

# Vote Influence in Group Decision-Making: The Changing Roles of Ideology and Partisanship on the Supreme Court\*

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## Abstract

We consider the voting behavior of Supreme Court Justices, finding evidence of co-dependencies in their votes. Coincident with changes in the party imbalance of the Court over time, sharp discontinuities in these dependencies are evident. Overall, the patterns suggest a tradeoff between co-dependencies around political affiliations and individual ideologies, with more-equal party representation on the Court encouraging greater party-awareness in Justice voting, and less-equal party representation allowing Justices across party lines but with similar ideologies to inform each other's votes.

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# 1 Introduction

Collaborative decision-making often aggregates conflicted positions with the sanctioning of a single outcome or direction. Within many organizations, however, there are both individual ideological positions at play and implicit associations, or vote-sharing relationships that may change the nature of deliberation, the relationships implicated in any deliberations, and indeed the outcome. Corporate Boards, for example, often have both inside directors (e.g., large stakeholders, the Chief Executive Officer, other executives of the organization) and outside directors, with no direct connections to the organization, but with experience that may represent associated interests, who can bring balance to the interests of insiders as they are unlikely to tolerate “insider dealing.” Academic units can even experience conflict when making hiring decisions, as two fundamental positions (e.g., theory versus empirics, macro versus micro) are often in competition for fixed resources—the seeming imbalance of one over the other may well influence the nature of those decisions or the relationships implicated in coming to those decisions.

While a large literature exists in which researchers theoretically examine collaborative decision-making in committees (e.g. see Buchanan and Tullock (1999); Li et al. (2001); Ottaviani and Sørensen (2001); Levy (2007)), empirical applications remain relatively unexplored. In this paper, we consider one such decision-making environment—the Supreme Court of the United States (SCOTUS)—and the nature of decision making as the balance of the court changes. In so doing, we find empirical evidence that the greater is the imbalance in fundamental affiliations, the greater role there is for individual ideology in determining Justice voting behavior, as though the *a priori* closeness of votes based on fundamental positions shuts down on information sharing across those fundamental positions. The Supreme Court provides a unique empirical opportunity, as it offers exogenous changes in affiliation balance that corporate boards would not, for example.

Although Supreme Court decisions are public, as are the final outcomes of most collaborative decision-making bodies, the actual deliberations and voting are quite secretive,

occurring to the exclusion of all but the nine Justices. Being unobservable (both to the public and the econometrician) makes it tempting to ignore these deliberations in the modeling of collaborative decision-making voting behavior. Yet, there is information in patterns of voting—potential co-variation that can be informative about those within-case deliberations.

Moreover, this co-variation is retrievable, through the modeling of the votes of Supreme Court Justices inclusive of what is referred to as a “spatial-lag” parameter—a parameter for each term of the Court that reflects the degree to which the direction of a Justice’s vote on a given case is predictable by the votes of other Justices. In so doing, we are estimating a dependency of sorts, within subsets of defined “spaces” that define potential relationships among the nine Justices.

In Figure 1, we plot the appointing President’s party affiliation for each of the Justices on the Court between 1969 and 2014. In so doing, we rank-order the Justices by a measure of their political ideology, illustrating the relative ideologies of the appointments to the Court over time.<sup>1</sup> We also plot the mean ideology over the same time-series—doing so highlights the overall increase in the Court’s ideological polarization over time, with newly appointed Justices tending to increase the ideological distance between the average Republican- and Democrat- appointees. This figure also makes evident that the separate identification of the roles of party affiliation and Justice ideology is increasingly challenging over time. However, for as long a time series as is estimable (i.e., terms from 1969 through 1990), our analysis will reveal a story that implicates party and ideology differently.<sup>2</sup>

In our analysis, we estimate the extent to which shared party affiliations shape vote dependencies among Justices on the Court.<sup>3</sup> Doing so, we find strong evidence of such dependencies. More striking, even, is that the degree of measurable voting dependency is

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<sup>1</sup> This measure, introduced in Bonica et al. (2017b), is in no part determined by their actions as a SCOTUS Justices.

<sup>2</sup> See Devins and Baum (2018) for additional discussion of the now-perfect alignment of party affiliation and ideology on the Supreme Court. See Cillizza (2017) for similar discussion of the increasing alignment of party affiliation and ideology among the American public.

