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Source: *American Journal of Political Science*, Vol. 51, No. 3 (Jul., 2007), pp. 433-448

Published by: [Midwest Political Science Association](#)

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Comparable Preference Estimates across Time and Institutions for the Court, Congress, and Presidency

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Empirically oriented scholars often struggle with how to measure preferences across time and institutional contexts. This article characterizes these difficulties and provides a measurement approach that incorporates information that bridges time and institutions in a Bayesian Markov Chain Monte Carlo approach to ideal point measurement. The resulting preference estimates for presidents, senators, representatives, and Supreme Court justices are comparable across time and institutions. These estimates are useful in a variety of important research projects, including research on statutory interpretation, executive influence on the Supreme Court, and Senate influence on court appointments.

Scholars comparing preferences across institutions must confront this hard fact of life: even the best measure of congressional preferences based only on votes in Congress is not directly comparable to even the best measure of judicial preferences based only on Supreme Court votes. Scholars comparing preferences across time face a similar reality: if they observe a change in voting patterns, is it because preferences have shifted or because the agenda has shifted?

Such challenges have left several substantive research agendas waiting upon methodological advances. For example, institutionalist scholars testing theories of congressional influence on the Supreme Court cannot assess their predictions until they can convincingly compare the preferences of members of Congress with the preferences of Supreme Court justices. Similarly, behaviorists cannot assess the influence of public opinion on various governmental institutions until they can effectively track preference changes of Congress, the president, and the Court over time.

These issues are not simply technical. Failure to address them may compromise our ability to convincingly

test important hypotheses. Can we be confident in results based on widely used measures that imply the Supreme Court of the early 1970s—a court that provided constitutional protection for abortion and halted the death penalty—was one of the most *conservative* courts of the modern era? Is it appropriate in all research contexts to use Common Space scores that provide nearly identical values for prosegregationist southern senators in the 1950s and moderate Democrats in the 1990s?

This article presents a method for producing comparable preference estimates for presidents, senators, representatives, and Supreme Court justices from 1951 to 2002. Key to the approach is the use of “bridging” techniques that link actors across time and institutions. To bridge across institutions, I incorporate an extensive and substantially original data set of observations of presidents and members of Congress taking positions on Supreme Court cases (see Bailey and Chang 2001 for a precursor). To bridge across time, I incorporate information on the “cutpoint” location of bills and cases relative to each other and observations of individuals taking positions on cases and votes in the past. The statistical analysis uses

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This research was supported by the National Science Foundation (SES-0351469). I appreciate helpful comments from Kelly Chang, John Ferejohn, Barry Friedman, Eric Lawrence, Jeff Lewis, Forrest Maltzman, Barry Weingast, and participants at seminars at Washington University in St. Louis, New York University Law School, William and Mary, Dartmouth, George Washington, the University of Pittsburgh, and the 2005 Summer Meeting of the Society for Political Methodology. Keith Poole generously provided congressional vote data. I also appreciate the assistance of Laura Miller, Chris Drewry, Caroline Wells, Mike Griffin, Alexis Teagarden, Cynthia Fleming, Stephen de Man, and Matt Hard.

American Journal of Political Science, Vol. 51, No. 3, July 2007, Pp. 433–448

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ISSN 0092-5853

flexible and powerful Bayesian Markov Chain Monte Carlo methods.¹

This article proceeds as follows. The first section discusses the need for, and difficulty of, generating preference estimates that are comparable across institutions and time, and the second presents the estimation strategy. The third section discusses the original data collection, and the fourth presents the results.

Comparing Preferences across Institutions and Time

Not long ago scholars were content to use raw interest group scores and percent liberal scores to measure congressional and judicial preferences. Poole and Rosenthal (1991, 1997) provided a major breakthrough by using measurement theory to estimate parameters of a spatial model in which individuals' preferences are defined by single-peaked utility functions that are maximized at the individuals' "ideal points." Policy alternatives are defined as points in that preference space and political actors are assumed to prefer spatially closer alternatives. Much of the literature, including this article, focuses on one-dimensional models. For example, a judge with an ideal point of 1.0 ruling on a case in which ruling for the petitioner yields an outcome of 0.2 in liberal-conservative space and ruling for the respondent yields an outcome of 1.1 will be likely to rule for the respondent. Votes are often discussed in terms of the midpoint between the two alternatives (the "cutpoint"), as individuals with ideal points above the midpoint will tend to vote for the higher alternative and individuals with ideal points lower than the cutpoint will tend to vote for the lower alternative.

Comparing Preferences across Institutions

One challenge in measuring spatial preferences is comparing preferences across institutions. Simply put, no matter how well preferences are estimated within an institution, they are not comparable across institutions without clear points of reference. Figure 1 makes this point graphically. At the top is a hypothetical court with judges with ideal points at J_1 , J_2 , and J_3 . This court ruled on two cases: in the first, the cutpoint between the two alternatives was K_1 ; in the second, the cutpoint was K_2 . The ideal point of the judge J_3 is greater than both cutpoints. If there is no randomness, this judge will vote conservatively 100%

of the time. The ideal point of the median judge (J_2) is greater than K_1 , but less than K_2 , leading this judge to vote liberally once and conservatively once. The ideal point of the most liberal judge is less than both cutpoints, yielding no conservative votes.

In the next two panels are hypothetical legislatures whose legislators have ideal points at L_1 through L_5 . The legislature voted on legislation that had cutpoints at K_3 and K_4 . Two conservative legislators had ideal points above both cutpoints, implying a 100% conservative rating. The median legislator's ideal point was higher than the first cutpoint (implying one conservative vote) and lower than the second cutpoint (implying one liberal vote). Two liberal legislators' ideal points were below both cutpoints, implying a 0% conservative rating.

The problem is that based simply on voting patterns within the two institutions, we cannot know whether the depiction in the middle panel (where the legislative median is far to the left of the court median) or the bottom panel (where the legislative median is far to the right of the court median) is correct. Without knowing the location of K_1 and K_2 relative to K_3 and K_4 , either depiction is logically possible, even as they differ dramatically from each other. More sophisticated within-institution preference estimation will not solve this fundamental interinstitutional problem.

Most existing interinstitutional analyses address this problem in an ad hoc manner, often by assuming single-institution scores are directly comparable. Segal (1997) assumed that preference measures for justices (based on Segal-Cover scores) were directly comparable to ADA scores. Moraski and Shipan (1999) assumed that percent-liberal scores for justices were directly comparable to adjusted ADA scores from Groseclose, Levitt, and Snyder (1999). These assumptions are, tacitly, assumptions that the distribution of votes facing the Senate and Court is identical. An exception is Epstein et al. (2006), which rescales Poole-Rosenthal Common Space scores and Martin and Quinn (2002) scores. I discuss concerns about the intertemporal comparability of both these measures and provide related analysis later in the article.

In order to illustrate the practical problem with ad hoc assumptions of direct comparability, Figure 2 compares two plausible versions of this approach. The first treats percent liberal judicial scores as comparable to ADA scores. The second treats Poole and Rosenthal Common Space scores for senators and presidents as comparable to Martin and Quinn scores for justices. (This approach to interinstitutional preference measurement is *not* endorsed by Poole, Rosenthal, Martin, or Quinn; I am presenting it simply as an example of assuming direct comparability across institutions). The figure presents the

¹Preference estimates and a methodological appendix are available at www9.georgetown.edu/faculty/baileyma.

