.S. Courts of Appeals Database). Since theoretical expectations suggest that dissensus contributes to variance, this measure is lagged by one year. Ideological heterogeneity is measured by the standard deviation of the GHP scores for all active judges in each circuit in a given year. The number of authorized judgeships for a given circuit in each year is obtained from the Federal Judicial Center.

Finally, characteristics of the cases should affect the variability in judge votes. In particular, criminal cases will occasion less variability in decision making than other types of cases and civil rights and liberties cases, tax, patent, and copyright cases, as well as complex cases will occasion more. To measure the influence of issue type, three dummy variables are included to flag cases where the general issue area of the case is criminal, civil rights,

or liberties, or tax/patent/copyright.[14] Taking as an indicator of complexity the page length of the case (using total page length including separate opinions as documented in the U.S. Courts of Appeals Database), it is expected that more complex cases will increase the error variance.[15]

Results and Discussion

The results of the heteroskedastic probit estimation can be found in Table 1. While the results of the choice model are impressive and support findings of existing research, the focus here is on the model of the variance, which yields many interesting results.[16] Recognizing first that the model as a whole fits well and that the Chi-Square test for the variance model allows rejection of the null hypothesis that the variance is constant, the influences on the variance are detailed in this section.

First, in terms of judicial characteristics, a nonlinear pattern emerges with respect to career effects on the error variance, as expected. As seen in the table, the coefficient estimating the effect of judicial tenure is significant and positive, indicating a positive relationship between years on the bench and the variance. However, this pattern does not persist. The results also reveal a negative and statistically significant coefficient on the squared term associated with this variable. Thus, the variance increases to a certain point and then begins to decrease for the most senior judges. Figure 1 shows this relationship graphically. These results suggest that the choice model better predicts the votes of judges in their early and late career stages. As noted above, this finding was expected due to the strong role of policy preferences in the modern nomination and confirmation process and the strong institutional effects that become salient as judicial tenure increases. Further analysis of judicial voting behavior by career stage supports

[14] Civil rights claims advanced by prisoners are coded as civil rights cases.

[15] The operationalization of the choice model is available as Appendix A.

[16] The choice model also includes dummy variables for the 1960s, 1970s, and 1980s (using the 1990s as the baseline). Compared to the 1990s, cases from the 1970s were more likely to result in liberal votes. The coefficient on the Supreme Court liberalism variable is insignificant. Alternative measures using issue-area specific liberalism and membership-based measures of Supreme Court influence provide no support for Supreme Court influence on appeals court decision making across all judges. The Court is a significant influence (in the expected direction), though, on the votes of late-career judges. (See Appendix B.)

[13] Specifically, in cases in which the president appoints a courts of appeals judge from a state without a senator of the president's own political party, this measure is the common space NOMINATE score of the president. However, when there is a home-state senator of the president's party, the measure is the common space NOMINATE score for that senator or an average of two senators, if both are of the president's party.

TABLE 1 Voting on the Courts of Appeals

Choice Model

Variables	Coefficient	Robust Std. Error
Judge Ideology	0.265	0.100***
Partisan composition of panel majority	0.084	0.058*
Partisan composition of Circuit	0.902	0.249****
Policy predisposition of Circuit	0.900	0.266****
USSC Liberalism	−0.129	0.310
Fed. Gov't—Liberal Pos.	0.706	0.144****
Fed. Gov't—Conserv. Pos.	−0.292	0.084****
Lower Court Direction	0.964	0.166****
Criminal Case	−0.723	0.171****
Constant	−1.632	0.314****

Variance Model

Variables	Coefficient	Robust Std. Error
Judge Characteristics		
Years on circuit bench	0.014	0.009**
Years on circuit bench squared	−0.001	0.000**
Prior Judicial Experience	−0.025	0.044
Gender	−0.044	0.089
Race	−0.143	0.095*
Ideological Extremism	−0.074	0.234
Circuit Characteristics		
Dissent Rate	1.799	0.377****
Ideological Heterogeneity	−0.056	0.260
Circuit Size	0.011	0.005***
Case Characteristics		
Criminal Case	0.049	0.094
Civil Rights and Liberties Case	0.426	0.115****
Tax, Patent, Copyright Case	−0.084	0.128
Complex Case	0.064	0.009****