<sup>3</sup> We use the appointing President’s party as a measure of the political party of the Justice, common in the literature (e.g., see Sunstein et al. (2006)).

systematic with the *a priori* imbalance of potential voting blocks on the Court. That is, the revealed strength of vote dependency within groups of party affiliated Justices decreases abruptly when the party-imbalance of the Court increases from five Republicans and four Democrats (from 1969 to 1970), to six and three (from 1971 to 1974), and again when the Court becomes to seven and two (from 1975 to 1990).

This is consistent with party affiliation playing a smaller role in voting when there is more imbalance in the party affiliation of Justices. For example, in 1969 and 1970, party affiliations would leave any individual Justice as the potential marginal vote, an expectation that could lead Justices to be more aware of their role in determining the aggregate outcome, and their party affiliated Justices' votes. While there need not be measurable dependencies of any kind, coincident with dependencies within party affiliations attenuating as the structure of the Court changes over time, we find an increase in *ideology-driven* vote dependencies. In particular, we find dependencies *across* party affiliations between Justices who are individually the most similar to each other in their ideology.<sup>4</sup>

As all voting dependencies can represent various forms of information sharing or learning, normative evaluations of dependency itself should be made with great care. As such, we do not ourselves take a position on whether partisan or ideological dependency is itself to be praised<sup>5</sup> However, as we uncover systematic variation in how votes co-vary, and how this co-variation *changes* as the structural makeup of the court itself changes, we are tempted to interpret the data as suggestive of mechanisms other than simple notions of information sharing and learning, which should not vary with the Court's partisan structure. In particular, it cannot be ignored that the relationship between the votes of party-affiliated Justices is strongest when the structure of the Court leaves the highest potential for one Justice to be the marginal vote on a case (i.e., a five-four margin).

In Section 2 we provide a brief summary of the Supreme Court as an institution, and

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<sup>4</sup> Berdejó and Chen (2017) similarly finds that partisan voting among US Court of Appeals Judges varies with whether or not it is a presidential-election year.

<sup>5</sup> See Nivola (2009) and Galston (2009) for normative discussions regarding partisan politics.

the lifecycle of a SCOTUS cases. In this section, we also provide a review of the relevant literature to which we contribute. In Section 3, we formally motivate our estimated equation and describe our data, which we follow in Section 4 with a presentation of empirical results and discussion. In Section 5, we offer concluding remarks.

## 2 Background

Here, we offer context for the empirical application, and follow up with a review of the relevant literature, to which we contribute.

### 2.1 The institution of the Supreme Court

Each of the nine Justices of the Supreme Court of the United States (SCOTUS) is appointed by the President, confirmed by the Senate, and expected to hold office for life. Among the oaths taken upon confirmation, Justices commit to faithfully and impartially perform the duties of the Court. Yet, the rancor associated with judicial appointments to the Court suggests that some question this impartiality.<sup>6</sup> It is as though judicial appointments are political in part, and a lifetime of court rulings may be moved one way or the other by the political persuasions of the Justices, either individually or in the collective.<sup>7</sup>

Once a case is submitted to the Supreme Court, there are potentially four stages to the progression of the typical case. First, in one of the twice-weekly Justices' conferences, the Justices collectively determine if the case is to be adjudicated. If four or more Justices vote to hear the case, the case is added to the Court's docket for the term.<sup>8</sup> Second, the Court hears

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<sup>6</sup> See, for example, Bonica and Sen (2017) for an empirical examination of partisan and ideological considerations in the Judicial selection process.

<sup>7</sup> After the Republican-controlled Senate refused to consider a 2016 Obama-nominated replacement for the deceased Justice Scalia, the nomination process appeared to reach a new level of polarization. Since the 2017 installation of President Trump, the nomination process for Federal judges at all levels has progressed with an alarming lack of bipartisan support, a significant departure from the preceding 100 years (Dash, 2017). In President Trump's first nine months, his nominees to federal courts are thought to be both increasingly partisan and younger, implying a lasting effect in the Judiciary Branch (Klain, 2017).