FIGURE 1 The Challenge of Making Interinstitutional Preference Comparisons

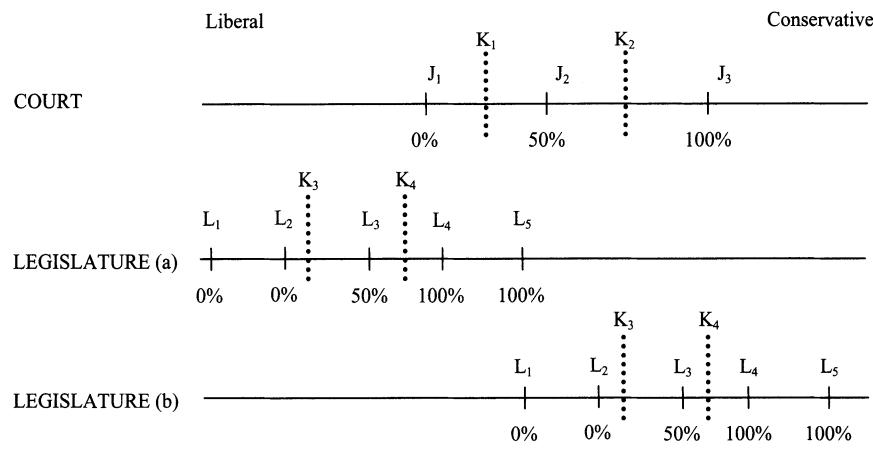
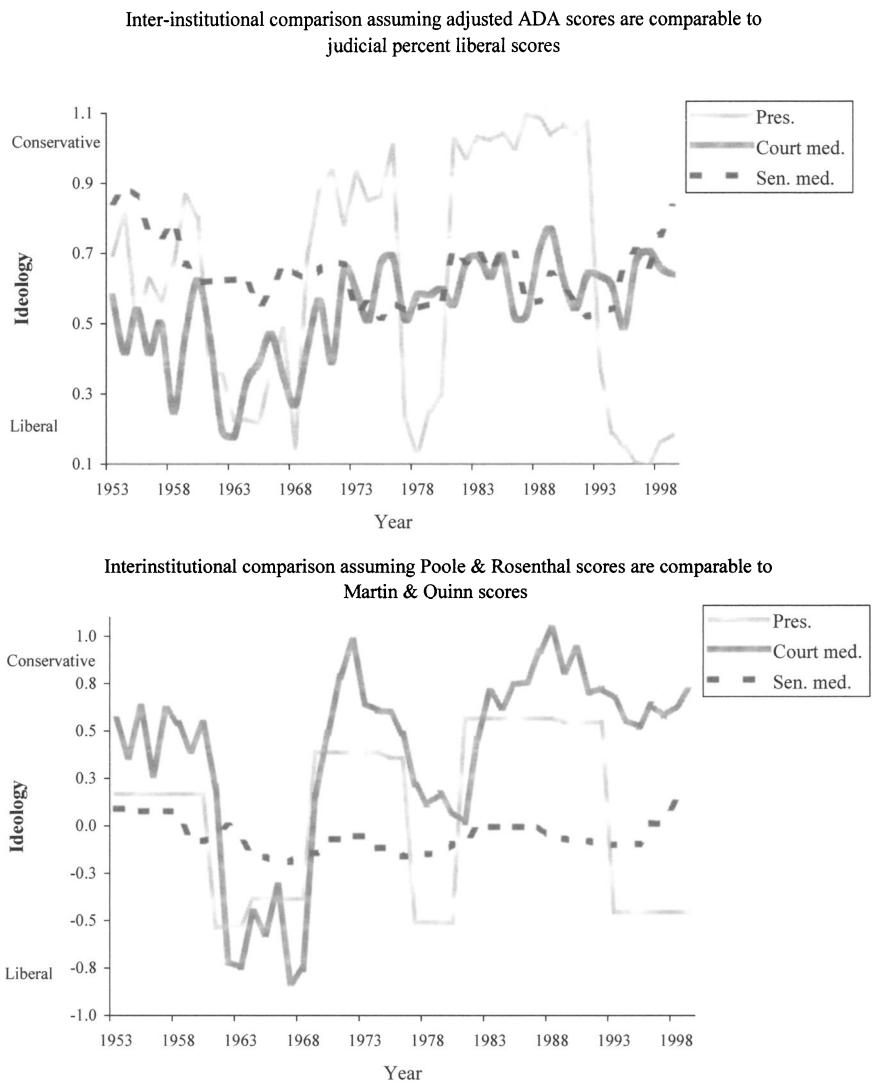


FIGURE 2 Interinstitutional Comparisons Assuming Direct Comparability



estimated preferences of the Court median, the Senate median, and the president for these two approaches over time.²

Even casual observation suggests stark differences between the two approaches. For example, in the 1950s, the ADA measure indicates the Court was the most liberal and the Senate was the most conservative. The Poole and Rosenthal/Martin and Quinn (PRMQ) measure, on the other hand, has the opposite, with the Senate the most liberal and the Court the most conservative. There are several other inconsistencies, implying that empirical analysis may differ dramatically depending on which ad hoc approach one uses. It is in precisely this kind of situation where a carefully modeled statistical approach is needed.

Comparing Preferences over Time

Another major challenge in measuring spatial preferences is ensuring that they are comparable over time. Scholars frequently care directly about evolution of preferences or require ideology measures as key independent or control variables in studies that span several decades. Examples include studies of the control of the bureaucracy or of legislative output. The problem is that it is very hard to disentangle preference change from agenda change.

To illustrate this challenge, suppose we wish to compare the conservatism of two courts: one that voted seven to two in favor of a liberal outcome on *Roe v. Wade* (1973) and another that voted five to four in favor of a conservative outcome on *Webster v. Reproductive Health* (1989; allowing Missouri to ban abortions in public facilities, prohibit abortion counseling, and require fetal viability tests in certain circumstances).

Figure 3 presents a hypothetical depiction of preferences of the justices on each case. In the top panel, the seven justices who voted liberally on *Roe* are to the left of the cutpoint and the two who voted conservatively are on the right. The next two panels depict hypothetical preferences of the justices who voted on *Webster*. Again, those who voted liberally are to the left of the cutpoint and those who voted conservatively are to the right. Here, though, we see the problem: do we believe the second panel in which the vote cutpoint is similar to that of *Roe*? Or do we believe the third panel in which the vote cutpoint has shifted to the left? Or the fourth panel in which the cutpoint has shifted to the right? Based on only the vote information, we cannot say. The stakes are high for estimating prefer-

²The ADA and percent liberal measures have been subtracted from one in order to give them the same ideological polarity as the PRMQ measures.

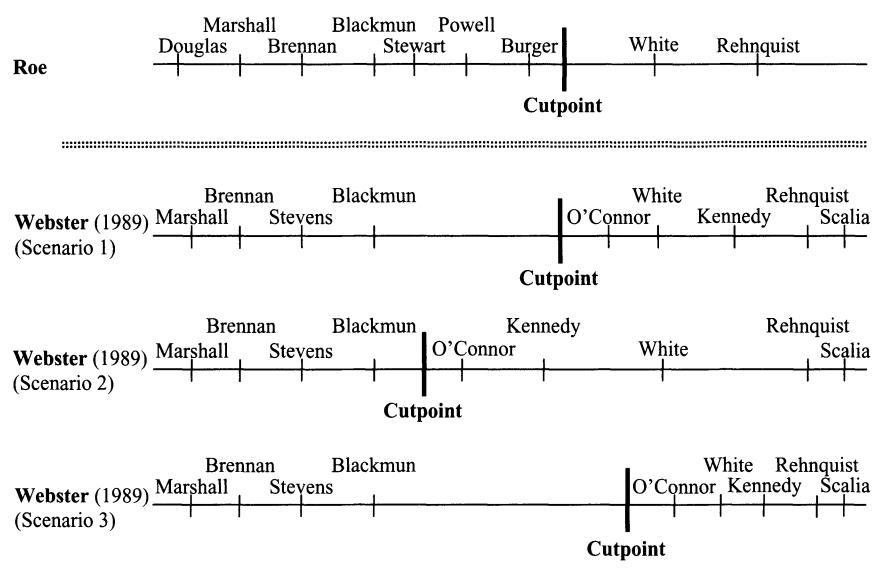
ence change over time: if we believe the second panel, for example, there has been a significant rightward shift on the Court. If we believe the third panel, however, these two cases indicate little change in Court preferences.