This table shows results from the heteroskedastic probit estimation of the decision to vote liberally (1) or conservatively (0). The fit of the model, using the area under the ROC curve, is a respectable 0.7167 (0.7088, 0.7245) and the Wald test of lnsigma^2 = 0 is rejected at the 0.0000 level (chi^2 (13) = 119.91), meaning the variance is significantly different from 1 and our variance model represents an improvement in modeling the DGP. All tests are one-tailed; ****p < 0.001, ***p ≤ 0.01, **p < 0.05, *p < 0.10. The choice model also includes decade dummies to control for ideological shifts over time (not shown).

that interpretation.[17] Indeed, these results reject the oft-theorized (with little empirical support) expectation that freshman judges will be "bewildered" or "inconsistent" in their decision making, as compared with their more seasoned colleagues.

The results with respect to women and minority judges are also noteworthy. The signs of both coefficients on these variables are negative as hypothesized, but only the race variable reaches any level of conventional statistical significance (p = 0.065). Thus, the results suggest that minority judges are more variable in their decision making.

On the other hand, prior judicial experience does not appear to influence the variance. Moreover, ideologically extreme judges, contrary to the hypothesis, are not less variable in their decision making. While Collins (2008) finds that ideologically extreme Supreme Court justices exhibit less variation in decision making, that result is not generalizable to the lower federal appellate bench, at least not using the measures employed here.

The analysis of circuit characteristics suggests that at least two of the three hypothesized influences affected the level of uncertainty around judicial choice. As shown in Table 1, dissent rate contributes substantially to the variance; that is, judges in circuits with high dissent rates are more variable (less consistent) in their decision making. Although ideological heterogeneity of the circuit does not appear to influence the variance as hypothesized, court size increases the variance as judges in larger circuits have wider error terms around their decisions than those sitting on smaller courts. As scholars continue to explore the role of institutional identities in judicial decision making, these findings reinforce judges' accounts and the conclusions of existing scholarship, which suggest circuit norms and practices mediate the choices judges make.

Finally, the cases themselves can affect variability in decision making. As expected, increasing levels of case

[17]To further explore whether the effect on the variance may be attributed to the recruitment and career processes described earlier, three models of judicial voting that corresponded to the conceptualization of stages of the judicial career are reported in Appendix B. The effect of policy preferences was strongest for those newly appointed to the bench. Interestingly, those newly appointed to the bench did not appear to be influenced by their colleagues on the panel to a statistically significant degree, nor were they as likely to heed their circuit's policy trends in their decision making. For those in the middle stage of their careers, stronger effects were found for measures of the ideological makeup of the circuit and existing circuit precedent. These findings were even more pronounced for those in the latter portion of their careers. Voting by the most senior group was also influenced by the Supreme Court's decision making. Taken together, these findings suggest that, as tenure increases, responsiveness to one's colleagues on the court also increases. While ideology affected decisions for all three groups of judges, it was clearly strongest for those newly appointed to the bench.

FIGURE 1   Error Magnitude by Years on the Bench

This figure illustrates the nonmonotonic nature of the error variance over judge career. Years on the bench is varied from its minimum to its maximum. Error magnitude is calculated by multiplying the coefficients from the variance model by the mean values of all of the independent variables except for years on the bench and years on bench, squared. Those two are varied together. This shows that variance is lowest at the extremes—new judges and very seasoned judges—and is highest in the middle, peaking around 14 years of tenure.

complexity correspond to greater unpredictability in judicial voting. Civil rights and civil liberties cases also contributed to increases in the error variance. Contrary to expectations, however, neither criminal cases nor those raising tax, patent, and copyright issues had a statistically significant effect on the variance.