<sup>8</sup> The votes of the Justices are taken privately, and the votes of the individual Justices are never published (Fisher, 2015).

oral arguments in the case, which are open to the public and consist of each party to the case making their argument before the Court. Oral arguments are completed in the beginning of the term, while the last few months of the term are dedicated solely to conference and opinion writing.

The third stage of any case is the convening of Justices in conference. As is the tradition, Justices vote on cases they've heard on that Monday and Tuesday at their Wednesday afternoon conference. Likewise, they vote on cases they've heard on the preceding Wednesday at their Friday afternoon conference. In order of seniority, each Justice is given the opportunity to express their view on each case, after which votes are verbally cast in the same order, with the most-senior Justice casting the first vote. A majority opinion writer and dissenting opinion writer, if applicable, is immediately assigned by the Chief Justice and highest-ranking Justice in the dissent (if applicable).<sup>9</sup>

When all opinions are written, the Justices meet in Conference for the fourth and final stage of a case to finalize their collective vote.<sup>10</sup> Case decisions and opinions are typically delivered to the Court during the last weeks of the term, in late June or early July. The fundamental privacy of all conference deliberations and voting that implies the need to model case-specific voting as having a spatial component, which we justify below.<sup>11</sup>

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<sup>9</sup> As majority opinions issued by the Supreme Court establish precedent, the reasons for the Court's decision are just as important as the decision itself. As such, *concurring opinions* can also be offered—a written opinion of a judge that agrees with the majority, but offers different or additional reasons as the basis for support.

<sup>10</sup> Over the course of writing the opinions, the Justices continue to deliberate with one another and see other cases. As the initial votes are never released to the public, it is unclear how often Justices switch their votes in this stage. While understood to be rare, the dissenting opinion has on occasion become the majority opinion as late as this stage (see <http://www.uscourts.gov/about-federal-courts/educational-resources/about-educational-outreach/activity-resources/supreme-1>).

<sup>11</sup> The timing of the court's ruling, as well as the publication of the ruling, is little understood. Anecdotally, there is some evidence that Justices do not even begin deliberating some cases until all oral arguments are completed for the term (Levy, 2015). There is also evidence that the Court withholds from publishing certain rulings to ease the reporting process (Palmer, 2013). Not only is there little evidence that the within-term timing of Court decisions impacts Court rulings, the within-term timing is unobserved to the econometrician. Lastly, it should be noted that in an act of profound symbolism, SCOTUS rules strictly prohibit any photographs to be taken of the Court, with only two photographs of the Court's proceedings having ever been (illegally) published, the most recent of the two taken in 1937 (West, 2012).

## 2.2 Literature

A large literature exist across economics, political science, and law in which researchers have considered the determinants of SCOTUS voting. Our modeling approach most closely matches what is known as the “Attitudinal Model.” Advocates of this approach suggest that not only do case characteristics influence how Justices vote, but the interaction between Justice-specific characteristics, such as ideology, and case characteristics also enter the Justices’ decision-making process.

In so doing, however, we note that the most-sophisticated of econometric approaches to modeling Justice voting is to interact “ideology” with “legal” co-variates (e.g., the extent of legal precedent) that are thought to capture the important determinants of Justice votes. Past empirical analyses that include both legal- and Justice-specific variables have suggested that Justice characteristics are often more influential than legal characteristics of the case in determining Justices’ votes (e.g., Segal and Spaeth (2002), Sunstein et al. (2006)). The exact mapping of ideologies to Justice votes is complex, however, even before considering the potential codependencies.<sup>12</sup> Even inter-personal relations are thought to be influential in the vote-determination process, with SCOTUS Justices more likely to side with the government when the sitting President has appointed the Justice to the Court (Epstein and Posner, 2016).

## 3 Empirical Application

Here, we discuss our empirical methodology and discuss the data used in the analysis.