The challenge of identifying preference change is not merely theoretical. Note, for example, that in Martin and Quinn's preference estimates, the median ideology of the Supreme Court nearly reaches its postwar conservative peak in 1973 (see Figure 2). If their estimates are correct, the Court that produced *Roe* and struck down the death penalty in *Furman v. Georgia* (1972) was actually one of the most conservative in the modern era and was more conservative than the Court today. While it is possible that the Court was indeed extremely conservative in 1973, such a finding conflicts with conventional wisdom enough to merit careful examination.

The challenge of intertemporal preference estimation extends to Congress. In one of the most influential modern studies of Congress, Poole and Rosenthal (1997) find that congressional voting can be explained across long time periods with a one-dimensional spatial model of preferences; only in limited periods does a second dimension significantly help explain voting. One of the products of this research agenda has been "Common Space Scores" that "place the members of the House and Senate in the same space... [allowing] members to be compared across Chambers and across Congresses" (Poole 2005b; see also Poole 1998). The model is identified by assuming that members of Congress have fixed preferences over time.

Applying these scores across time raises practical and conceptual challenges. The practical challenge is spurred by the caveat that the method "should only be used when there is good reason to believe that there is no fundamental change in the underlying voting space" (Poole 2005a, 139). Given that Poole and Rosenthal (1997, 51, 111) have convincingly established that a "race dimension" exerted an independent effect on congressional voting from roughly 1940 to 1966 and that this dimension was gradually absorbed into the first dimension by the mid-1980s, it is not clear if one can use these scores for studies that span this era. One may be tempted (and many are) to use first-dimension scores, but issues addressed by the Court such as race, busing, school prayer, and internal security loaded so heavily on the second dimension that one cannot help but wonder how relevant the first-dimension preferences are in this context. For example, the Common Space scores of Senators Baucus (D-MT), Evan Bayh (D-IN), Reid (D-NV), and Brooke (R-MA) are more conservative on the first dimension than arch-racist Senator Bilbo (D-MS; author of *Take Your Choice: Separation or Mongrelization*) and the

FIGURE 3 Difficulty in Identifying Preference Change or Cutpoint Change



scores of most moderate Republicans are more conservative than most signers of the segregationist Southern Manifesto of 1956. One may consider using second-dimension scores, but this dimension faded to near irrelevance by the late 1980s, making these scores not useful for that purpose.

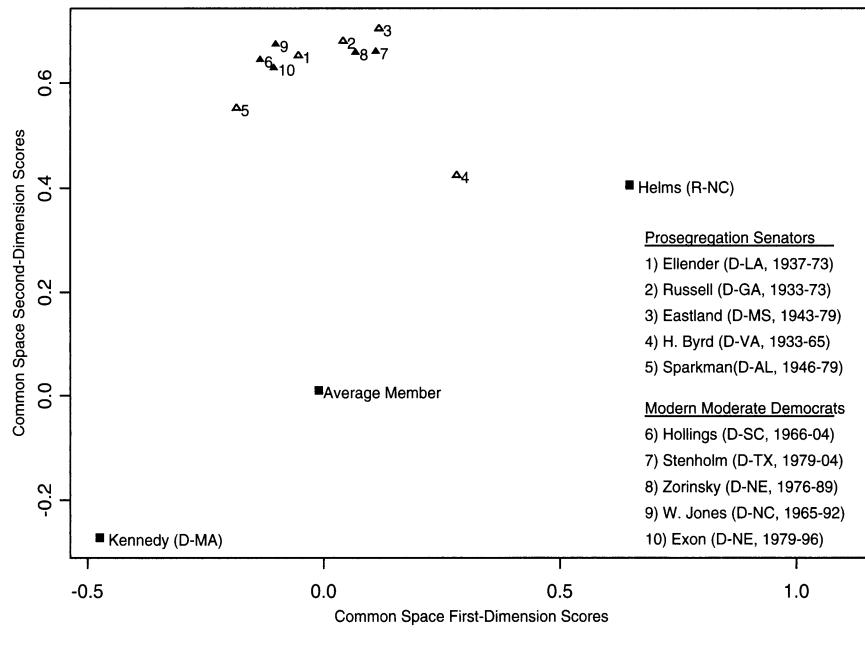
There is also a conceptual issue with using NOMINATE scores and their progeny across time, and it is quite subtle. The scores reflect underlying latent preference dimensions that typically do not change. The mapping of policies onto these dimensions does change, however, and the important changes that have occurred in the mapping of policy to the one- (and sometimes two-) dimensional policy space in the post war era (Poole and Rosenthal 1997, 6, chapter 5) make interpretation quite complex. The scores can produce results that are inconsistent with conventional conceptions of what it means to be liberal or conservative across time. For example, there is no doubt that modern southern Democrats are more liberal than their segregationist predecessors on race-related issues. And yet, as Figure 4 shows, this is not what one sees in Common Space scores. The figure plots Common Space scores of selected members of Congress. The first dimension captures “party loyalty” and explains most votes in Congress. The second dimension—the so-called “race dimension” (Poole and Rosenthal 1997, 46–48)—was important in the 1950s and 1960s, but faded considerably with the Republican realignment in the South in the 1980s. Average preferences are roughly (0, 0). Senators Helms and Kennedy are in-

cluded as reference points, as these two often are treated as anchors on the conservative and liberal extremes on both dimensions.

Southern segregationist senators are virtually indistinguishable from modern moderate Democrats on *both* dimensions. Senator Hollings (D-SC)—who, among other things, voted to override President Bush’s 1988 veto of the Civil Rights Restoration Act and voted for the 1991 Civil Rights Act—is measured to be at least as conservative as Senator Harry Byrd (D-VA), who advocated “massive resistance” to civil rights rulings by the Court at a time when African Americans were routinely denied voting rights and segregated in public. Byrd (not to be confused with Senator Robert Byrd [D-WV]) stated that “we should exclude the Negro population” from voting and that “non-segregation would be most unwise and I will certainly oppose it in every way I can” (Heineman 1996, 318). Hollings is also similar to Senator Eastland (D-MS), who had stated, “I assert that the Negro race is an inferior race . . . I know that the white race is a superior race . . . It is responsible for all the progress on earth” (DeParle 2004, 32, citing *Congressional Record* 79th Congress [June 29, 1945], p. S7000).³ In terms of the underlying latent spatial

³It is also interesting to note that Hollings’s views changed over time. On *Brown v. Board of Education*, Hollings said: “It certainly is the most significant judicial decision of that century . . . There is no question in my mind that was for the good. I had my doubts at that particular time. . . [The plaintiffs] understood the Constitution in America better than this particular Senator” (*Congressional Record* 108th Congress [May 13, 2004], p. S5457).

FIGURE 4 Common Space Scores of Selected Members of Congress



framework identified by Poole and Rosenthal, these legislators may be similar, but given the changing nature of the mapping of policy to this framework, it is clear that there are politically meaningful differences that are not tapped by such a measure.

The point of this example is to encourage scholars to reflect carefully on if and how the preference measures they use are consistent with the political concepts they are trying to measure. In many cases it will not make sense to use preference measures that imply that the modern southern Democrats are the same as their segregationist predecessors. For example, if one wants to know whether the enfranchisement of African Americans in the South changed the political preferences of elected officials, one would want measures that distinguish Eastland from Hollings. Or, if one wants to assess whether the Supreme Court has become more liberal over time, one would want to distinguish a justice who acts like Eastland from one who acts like Hollings.

This discussion highlights two important points about preference estimation across time. First, we can make a strong theoretical case for why it is difficult to pin down preference change over time. Preference estimation based on votes alone is not enough to determine whether the agenda changed or preferences changed. Second, we can make a strong practical case for taking the theoretical issues seriously. Widely used measures either cannot be applied to some important research questions

or produce results that conflict with intuition enough to merit additional investigation.