Table 2 illustrates the magnitude of these effects, which shows the changes in the magnitude of the error for all of the significant influences on the variance. When all variables are at their respective means (and years on the bench squared is set to mean years on the bench, squared), the error is 0.712. That error increases by over 500% in the most complex case, 73% for the most nonconsensual circuit, 26% for the largest circuit, and 50% in a civil rights/liberties case. The "easiest" case in the dataset reduces the error by 50%; the newest judge has 12% less error, and the most senior judge has 50% less error, all else held constant.

Conclusion

Scholars have increasingly recognized the important role played by the U.S. Courts of Appeals in the development of legal policy in the United States. Consequently, more

attention has been paid toward investigating the determinants of voting decisions of the judges who staff these courts. In these attempts, scholars have learned that the decision-making process of circuit judges is best understood to be a function of law, policy preferences, and institutional factors relating to the unique contexts in which these judges make decisions.

What previous studies have failed to consider, however, is that the ability to predict these judicial decisions also varies in substantively important ways. Modeling the error variance in a vote choice model generated new insights concerning the role of judge-level factors, institutional features, and case characteristics in explanations of judicial decision making. Notably, consideration of a judge's tenure in the model revealed decision making to be a dynamic phenomenon with a judge weighing policy preferences and institutional constraints differently, depending on the stage of his or her career. As life expectancy has increased and the average age of an appointee has fallen, the findings become particularly compelling with judicial careers likely to span several decades.

The model also suggests the need to examine further whether minority and Caucasian judges respond to different sets of influences when deciding cases. Given the mixed findings of existing research, it may be questioned whether empirical tests of the direct effects of race on

TABLE 2   Percent Change in Error Magnitude

Variable	Change in Error
Years on Bench	
Min	12% decrease
Max	50% decrease
Race of Judge	
White	1% decrease
Nonwhite	19% increase
Page Length (Complexity)	
Min	50% decrease
Max	543% increase
Civil Rights/Liberties Case	
No	10% decrease
Yes	50% increase
Dissent Rate	
Min	30% decrease
Max	73% increase
Court Size	
Min	13% decrease
Max	26% increase

This table shows the percent increase or decrease in the estimate of the magnitude of the error variance as variables in the variance equation are varied from their minimums to their maximums. The estimate of the magnitude of the error with all variables at their respective means (and benchsqr set to yrsbench, squared) is 0.712. This is calculated by multiplying the coefficient on each variable in the variance by its mean and summing them (see Alvarez and Brehm 2002). Each variable was then varied and an estimate computed. The change is expressed here in terms of the percent change in the estimate from when all variables are at their respective means to when the subject variable is at its minimum or maximum value.

decision making can adequately capture the policy consequences of diversity on the federal bench.

The results also suggested that select circuit court characteristics affect the ability to successfully predict judicial votes. In particular, increases in both circuit dissensus and court size positively contribute to the error variance in the choice model. These findings may have implications for those currently debating proposals to divide the Ninth Circuit.

The importance of this study, however, extends beyond these contributions. Courts in the United States have been subject to criticism in recent years. Some members of Congress, for example, have leveled specific allegations against sitting judges (see, e.g., Goodnough 2005; Possley 2005; Stolberg 2005), and at least one conservative commentator has compared them with the 9/11 hijackers (Robertson 2005). Perhaps this negative attention is the result of increasing awareness that these lifetime ap-

pointees yield substantial policy influence. But, in fearing that influence, one assumes that these actors consistently, and in a partisan way, enact their policy preferences into law. The findings reported here question that assumption as those with more experience on the bench tended to exhibit more variable behavior, particularly in more complex cases. More broadly, these findings argue for additional research on the predictability of vote choice in other institutional contexts where political actors similarly enjoy long careers, including bureaucrats and legislators.

Appendix A
Operationalization of the Choice Model

It is highly important to have a well-specified model of judicial choice in the present analysis. Thus, theoretical expectations with regard to the various components of the choice model are tested, and care was taken to measure concepts validly and reliably.