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<sup>12</sup> The extent that Justices deliberately vote in anticipation of the case’s outcome is often interpreted as evidence of strategic voting or gatekeeping (Caldeira et al., 1999). Hall (1992) concludes that State-Supreme Court Justices vote strategically to increase their likelihood of reelection. Peppers and Zorn (2008) and Bonica et al. (2017a) find that law clerks also play a role in vote determination. For example, Bonica et al. (2017a) (using what is our preferred approach to measuring Justice ideology at the SCOTUS level) find that the ideology of Justices’ law clerks influences judicial voting, especially in high-profile cases. On other margins, Danziger et al. (2011) shows that judges are less likely to grant an individual parole the more time has passed since their last meal, and Eren and Mocan (ming) finds that judges can tend to grant longer sentences to certain defendants after the football team of their alma mater is defeated unexpectedly. (For additional examples of extra-legal mechanisms influencing judicial outcomes see Cohen and Yang (2018) and Spamann and Klöhn (2016).)

### 3.1 Empirical Model

The inclusion of a “spatial-lag” coefficient in a model of voting behavior allows us to capture the aggregate interactions within the closed-door conference negotiations, all of which are unobserved by the econometrician. In fact, SCOTUS deliberations are precisely the sort of data-generating process that this modeling apparatus can extract information from, and quite consistent with what Anselin (2003) describes in the methodology’s value when investigating strategic interactions, social norms, neighborhood and peer-group effects, and how individual interactions can lead to emergent collective behavior and aggregate patterns.

By way of example, consider a Justice who hears arguments in conference offered by other Justices. If the arguments have no influence on her vote, on average, there should likewise be no explanatory power in the observed votes of those others when we come to predict her vote—that is, more generally, there should be no measurable dependency between realized votes. In the notation of a typical “spatial-lag” model, there is a parameter (typically noted as  $\rho$ ) that measures this dependency, as captured by a spatial weighting matrix (typically notated as  $W$ ). If  $\hat{\rho} = 0$ , there is evidence the relationship allowed for in  $W$  is not a determinant of her votes, on average, as would be the case if Justice arguments were not systematically informative to her. If, on the other hand, the arguments of other Justices did tend to influence her vote, then the extent to which  $\hat{\rho}$  deviates from zero will be informative to the strength of those underlying mechanisms within the observed data-generating process. We do this, having absorbed any variation in realized votes that can be explained by case- and Justice-specific parameters, and an error process itself.<sup>13</sup> In particular, we anticipate that within-party

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<sup>13</sup> Note that if all Justices are similarly persuaded by an argument, votes would collapse on unanimity and a case-specific parameter would sufficiently capture that realization without any need to appeal to a spatial process of vote dependency. Indeed, we might be inclined to infer that there was something unobservable about that case that best explained the unanimity, easily bypassing any appeal to “spatial dependencies” to explain such a tendency. This is the sort of mechanism that we will unfortunately not be able to speak to—spatial dependencies that are so strong that they collapse on unanimity can not identify the “spatial-lag” coefficient.



vote-dependency is highest when the majority margin is thin.<sup>14</sup>

We now proceed to introduce additional formality in setting up the empirical model, which we then execute separately for each term of the Court between 1969 and 1990. Separately for each term of the court, we model Justice  $j$ 's vote as

$$V_{jc} = \kappa_c + \lambda_j + \beta_c \textit{Ideology}_j + \rho WV_{jc} + \varepsilon_{jc}, \quad (1)$$

where  $V_{jc} \in \{0, 1\}$  is the vote of Justice  $j$  on case  $c$ . In all cases, we code  $V_{jc} = 1$  if Justice  $j$  voted in the “liberal” direction on the case. In explaining the variation in  $V_{jc}$ , we allow votes to have their own level difference across cases,  $\kappa_c$ , capturing any case-specific characteristics that might influence votes across Justices for a given case.<sup>15</sup> Similarly, we capture any unobserved Justice-specific heterogeneity in  $\lambda_j$ , thereby absorbing any tendency for individual Justices to vote in the liberal or conservative directions, generally—to guard against any  $j$ -specific leanings inadvertently identifying dependency. While Justice ideology is considered fixed within a given term, and therefore captured in  $\lambda_j$ , we will allow ideology to map into voting differently across cases, through  $\beta_c \textit{Ideology}_j$ . We report standard-error estimates having allowed for clustering on cases.<sup>16</sup>

In Equation (1), we also include the spatial-lag itself,  $\rho WV_{jc}$ , where  $\rho$  is to be estimated, and reflects the degree to which the voting of other Justices (where the “others” are captured in  $W$ ) explains  $V_{jc}$ . We consider two such weighting matrices, in particular. First, we consider the potential relationship between votes of Justices who were appointed to the Court by a president with similar party affiliation. (We will notate this with the estimation of  $\rho^{\textit{Party}}$ .)