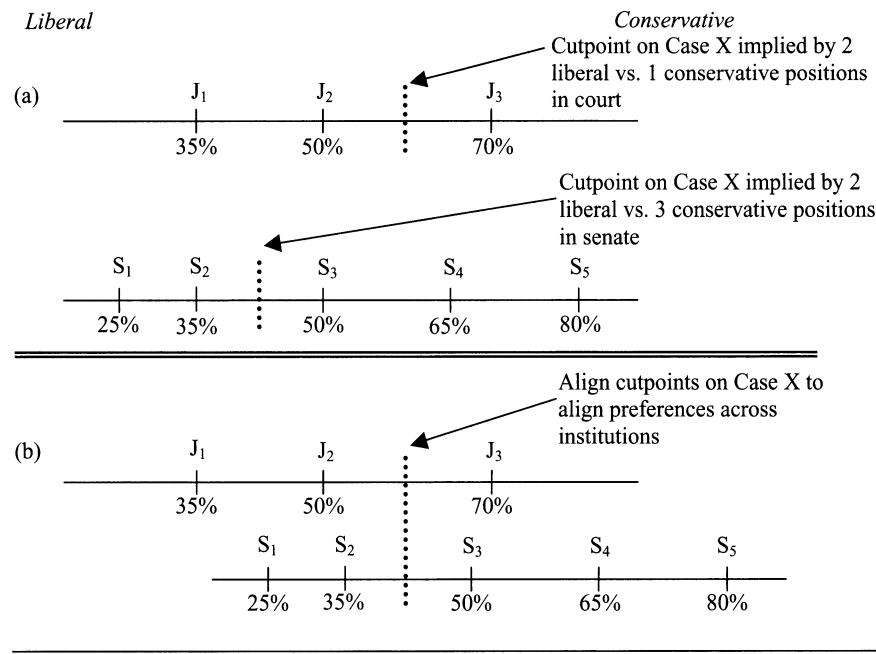
Generating Comparable Preferences

Using “Bridge” Observations and Vote Information to Identify Preferences

This article achieves interinstitutional and intertemporal comparability by making use of two kinds of external information that do not typically enter into voting analyses. The first is the use of “bridge” observations of actors taking positions on issues before another institution (Bailey and Chang 2001). These bridge observations provide fixed references against which the preferences of actors across institutional boundaries can be judged. The second is use of intertemporal bridges including information about the relationship of vote cutpoints across time and position taking by individuals on earlier votes in Congress and the Court.

To see conceptually how interinstitutional preferences can be identified with bridge observations, suppose we are interested in comparing preferences of a three-person court (with justices J_1 , J_2 , and J_3) to a five-person senate (with senators S_1 , S_2 , S_3 , S_4 , and S_5). These individuals are aligned from liberal to conservative in each institutional context in Figure 5a. I include hypothetical percent conservative scores to illustrate again the

FIGURE 5 Identifying Preferences in an Interinstitutional Context



weakness of assuming direct comparability of such scores. As discussed earlier, we cannot calibrate preferences across the two contexts based only on votes within the respective contexts. However, if we observe the position of the justices and senators on "Case X," we have information that is very helpful. In the example, two justices were liberal and one was conservative on Case X while two senators were liberal and three were conservative on the same case. Using the cutpoint of Case X as a fixed reference, we can align the preferences across the two institutions as in Figure 5b. In essence, the case serves the same function as the anchoring vignette that King et al. (2004) use to identify cross-cultural differences in self-perceived health. Using this basic insight, the statistical model below incorporates such information in a large-scale fully specified dichotomous choice statistical model.

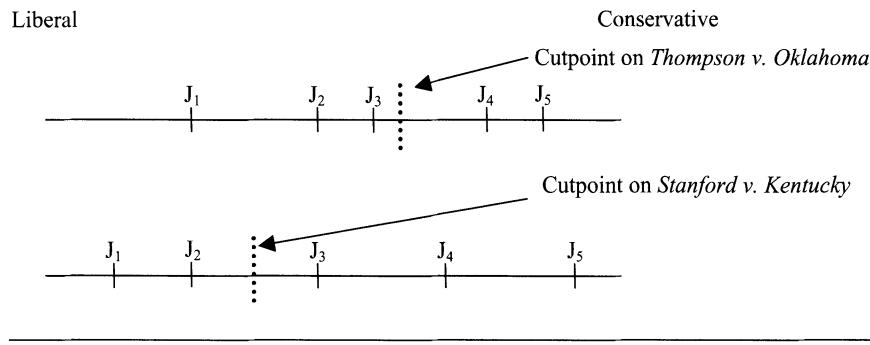
There are two possible approaches to dealing with intertemporal preference comparability. One is simply to focus on a short enough time period that it is safe to assume preferences are fixed. This solves the problem of identifying cutpoints relative to one another and is what is typically done in within-year preference estimation. The other approach is to find fixed reference points that allow preferences to be estimated even when preferences change over time. This is the approach pursued here, and it follows a similar reasoning as for the interinstitutional bridges. To see the logic, first suppose that instead of having two separate institutions, we have the same institution at two separate points in time. There may be some overlap

of membership, but if we allow preferences to change over time, we will not be able to align preferences across institutions without additional information or assumptions. One very useful source of information is the existence of cases (such as "Case X") on which individuals at both points in time took positions. This produces comparability just as in Figure 5. For example, when Justice Thomas wrote in *Planned Parenthood v. Casey* (1992) that *Roe* was "wrongly decided," he provided an indication of his preferences in 1992 relative to *Roe*, a case decided well before he came to the court by justices with whom he did not generally overlap.⁴ Later I describe the collection and coding of such data in greater detail.

Second, I also use information about the relative position of vote cutpoints. Figure 6 illustrates the relative position of vote cutpoints for *Thompson v. Oklahoma* (1988) and *Stanford v. Kentucky* (1989). In *Stanford*, the Court assessed whether execution of people between 16 and 18 years old was permissible; in *Thompson*, the Court assessed whether execution of people under 16 was permissible. Allowing execution of minors under 16 logically implies execution of individuals over 16 is acceptable. This

⁴Note that I am measuring revealed preferences, preferences that may be affected by more than the justices' personal ideological preferences. For example, a justice may be affected by *stare decisis*, by public opinion, by strategic considerations with regard to Congress, and so forth. The estimation infrastructure presented here provides a framework for creating a full structural decision-making model that tests directly for the effect of such factors.

FIGURE 6 Identifying Relative Cutpoint Locations



means that we can infer from the substance of the cases that a justice who was conservative on the *Thompson* case would be conservative on the *Stanford* case which in turn implies that the cutpoint on *Thompson* is the right of the cutpoint for *Stanford*.

Incorporating information about vote characteristics has the additional salutary effect of increasing information about case parameters. As Londregan (1999) emphasized, cutpoint estimates for institutions with a small number of actors will be poorly estimated. The best way to mitigate the problem is to add “votes” whenever possible and to incorporate other sources of information about vote parameters (see also Clinton and Meiowitz 2001).