First, the role of ideology in judicial decision making is considered. The Giles, Hettinger, and Peppers (GHP; 2001) scores are employed, as discussed in the text. This indicator is employed as a proxy for judicial policy preferences with the expectation that presidents will generally appoint those who share their policy views (as potentially moderated by a same-party home-state senator), even when they do not select a nominee for that reason. The GHP score is multiplied by negative one, so that positive scores indicate appointment by a liberal president. Courts of appeals judges, as has been noted often in the literature (see, e.g., Segal and Spaeth 2002), are not as easily able to enact their policy preferences via their decisions as are U.S. Supreme Court justices, due to various institutional constraints. Hence, ideology may not be as efficient a predictor at this level as it would be at the Supreme Court level. Nonetheless, increases in this variable are expected to be associated with a greater likelihood that the judge will vote in a liberal direction.

As mentioned in the text, institutional arrangements frequently structure the decision-making environment for judges on the U.S. Courts of Appeals. High caseloads, a mandatory docket, or, perhaps, circuit norms make for infrequent dissent at this level. This norm of consensus, then, is assumed to influence a judge's vote. A measure of the panel composition is included, which takes a value of "1" if the majority is comprised of Democratic appointees, "0" otherwise, expecting that, as the panel becomes more liberal, the individual judge will be more likely to support a liberal outcome as well.

In addition to deference to the majority position on the panel, judges are expected to consider the preferences of the circuit majority (Hettinger, Lindquist, and Martinek 2004). Although the courts of appeals initially decide cases in panels of three judges, these decisions are potentially subject to review by the court *en banc*. In addition, judges may respond to norms which discourage intracircuit conflict created by diverging panel decisions. For this reason, a measure of the composition of the circuit is included arguing that, as the circuit moves in a more liberal (Democratically dominated) direction, an individual judge will be more likely to cast a liberal vote. This variable is measured as the proportion of active judges in a circuit who were appointed by a Democratic president for each year.[18]

Research on the circuit courts finds an influential role for circuit precedent (see, e.g., Klein 2002). Therefore, a lagged measure of circuit court decision making is included, which is the proportion of decisions in the previous year in a given circuit that were decided liberally. We expect judges in circuits with more liberal precedents to vote liberally. While measuring precedent is never easy, and is especially difficult in a large "n" study such as the current one, this operationalization provides some leverage.

Of course, the courts of appeals judges need not only consider reversal *en banc* and the policy making of their circuit, but might also consider (and try to avoid) reversal by the Supreme Court and the policy making of that Court. And, because most research that considers compliance finds that the courts of appeals do comply with the Supreme Court, the policy predisposition of the Supreme Court might also matter to the courts of appeals judge. Thus, regardless of whether it is a fear of reversal (Baum 1980) or a recognition that the lower court *ought* to heed the policy prescriptions of the Supreme Court (Benesh 2002), the posture of the Supreme Court should influence the decision making of circuit judges. More specifically, increases in Supreme Court policy liberalism will positively affect the probability of a liberal vote by judges on the appeals courts. Supreme Court influence is measured as the percentage of decisions that supported a liberal policy across all issue areas in the year prior to the appeals court judge's vote.[19]

The direction of the lower court decision is also controlled, arguing that, because courts of appeals judges hear more "easy" cases, they are much more likely to defer to the decisions made by the lower courts. Deference to the trial court is reinforced by standards of review at the appellate level. Therefore, liberal decisions from the lower court should contribute to liberal decisions in the appellate court. Information concerning the ideological direction of the lower court decision is derived from the U.S. Courts of Appeals Database.[20]

Moreover, included is a litigant-based measure that considers the ideological position taken by the United States when it is a party to the litigation. It is widely known that the federal government wins overwhelmingly in cases before the U.S. Courts of Appeals (Songer and Sheehan 1992; Songer, Sheehan, and Haire 1999) and so two dummy variables measuring that influence, based on whether the federal government is a respondent or an appellant, as noted in the U.S. Courts of Appeals Database, are included[21] coupled with the direction of the lower court decision (as noted above).