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<sup>14</sup> The dynamic also applies for Justices within the minority-party. If four Justices belong to the minority-party and vote in the same direction, they are within one Justice of taking the majority opinion. However, the smaller the minority, the farther from establishing the majority position they will be, and the less significant will be the need to have strong within-party vote dependency.

<sup>15</sup> For example, where SCOTUS overturns a lower-court decision due to administrative error, all Justices will typically vote in the same direction, having nothing to do with Justice-specific beliefs or views, and certainly not the sort of dependency we aim to consider here.

<sup>16</sup> Robust standard errors are similar, as are those allowing for clustering on justice (which accounts for correlation of votes across cases for given Justices, which would otherwise lead to misleadingly small standard errors).

Second, we consider the potential for Justice-specific ideologies to form the basis for vote dependency—specifically, we will measure the extent to which the voting behavior of the ideologically closest Justice who does not share Justice  $j$ 's political party affiliation explains Justices  $j$ 's voting. (We will notate this with the estimation of  $\rho^{NO}$ , where “NO” captures “Nearest Other.”)

As Equation (1) allows  $V_{jc}$  to depend on a weighted transformation of  $V_{jc}$  itself, we follow Kelejian and Prucha (1998) in identifying  $\hat{\rho}$ —we instrument for  $WV_{jc}$  with the  $W$ -weighted exogenous variables in Equation (1).<sup>17</sup> Following Chupp (2014), which spatially models Senate voting behavior, we estimate a linear probability models in both first and second stages.<sup>18</sup>

### Allowing for vote dependencies within party-affiliated Justices

In considering the explanatory influence of party-affiliated Justices, we define the political party of the appointing president as  $Party_j \in \{Democrat, Republican\}$ , with the elements  $w_{jk}$  of the  $9 \times 9$  spatial-weight matrix  $W^{Party}$  defined  $w_{jk} = 1$  if  $Party_j = Party_k$  and  $j \neq k$ , and zero otherwise. With  $\lambda_j$  absorbing across-Justice variation,  $\kappa_c$  absorbing across-case variation, and  $\beta_c Ideology_j$  controlling for all inter-case variation that is systematic with ideology, the identifying variation contributing to  $\hat{\rho}$  in our baseline specific of Equation (1) is that originating from variation in the votes (on the same case) of Justices who share the same  $Party_j$ .

As is customary, we row-normalize the weighting matrix (i.e., normalize weights to sum to one for each justice-case) to prevent the introduction of variation that confounds the actual behavioral response to other-Justice votes with the *number* of other Justices to which it

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<sup>17</sup> Following Kelejian and Prucha (1998), we also include  $W^2\beta_c Ideology_j$  as an instrument in the first stage. The predicted  $WV_{jc}$  is then used in the second-stage regression. As  $W\lambda_j$  and  $W\kappa_c$  perfectly correlate with  $\lambda_j$  and  $\kappa_c$  in the second stage, they are not included in the first-stage regression as they add no information and as such cannot identify  $\hat{\rho}$ . However,  $W\beta_c Ideology_j$  in the first stage is not perfectly correlated with the  $\beta_c Ideology_j$  in the second stage, as the diagonals of  $W$  equal zero. As  $W\beta_c Ideology_j$  has predictive power in modeling  $V_{jc}$ , while having no predictive power in explaining  $V_{jc}$ , the relevance and exclusion conditions needed for two-stage least squares are met.

<sup>18</sup> In Monte Carlo simulations, Beron and Vijverbeg (1999) finds that spatial linear-probability models are close approximations of the true data-generating processes.

is possible to best respond. This normalization also allows us to retrieve estimates of the response to the average affiliated Justice independently of structure that will subsequently allow us to compare parameter estimates across terms, as the number of party-affiliated Justices changes.<sup>19</sup>

As elements of  $W^{Party}$  that correspond to  $\{j, k\}$ -pairings across party lines are assigned a value of zero,  $\hat{\rho}$  reflects the responsiveness to the average information exchanged between pairs of Justices of the same  $Party_j$ —indicative of the votes of  $j$ 's party-affiliated Justices having useful information in predicting  $j$ 's vote.