Statistical Model

The model builds on the canonical formulation of latent preferences in the ideal point estimation literature (see, e.g., Bailey 2001; Clinton, Jackman, and Rivers 2004). The online appendix provides more details. A standard random utility model simplifies to the following formulation of the probability individual i votes in a conservative direction at time t on vote v :

$$\text{Prob}(y_{itv} = 1) = \Phi(\alpha_v(\theta_{it} - \kappa_v)) \quad (1)$$

where Φ is the standard normal distribution function, α_v is the vote “discrimination parameter” (described in the appendix), θ_{it} is the ideal point of individual i at time t , and κ_v is the vote cutpoint. The higher the value of the discrimination parameter, the more a vote distinguishes well between individuals with ideal points above and below the cutpoint. The cutpoint is the midway point between the spatial location of the yea and nay alternatives. The errors in the underlying random utility model are assumed to be normally distributed with a mean of zero and uncorrelated with the θ , α , and κ parameters. Assum-

ing independence across individuals and votes, the joint posterior probability of the observed data is

$$g(\theta, \alpha, \kappa | Y) = L(\theta, \alpha, \kappa | Y)g(\theta, \alpha, \kappa) \quad (2)$$

where

$$L(\theta, \alpha, \kappa | Y) = \prod_{i=1}^N \prod_{v=1}^V \Phi(\alpha_v(\theta_{it} - \kappa_v))^{\gamma_{iv}} \\ \times (1 - \Phi(\alpha_v(\theta_{it} - \kappa_v)))^{1 - \gamma_{iv}} \quad (3)$$

and $g(\theta, \alpha, \kappa)$ is the prior distribution over the parameters to be estimated.

For cases and votes for which I have information on the relative locations of the cutpoints, I constrain the cutpoints to satisfy the inequality constraint implied by the information. This is implemented in the Bayesian sampling process (discussed below) via rejection sampling. For cases and votes which are identical across voting bodies (mostly votes on conference legislation taken in the House and Senate), I constrain the cutpoints to be the same by relabeling the votes with a common label.

I allow the ideal points of individuals to vary over time in order to account for the ideological evolution of justices and long-serving senators and representatives. For justices, there is a broad consensus that at least some individuals exhibited substantial preference evolution over the course of their service (see, e.g., Bailey and Chang 2001; Epstein et al. 1998; Martin and Quinn 2002); for members of Congress, this is more debatable, as Poole and Rosenthal (1997) find little preference change. As we shall see, the results here provide evidence of substantial preference evolution of members of Congress (which is consistent with the anecdotal evidence on Senator Hollings presented above).

For long-serving individuals (individuals who served more than 20 years), I assume that the ideology of individual i at time t is

$$\theta_{it} = \gamma_{0i} + \gamma_{1i} X_{it} + \gamma_{2i} X_{it}^2 + \gamma_{3i} X_{it}^3 + \gamma_{4i} X_{it}^4 \quad (4)$$

where the γ parameters are preference parameters to be estimated, and X_{it} is the years the individual has been in office.⁵ For justices and members of Congress who serve between 15 and 20 years, I estimate their preferences with a quadratic equation (meaning I estimate γ_{0i} , γ_{1i} , and γ_{2i}). For justices and members of Congress who serve between seven and 14 years, I estimate their preferences with a linear equation (meaning I estimate γ_{0i} and γ_{1i}). I assume members of Congress who served less than six years and all presidents but Reagan and Clinton have fixed preferences (meaning I estimate only γ_{0i}). For Presidents Reagan and Clinton, I estimate γ_{0i} , γ_{1i} , and γ_{2i} .

This functional form represents a trade-off between flexibility and computation. The fourth order polynomial can represent highly nonlinear patterns of ideal point evolution; it requires five parameters. In contrast, Martin and Quinn estimate preferences for each term, with a Bayesian prior that preferences are similar to those in the previous term. This provides more flexibility, but increases complexity and computational time. In addition, the patterns of preference evolution that they do find with their method seem generally explicable in terms of a quadratic equation, let alone a fourth order polynomial specification.

The model is estimated with Markov Chain Monte Carlo methods. While Bailey and Chang (2001) used an EM algorithm, the sampling Bayes approach is more amendable to imposing cutpoint constraints and readily estimates standard errors (Clinton, Jackman, and Rivers 2004; see Lewis and Poole 2004 on standard errors for EM models). The strategy is to repeatedly sample from the posterior density of the parameter distribution. The mode, mean, and standard error of the distribution of the parameters can then easily be derived from the mode, mean, and standard error of the sampled observations. The appendix and references provide additional explanation, including a discussion of identification, priors, and convergence.

Data

Identification of preferences across institutions and time relies on “bridge” observations and case-specific information. In Bailey and Chang (2001), amicus filings by the Solicitors General and presidential positions on Senate roll calls served as the sole source of bridging institutions. A limitation of that approach is that there are only 298

⁵The years of service data are expressed in terms of deviations from mean years of service for computational convenience.

bridge observations from only nine individuals (presidents from Eisenhower to Clinton).⁶ In this article, I vastly expand the number of bridge observations by using the additional data sources described below. This facilitates estimation of interinstitutionally comparable preferences from Eisenhower to George W. Bush. All told, the number of bridge observations (11,966) is more than 40 times greater than in previous work; 939 of these are judicial comments on previous cases.

In addition, there is data on the relative location of 746 case/vote cutpoints. Information about a single cutpoint can contain the equivalent of many bridge observations. For example, a vote in the Senate that is identical to a court case (as with the above-mentioned vote on *Roe*) has the same information as 100 bridge observations. Votes and cases that are not identical but for which we can constrain the cutpoint to be one side or the other of a court case cutpoint have considerable information as well. For example, a case in which 65 senators vote conservatively on a roll call that has a cutpoint to the right of a given Supreme Court case provides information that the 65 senators would have voted conservatively on the Supreme Court case (even as we cannot attribute liberal Senate votes to being liberal on the Supreme Court case).⁷

For both the Congress and the Supreme Court, I look only at votes and cases related to the major topics addressed by the courts in the postwar area, including crime, civil rights, free speech, religion, abortion, and privacy. In recent years, positions on these issues have correlated highly with positions on economic and other matters (see, e.g., Martin and Quinn 2001). These methods could be extended to federalism or economic issues, although a paucity of bridging data may be a problem.

Presidents

Presidents’ positions on Supreme Court cases are drawn from two sources. One is a set of all statements by

⁶The approach here improves on Bailey and Chang (2001) in four significant respects: it identifies preference change across time, it vastly increases the number of bridge observations, it includes the House of Representatives, and it uses Markov chain simulation methods.

⁷The numbers reported here exclude repeat observations (that occur, for example, when a member of Congress files an amicus brief and takes a position on the same court case within five years). Based on 91 identical votes in Congress (largely conference reports), we have the equivalent of more than 34,000 bridge observations of members of the House taking positions on roll calls in the Senate. Another 47 congressional roll calls are identical to others in the same chamber in another year or to a Supreme Court case. Information about relative cutpoint of 314 congressional votes and 294 court cases yields the equivalent of more than 50,000 bridge observations linking across institutions or time.

presidents on Supreme Court cases. These data are available from presidential Public Papers, presidential library web sites, and other sources. For example, George H. W. Bush on June 24, 1992, stated he was “very disappointed” by the Supreme Court’s ruling in *Lee v. Weisman* that religious figures could not deliver invocations at public schools’ graduation ceremonies. The comments reflect the preference of the actor at the time the statement is made.

The second source is a database of Solicitors General amicus filings. Given the influence of the president in the selection of the Solicitor General and the power of the president to overrule or remove him or her, these can be treated as administration positions. Bailey and Chang (2001) elaborate on the data and the congruence between presidential and Solicitor General positions.

Presidential positions on Senate and House votes are based on congressional quarterly data provided by Keith Poole. McCarty and Poole (1995) and Poole (1998) led the way in estimating presidential preferences simultaneously with members of Congress by including their positions on roll-call votes.

Senators and Representatives

Congressional positions on Supreme Court cases are based on four sources. First, I have gathered statements in support of or in opposition to specific decisions by the Supreme Court. Most observations are from an extensive search of the *Congressional Record*. For example, Senator Paul Douglas (D-IL) characterized *Brown* as a “correct and noble decision” (*Congressional Record* 110: 20910) while almost 100 southern Democrats signed the Southern Manifesto stating the decision was “a clear abuse of judicial power” (*Congressional Record* 102: 4459). Second, I have data from amicus filings by members of congress. Third, I searched for sponsors of legislation that explicitly or implicitly took a position on Supreme Court cases. For example, in 1982 Senator Nickles (R-OK) introduced S1741, a bill “to provide that human life shall be deemed to exist from conception.” Fourth, I gathered data based on roll-call votes that explicitly took a position on specific Supreme Court cases. For the reasons discussed in the appendix, these are relatively rare. The best example is an October 1999 amendment stating *Roe* was “an appropriate decision and secures an important constitutional right.”