Issue area is also considered, as criminal cases, due to their potentially nonmeritorious nature, may be more likely to be decided in a conservative direction. Finally, to take into account temporal influences, dummy variables to represent each decade in our analysis, with the 1990s as the excluded category, are also considered.

As noted earlier, the performance of the heteroskedastic probit model is at least partially dependent on the correct specification of the choice model. Due to the strong theoretical basis for the choice model's operationalization, those concerns are somewhat abated. In addition, the model specification is tested empirically, by estimating a simple probit model. The model fits the data well, as reported in note 7. The results obtained via the heteroskedastic probit are also remarkably robust to alternative specifications of the choice model.

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[18] We use proportion Democratic rather than a circuit median via GHP scores because we deem the former to be more realistic as it also captures the size of the majority and, consequently, allows for what is likely to be some "error" in the judge's calculation.

[19] This measure was obtained through averaging the data provided in Table 3–8 of the *Supreme Court Compendium* (Epstein et al. 2003) and was lagged by two Supreme Court terms so that it is the average percentage of liberal decisions in the year previous to

the circuit's decision. We estimated additional models using issue-specific decision making lagged two terms and membership-based measures of Supreme Court influence, including the medians as calculated from either the NOMINATE or the Joint Common Space Scores (Epstein, Martin, Segal, et al. 2007), and the results do not change.

[20] A lower court directionality measure is created by using the directionality of the circuit court decision (i.e., liberal or conservative) and its treatment of the lower court case (i.e., affirmed, reversed, or vacated).

[21] Specifically, we code the federal government as a party to litigation if the federal government is a "real party," and it confronts another "real party" in the appeal as defined in the U.S. Courts of Appeals Database.

Appendix B
Probit Models of Voting Behavior

(Early, Middle, and Late-Career Stage Circuit Judges)

Variables	MLE (Robust SE) Early-Career Judges	MLE (Robust SE) Mid-Career Judges	MLE (Robust SE) Late-Career Judges
Judge Ideology	0.436****	0.156***	0.195**
	(0.079)	(0.063)	(0.088)
Partisan Composition	0.043	0.056*	0.074*
of Panel Majority	(0.061)	(0.041)	(0.047)
Partisan Composition	0.356**	0.484****	0.635****
of Circuit	(0.185)	(0.156)	(0.200)
Policy Predisposition	0.296*	0.686****	0.851****
of Circuit	(0.224)	(0.173)	(0.244)
USSC Liberalism	−0.847+	0.177	0.775**
	(0.331)	(0.249)	(0.425)
Fed. Gov't—	0.327****	0.449****	0.318****
Liberal Pos.	(0.076)	(0.058)	(0.067)
Fed. Gov't—	−0.208****	−0.145****	−0.104*
Conserv. Pos.	(0.066)	(0.046)	(0.068)
Lower Court	0.588****	0.422****	0.434****
Direction	(0.062)	(0.048)	(0.059)
Criminal Case	−0.386****	−0.447****	−0.562****
	(0.059)	(0.045)	(0.060)
Constant	−0.416	−0.917	−1.358
	(0.189)	(0.146)	(0.261)
Number of obs.	4,621	8,461	4,142
Area under the ROC curve	0.7249	0.7068	0.7054

Notes: Appendix B presents results of individual probit models of vote choice for "early-career judges" (lower 26% of judges), who were on the bench less than 5 years at the time of the vote; "midcareer judges" (27%–76%), who were on the bench between 5 and 13 years; and "late-career judges" (77% to 100%), who were on the bench for more than 13 years. All tests are one-tailed. The model also includes decade dummies (1960s, 1970s, and 1980s [1990s, excluded category]) to control for ideological shifts over time (not shown). ****$p \leq$ 0.001, ***$p < 0.01$, **$p < 0.05$, and *$p < 0.10$. + $p < 0.01$, but the sign is not in the hypothesized direction.

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