With the inclusion of  $\rho$  in the estimation equation, we capture the vote-determination process more flexibly than would an  $\rho = 0$  restriction. Specifically,  $\hat{\rho}$  captures the *average* best response between Justices  $j$  and those Justices given weight in  $j$ 's vote through  $W$ —those with similar appointees in this first case. For example, if  $\hat{\rho}^{Party} = 0.20$  then the associated inference statement would be that were all of  $j$ 's party-affiliated Justices to move from a vote of “zero” (i.e., the conservative position) to a vote of “one” (i.e., the liberal position), the probability that Justice  $j$  would vote the liberal position would increase by 0.20, or 20 percentage points. Below, we will find estimates of  $\rho^{Party}$  as high as 0.75—this happens in the earliest years of our sample, when the party-affiliations of the Justices are most in balance. When the Republican-affiliated majority is strongest, however, we retrieve estimates of  $\rho^{Party}$

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<sup>19</sup> For example, if Justices 1, 2, and 3 (corresponding to the first three rows of  $W$ ) were appointed by a Democratic president and Justices 4, 5, 6, 7, 8, and 9 were appointed by a Republican president, as was the case between 1971 and 1974, the  $9 \times 9$  weight matrix,  $W^{Party}$ , can be defined as, for example

$$W_{1971}^{Party} = \begin{bmatrix} 0 & .5 & .5 & 0 & 0 & 0 & 0 & 0 & 0 \\ .5 & 0 & .5 & 0 & 0 & 0 & 0 & 0 & 0 \\ .5 & .5 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & .2 & .2 & .2 & .2 & .2 \\ 0 & 0 & 0 & .2 & 0 & .2 & .2 & .2 & .2 \\ 0 & 0 & 0 & .2 & .2 & 0 & .2 & .2 & .2 \\ 0 & 0 & 0 & .2 & .2 & .2 & 0 & .2 & .2 \\ 0 & 0 & 0 & .2 & .2 & .2 & .2 & 0 & .2 \\ 0 & 0 & 0 & .2 & .2 & .2 & .2 & .2 & 0 \end{bmatrix}$$

Though inference statements adjust accordingly (from “in response to the average Justice voting in the liberal direction” to “in response to one more Justice voting in the liberal direction,” for example) results of the analysis are qualitatively similar when we do not row-normalize the spatial weighting matrix.

as low as -0.50, suggesting that a “conservative” vote from an affiliated Justice is associated with a lower probability that others sharing the same party affiliation would vote in the conservative direction. The average (across term) vote in our sample is in the conservative direction 51 percent of the time. As such, a -0.5 to 0.75 swing is equivalent to -100 percent to 150 percent of a standard deviation increase in the likelihood the Justice votes in the conservative direction.

### **Allowing for vote dependencies between unaffiliated ideological “neighbors”**

Although a spatial dependence based on the partisanship of the appointing president seems natural, it is possible other spatial dependencies inform the votes of Supreme Court Justices. Specifically, in a second approach to modeling the dynamics of Justice votes, we consider looking to the ideologically like-minded Justices who do not share a party affiliation. This follows from our intuition, that votes of those closest in some ideological space but “across the aisle” may have explanatory power in predicting Justice  $j$ ’s vote.

In an alternative weight matrix, then, we allow  $j$ ’s vote to be influenced by  $k$ ’s vote (i.e.,  $w_{jk} = 1$ ), when  $k$  is the closest to  $j$  in ideology among all available  $k$  that satisfy  $Party_j \neq Party_k$ . We notate this “nearest-other” weighting matrix as  $W^{NO}$ . Under such a weighting rule,  $\hat{\rho}^{NO} = 0.2$  would imply that, on average, when the oppositely-appointed Justice closest to  $j$ ’s ideology switches their vote from the conservative to the liberal direction, the likelihood Justice  $j$  votes in the liberal direction increases by 20 percentage points.