In order to have an adequate number of observations for each member of Congress, the collection of roll-call votes discussed above has been supplemented with votes on which the president did not take a position.

Justices

Data on Supreme Court voting from 1951 to 2002 is available from Spaeth (2002). I include all cases with bridge or linkage information and “important” cases.⁸ Randomly selected cases were included for years with few cases that fit the above requirements in order to ensure an adequate number of observations for every year.

The observations of justices taking positions on cases from previous courts were taken from written opinions. Opinions were identified by (1) searching for phrases such as “wrongly decided” or “correctly decided,” (2) examining every case that overturned precedent, and (3) working through issue-specific discussions in legal reference books. An example is Justice Thomas’s position on *Roe* discussed above. When a case clearly and directly overturned a precedent, a vote in favor of overturning the precedent was also coded as a vote against the original decision. For example, in *Wolf v. Colorado* (1949), the Court allowed admission of evidence obtained by an unreasonable search and seizure in a prosecution in a state court. In *Mapp v. Ohio* (1961), the Court overturned this holding by extending the 14th Amendment to state courts. A vote in favor of *Mapp* was coded as a vote against *Wolf*. On some occasions a justice changed his or her position on a case; such observations are useful in gauging the ideological evolution of individual justices.

Vote Parameters

Observations relating to the relative position of case cut-points were drawn from analysis of cases based on issue-specific legal reference materials. For example, the abortion issue provides several cases for which cutpoints have clear relations. The Court decided in *Roe* that there is a constitutional right to abortion in the first two trimesters of pregnancy. In many of the abortion cases which followed (including, for example, *Webster*) the Court was asked to either rule on legislation that regulated, but did not outlaw abortion. If one thought that states could outlaw abortion as did conservatives on *Roe*, then logically, states must be able to regulate it in a manner that stops short of outlawing it, as was true in all these cases. Hence, someone to the right of *Roe* must be to the right on these cases that do less than outlaw abortion, implying the cut-points of these cases must be to the left of *Roe*.

Data Validity

The use of bridge observations across institutions and time raises issues that do not arise in conventional analyses

⁸The online appendix provides details on this coding.

of voting within single institutions. A first question is whether nonvoting may be less consequential than votes and thus provide less valid measures of preferences. There are three reasons to believe this is not a fundamental problem. First, these observations tend to reflect commitment to the positions stated. They are, in one way or another, based on official acts (ranging from amicus filings to bill cosponsorship to statements on the floor of Congress). In addition, the member publicly stated his or her position more than one time for more than 20% of the observations (although I do not use or count repeat observations in the analysis unless they are separated by more than five years). Second, public position taking on Supreme Court cases has clear electoral and political consequences. No contemporary politician would treat his or her position on *Roe* as a trivial act, nor would politicians in the 1950s and 1960s treat their public pronouncements on *Brown* or busing cases as inconsequential. Even comments on less prominent cases can be politically relevant, as happened when Senator Santorum (R-PA) created a controversy with remarks on *Texas v. Lawrence* (2003; Loughlin 2003). Indeed, it is the importance of such statements that have made the use of nonvoting data for the purpose of preference measurement routine. For example, presidential NOMINATE and ADA scores are partially based on presidential position taking. Likewise, Ansolabehere, Snyder, and Stewart (2001) use comment data from candidate surveys to identify legislators' preferences. Third, we must not overstate the consequences of most roll-call votes. Because most roll-call votes are decided by more than one vote, legislators have considerable leeway to vote based on position taking rather than substance. In addition, Poole and Rosenthal provide evidence that "roll call voting is concerned with position-taking rather than policy-making" (1997, 69).

A second question is whether nonvote data are fundamentally different because of their more optional nature. Members may be forced to take positions via roll-call votes, but generally may avoid making a public statement about Supreme Court cases. This raises two concerns. First, it is reasonable to expect that a nonrandom selection of legislators take public positions on Supreme Court cases. This, however, will not bias the estimation because for the results to be contaminated by selection bias, the error in the selection equation must be correlated with the error in the preference equation (Greene 2000, 976). Selection bias is not induced simply if relatively extreme members are more likely to take positions. Second, it is possible that the preferences of individuals are somehow different when they are acting optionally rather than being virtually forced to reveal their preferences on roll-call votes (assuming abstention is costly, as it appears to be

given widespread use of low voting rates as campaign ammunition by challengers). While it would appear reasonable to assume that the public persona politicians would like to exhibit would be similar whether acting on roll calls or other public acts, we cannot know for certain that this is the case. A diagnostic is provided by assessing whether there are differences between preferences expressed via roll-call votes and preferences expressed via nonvote public positions by generating one set of preference estimates based only on Senate roll-call votes and another set based on court data and voluntary Senate data such as public statements and amicus filings. Clear differences in preference ordering across these two estimation procedures would indicate that senatorial behavior on voluntary observations was markedly different from senatorial behavior on roll-call observations. This does not appear to be the case, as the correlation between the two preference estimates is 0.89.

Preference Estimates

Interinstitutional Preference Comparisons

Figure 7 plots the estimated preferences of the Senate median, the president, and the Court median. In the fifties, the Court median hovered between the president and the Senate. In the 1960s, the Court moves firmly in the liberal direction, especially after Goldberg replaced Frankfurter in 1962. After a big rightward shift during the early Burger Court, the Court median was fairly stable in the 1970s and trended conservative in the 1980s. In the 1990s, the Court median was briefly more conservative than the president and congressional medians.

One question in the literature is the extent to which the elected branches of government constrain the Supreme Court (see, e.g., Ferejohn and Weingast 1992; Segal 1997). While a full analysis is beyond the scope of this article, Figure 7 shows that the median of the Supreme Court has generally been within the pareto set defined by the president, House median, and Senate median. The figure does not answer the extent to which this has been driven by the appointment process or by politically imposed discipline or perhaps another mechanism, but it does indicate that the institutional environment of the Court (in the postwar era, at least) seems to keep it from moving outside of the bounds defined by the more explicitly political branches. The exceptions were rather short-lived or minor.

Cross-Temporal Preference Comparisons

We can also assess the estimates to ascertain if the apparent anomalies in some of the widely used preference estimates

FIGURE 7 Court, Senate, and House Medians and Presidents' Preferences



recur here. First, consider the preferences of the Supreme Court median. As discussed earlier, Martin and Quinn's estimates imply that the Court median moved decisively more conservative in the early 1970s, reaching almost its conservative peak in 1972 (see Figure 2). According to my estimates, the Court moved consistently to the right in the late 1960s and 1980s, but was more liberal in the early 1970s than it is today (see Figure 7).

Second, consider the preferences of southern Democrats over time. As discussed earlier, Common Space preference estimates—which are designed to reflect underlying latent ideological dimensions—provide very similar scores for modern southern Democrats and their segregationist predecessors. This result disappears with the data and approach used here. Figure 8 depicts the preferences over time of two southern segregationist senators (Eastland and Ellender) and two moderate modern Democrats (Hollings and Exon). (Bayesian 90% confidence intervals are indicated with light-colored lines around the estimates.) There is a clear difference between the modern senators and the segregationists and indications that at least some members of Congress changed preferences over time.

How can we explain these results? The fact that the estimates are based on roll calls and cases on the major issues addressed by the Supreme Court in the postwar era plays an important role. To assess the contribution of this element of the approach I estimated Nominate scores based only on the roll calls in the sample.⁹ In

these estimates, the modern and segregationist southern Democrats are distinguishable; for example, Eastland and Ellender each have estimated ideal points of 0.23 while Exon and Hollings have estimated ideal points of 0.04 and 0.06, respectively (with the Nominate-produced conditional standard errors in the range of 0.01 to 0.03). This implies that the similarity of southern segregationist and modern moderate Democrats in both dimensions of Common Space scores was due to shifting mapping of issues onto the underlying latent space, an issue that is less relevant when limiting the analysis to a more focused set of votes.

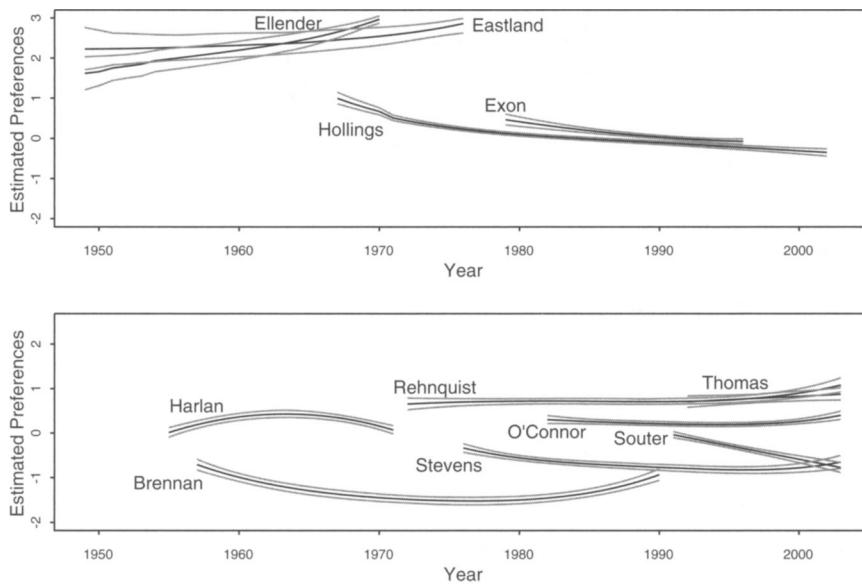
But sample selection is far from the whole story. The Nominate scores from the restricted sample produce results that imply, for example, that the cutpoint for the 1991 Civil Rights Act was to the right of the 1964 Civil Rights Act. The restricted sample Nominate measures also imply, for example, that the Senate median was more or less constant from 1961 to 1980 and that the Senate median was not affected by the 1958 elections. The methods and data described in this article are specifically designed to facilitate careful analysis of whether we believe such results and, as it happens, produce quite different results (note the evolution of Senate preferences in Figure 7).

Figure 8 displays the estimated ideal points of selected Supreme Court justices. Liberals are toward the bottom and conservatives are toward the top. These results accord with intuition, with Rehnquist and Thomas at the conservative end of the spectrum, O'Connor toward the middle,

⁹These scores were estimated with W-Nominate from Poole's Voteview web site and using only congressional and presidential data. I fixed Sen. Edward Kennedy (D-MA) as the "left" anchor and Rep.

Charles Stenholm (D-TX) as the "up" anchor. Results differed with different dimensionality or anchoring assumptions, but the general pattern discussed here was stable.

FIGURE 8 Estimated Preferences for Selected Senators and Justices



and Stevens and Souter at the liberal end. Souter began his career on the Supreme Court very close to O'Connor, but moved left over time. Harlan's estimated ideal points were generally between those estimated for O'Connor and Souter, while Brennan's were consistently to the left of Stevens and the rest.

Applications

To demonstrate the utility of the approach, I compare analyses of Senate voting on Supreme Court nominees using this measure and an alternative measure. This issue is widely studied because confirmation voting is one of the most direct ways in which the public can affect the Supreme Court. The seminal paper in this literature is Cameron, Cover, and Segal (1990). Epstein et al. (2006; hereafter ELSW) "modernize, update and backdate" the analysis and find, among other things, that the effect of ideology has indeed increased since the Bork nomination. As one of the central elements of their analysis, they rescale Common Space scores into Supreme Court policy space.

To assess the utility of the cross time and institutions measure developed here (hereafter the "XTI measure"), I replicate the ELSW analysis on the subset of data for which both measures are available. I ask if using my XTI measure (a) better fits the data and (b) changes substantive conclusions. The dependent variable is recorded votes on

confirmation by senators from 1953 through 1994. The independent variables are a measure of lack of qualifications, an indicator if the senator is in the president's party and a measure of presidential strength; see ELSW for details on these variables. To test model fit of the competing measures, I use two nonnested hypotheses tests. One test is the Schwarz Criterion approximation of the log of the Bayes Factor for the two models; it is reported at the bottom of Table 1 (see Clarke 2001 and the appendix for details on nonnested hypothesis testing and additional results). Following convention in this literature, a Schwarz Criterion of greater than 10 indicates very strong evidence in favor of model 1 (using the XTI measure) versus model 2 (using the ELSW measure). The table also reports p-values from a Vuong test of nonnested hypotheses. The entries are the probability of observing a likelihood ratio as high in favor of the XTI measure under the null hypothesis that the models are equivalent. Both measures strongly favor the XTI measure.

Given that the XTI measures fit the data better, I next assess whether they lead to different substantive conclusions. A long and raging debate about the propriety of using ideology in the confirmation process has led to an empirical debate about whether the role of ideology has changed over time. Table 1 reports a specification for all confirmation votes in the sample and for only votes before 1970. For all years, the implied effects of the variables differ nontrivially: holding other variables at their mean values and going from the minimum ideological distance

TABLE 1 Analysis of Senate Votes on Supreme Court Nominations Using Competing Measures

	All Recorded Votes		Pre-1970 Recorded Votes	
	XTI Measure	ELSW Measure	XTI Measure	ELSW Measure
Ideological distance	-0.98 (13.58)	-2.18 (10.13)	-1.02 (8.65)	-0.12 (0.39)
Lack of qualifications	-4.01 (14.16)	-3.40 (13.86)	-5.34 (7.86)	-4.19 (7.57)
Same party	1.09 (9.00)	0.77 (6.93)	0.53 (2.68)	0.64 (3.93)
Strong president	1.08 (8.11)	0.83 (7.29)	0.79 (2.95)	0.02 (0.08)
Constant	2.44 (18.07)	1.83 (17.13)	2.84 (11.73)	1.41 (9.45)
N	1669	1669	504	504
Log-likelihood	-423.3	-485.1	-141.7	-192.6
Change in probability of vote to confirm				
Increasing ideological distance from mean by 1 standard deviation	-10.3%	-7.7%	-14.9%	-0.6%
Increasing ideological distance from minimum to maximum value	-92.1%	-75.5%	-95.9%	-3.8%
Schwarz Criterion Test	61.8		50.9	
Vuong Test	0.0001		0.000000002	

Note: Entries are from probit estimation with t-statistics in parentheses. See text for details on the Schwarz Criterion and Vuong tests.

between senator and nominee to the maximum distance changes the simulated probability of a vote to confirm by 91.7% with the XTI specification and by 75.5% with the ELSW. The specifications differ dramatically for the pre-1970 period. The effect of ideology is statistically insignificant when using the ELSW measure, while the effect is virtually unchanged using my XTI measure. The substantive implication is that use of the XTI measure reveals far more ideological voting, especially in the earlier years in the sample.

There are numerous other research agendas in which these estimates can be useful. One of the biggest debates in the study of judicial politics is whether Congress constrains the Supreme Court. Harvey and Friedman (2006) attack this question by following all congressional laws enacted between 1987 and 2000 and assessing whether the probability the Court will strike a law is a function of the preferences of the Court relative to Congress. Central to this task is generation of preference measures that allow direct comparisons of the justices and members of Congress. Using measures based on an early version of the approach described here, they present evidence that the probability the Court strikes down congressional legislation is strongly related to Court-congressional ideological differences.

Another important topic in the study of judicial politics is the question of if and how the Solicitor General influences the Court. Using a customized version of earlier XTI measures, Bailey, Kamoie, and Maltzman (2005) show that the Solicitor General is more influential on those justices who are ideologically closer to the president, challenging the perception that the Court treats the Solicitor General as an impartial “Tenth Justice.” Other research in which these measures can be used includes assessing the role of ideology, party, qualifications, and other factors in the appointment and confirmation of Supreme Court justices; assessing the extent to which the Court defers—if at all—to Congress, the president, and public opinion; and assessing if and how Congress responds to judicial decisions.

Conclusion

Accurate measurement is essential for quantitative theory testing. If we cannot characterize political preferences with confidence, we cannot test what causes them or how they affect outcomes. In the case of research crossing institutional boundaries and spanning time, it has been particularly challenging to generate

comparable preference estimates, a fact that has left several research agendas waiting on development of valid preference measures that are comparable over time and across institutions.

This article makes two contributions in this area. The first is to critique existing approaches. The first part of the article highlights theoretical challenges and shows how these issues matter in the context of active research. Ad hoc and equally plausible approaches to interinstitutional comparisons yield starkly different conclusions about the relative policy preferences of the president and congressional medians. Widely used preference estimates imply temporal preference relations that are hard to believe. If nothing else, I hope this part of the article encourages scholars to be more critically reflective about preference measures they use.

The second contribution is to provide a method and data for producing preference estimates that are comparable across time and institutions. I use two types of data: "bridge" observations of actors taking positions on cases or votes in another institution or in a previous time period and "linkage" information about the relative position of vote cutpoints over time and across institutions. I incorporate this data into a spatial ideal point model estimated via Bayesian Markov chain simulation methods. The immediate payoff is that the method produces preference estimates that do not present the anomalies found with other widely used measures. The estimates also better explain important intertemporal, interinstitutional behavior such as Senate voting on Supreme Court nominations.

This approach can be useful for a wide array of cross-unit inquiry. Many research agendas require comparisons that span eras or political institutions, whether it is comparing preferences of European member states or investigating preference change in the mass public compared to Congress or presidents. A key element for the success of these efforts is identifying a basis for comparison. One approach has been to use individuals who have served in multiple units. However, this requires a heroic assumption that preferences do not change as an individual moves from institution to institution and, regardless, this happens only rarely. Instead, this article focuses on a second approach, which is to use issues addressed across time and by multiple institutions. This means making use of the two paths to identification used in this article: finding observations of actors in different institutions taking positions on the same issues and coding the relative position of votes across institutional contexts. With these tools, it is hoped, scholars can continue making progress in understanding the dynamics and interactions across and among multiple political institutions over time.

References

- Anscombe, Stephen, James Snyder Jr., and Charles Stewart III. 2001. "Candidate Positioning in U.S. House Elections." *American Journal of Political Science* 45(January): 136–59.
- Bailey, Michael. A. 2001. "Ideal Point Estimation with a Small Number of Votes: A Random Effects Approach." *Political Analysis* 9(3): 192–210.
- Bailey, Michael A., and Kelly Chang. 2001. "Comparing Presidents, Senators, and Justices: Interinstitutional Preference Estimation." *Journal of Law, Economics and Organization* 17(October): 477–506.
- Bailey, Michael A., Brian Kamoie, and Forrest Maltzman. 2005. "Signals from the Tenth Justice: The Political Role of the Solicitor General in Supreme Court Decision-making." *American Journal of Political Science* 49(January): 72–85.
- Cameron, Charles, Albert Cover, and Jeff Segal. 1990. "Senate Voting on Supreme Court Nominees: A Neo-Institutional Model." *American Political Science Review* 84(June): 525–34.
- Clarke, Kevin. 2001. "Testing Nonnested Models of International Relations: Reevaluating Realism." *American Journal of Political Science* 45(July): 724–44.
- Clinton, Josh, Simon Jackman, and Doug Rivers. 2004. "The Statistical Analysis of Legislative Roll Call Data." *American Political Science Review* 98(May): 355–70.
- Clinton, Josh, and Adam Meirowitz. 2001. "Agenda Constrained Legislator Ideal Points and the Spatial Voting Model." *Political Analysis* 9(Summer): 242–59.
- DeParle, Jason. 2004. *American Dream: Three Women, Ten Kids, and a Nation's Drive to End Welfare*. New York: Viking.
- Epstein, Lee, Valerie Hoekstra, Jeffrey Segal, and Harold Spaeth. 1998. "Do Political Preferences Change? A Longitudinal Study of U.S. Supreme Court Justices." *Journal of Politics* 60(August): 801–18.
- Epstein, Lee, Rene Lindstadt, Jeffrey Segal, and Chad Westerland. 2006. "The Changing Dynamics of Senate Voting on Supreme Court Nominees." *Journal of Politics* 68(May). Forthcoming.
- Ferejohn, John, and Barry Weingast. 1992. "A Positive Theory of Statutory Interpretation." *International Review of Law and Economics* 12(June): 263–79.
- Greene, William. 2000. *Econometric Analysis*. 3rd ed. New York: Prentice Hall.
- Groseclose, Timothy, Steven Levitt, and James Snyder. 1999. "Comparing Interest Group Scores across Time and Chambers: Adjusted ADA Scores for the U.S. Congress." *American Political Science Review* 93(March): 33–50.
- Harvey, Anna, and Barry Friedman. 2006. "The Limits of Judicial Independence: The Supreme Court's Constitutional Rulings." *Legislative Studies Quarterly* 31(November): 533–62.
- Heinemann, Ronald. 1996. *Harry Byrd of Virginia*. Charlottesville: University of Virginia Press.
- King, Gary, Christopher J. L. Murray, Joshua A. Salomon, and Ajay Tandon. 2004. "Enhancing the Validity and Cross-cultural Comparability of Survey Research." *American Political Science Review* 98(February): 191–207.

- Lewis, Jeff, and Keith Poole. 2004. "Measuring Bias and Uncertainty in Ideal Point Estimates via the Parametric Bootstrap." *Political Analysis* 12(Spring): 105–27.
- Londregan, John. 1999. "Estimating Legislators' Preferred Points." *Political Analysis* 8(1): 35–56.
- Loughlin, Sean. 2003. "Santorum under Fire for Comments on Homosexuality." CNN.com/Inside Politics. Accessed at cnn.com/2003/ALLPOLITICS/04/22/santorum.gays/.
- Martin, Andrew, and Kevin Quinn. 2002. "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999." *Political Analysis* 10(Spring): 134–53.
- McCarty, Nolan, and Keith Poole. 1995. "Veto Power and Legislation: An Empirical Analysis of Executive and Legislative Bargaining from 1961 to 1986." *Journal of Law, Economics and Organization* 11(October): 282–312.
- Moraski, Bryon, and Charles Shipan. 1999. "The Politics of Supreme Court Nominations: A Theory of Institutional Constraints and Choices." *American Journal of Political Science* 43(October): 1069–95.
- Poole, Keith. 1998. "Recovering a Basic Space from a Set of Issue Scales." *American Journal of Political Science* 42(July): 954–93.
- Poole, Keith. 2005a. *Spatial Models of Parliamentary Voting*. Cambridge: Cambridge University Press.
- Poole, Keith. 2005b. Description of NOMINATE data. <http://voteview.com/page2a.htm>.
- Poole, Keith, and Howard Rosenthal. 1991. "Patterns of Congressional Voting." *American Journal of Political Science* 35(February): 228–78.
- Poole, Keith, and Howard Rosenthal. 1997. *Congress: A Political-Economic History of Roll Call Voting*. Oxford: Oxford University Press.
- Segal, Jeffrey. 1997. "Separation of Powers Games in the Positive Theory of Congress and Courts." *American Political Science Review* 91(March): 28–44.
- Spaeth, Harold. 2002. United States Supreme Court Judicial Database, 1953–2000 Terms. From www.ssc.msu.edu/~pls/pljp/, updated May 15, 2002.