## **3.2 Data**

### **Justice votes**

The voting data we use in our analysis originates from the Supreme Court Database–Justice Centered Data, managed by Washington University Law School (Spaeth et al., 2017). We consider the terms of the Supreme Court from 1969 through 1990. The dataset contains

information at the justice-by-case level.<sup>20</sup> The specific variable of interest is each justice’s case-specific vote, which is classified as either being the “liberal” or “conservative” position on the matter. Spaeth et al. (2017) classifies each vote in this manner using an extensive hierarchical rubric, determined independently of how each specific Justice voted.<sup>21</sup> For example, if a Justice votes in a “pro-injured person” direction for a case on unions or economic activity, or the “pro-female” direction in cases regarding abortion, the vote is classified as liberal.<sup>22</sup>

## Justice ideology

With respect to the measurement of Justice ideology, we adopt the index developed in Bonica et al. (2017b), which stands as one of the few measures of ideology that is independent of contemporaneous vote decisions, maintaining identification and mitigating the concern one would have over introducing endogenous measures of ideology into our modeling of voting (Bailey, 2007; Martin and Quinn, 2002).<sup>23</sup> Fundamentally, this index is based on the political-campaign contributions of Justices’ law clerks, yielding “Clerk-Based Ideology” (CBI) scores for each SCOTUS justice.<sup>24</sup> Each Justice in our sample has a fixed CBI score. Due to data limitations, Bonica et al. (2017b) does not calculate CBI scores for all Justices

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<sup>20</sup> While SCOTUS primarily functions as an appellate court, it has had original jurisdiction roughly 200 times since its founding in 1789. We exclude all cases in which SCOTUS has original jurisdiction as the votes in these cases are not classified as “liberal” or “conservative.”

<sup>21</sup> That is, Justice votes cannot influence the classification of a vote direction as “liberal” or “conservative”. Though, Harvey and Woodruff (2011) do suggest that there may be a small amount of confirmation bias in determining the case-type category for certain cases. We do not worry that this plays an important role in our analysis, and anticipate that any such bias would be absorbed into case and/or Justice fixed effects. We do redefine  $V_{jc}$  to capture Justice  $j$  voting to reverse the ruling on case  $c$ , and our results are both qualitatively (and even “quantitatively”) unchanged.

<sup>22</sup> The measurement of political direction of each case has been extensively utilized within the field. For example, see Katz et al. (2017).

<sup>23</sup> For additional detail, see Bailey (2017).

<sup>24</sup> CBI scores are calculated by averaging the CFScores, a measurement of ideology based off of political contributions, of all individuals who clerked for a given justice. See Bonica (2014) for the development of CFScores, and Bonica et al. (17su) for their application to law clerks. As a Justice’s ideology correlates positively with that of their law clerks (Liptak, 2010; Nelson et al., 2009), the political donations of law clerks arguably predict but are exogenous to Justice ideology. While it is possible that Justice votes influence the political contributions of future clerks (e.g., potential clerks may donate to certain candidates to increase the likelihood they will be awarded a clerkship), Bonica (2014), Bonica et al. (17su), and Bonica et al. (2015) find no evidence that individuals contribute to candidates strategically.

present in terms prior to 1969, thus limiting our analysis to the 1969, and later, terms.<sup>25</sup>

## Sample restrictions

We estimate Equation (1) separately for all SCOTUS terms between 1969 and 1990. Recall that we consider dependencies both within party ( $W^{Party}$ ) and between ideological neighbors ( $W^{NO}$ ). Our considerations of potential vote dependencies are therefore limited to the number of terms for which there is informative variation. For example, we cannot estimate Equation (1) between 1991 and 1993, as the structure of the Court includes only a single Democrat-appointed Justice on the bench—there is no within-party variation. However, once the court returns to having two democrats in 1994, Equation (1) can not be estimated with  $W^{NO}$ , as all Republican-appointed Justices share the nearest Democrat-appointed Justice and each Democrat-appointed Justice shares the nearest Republican-appointed justice. Moreover, after 2009 (and evident in Figure 1), the structure of the Court leaves no overlap in Justice ideology across party affiliation. That is, the least-liberal Democrat-appointed Justice is more liberal than the most-liberal Republican-appointed justice, leaving no variation among Republican (Democrat) Justices in their differently affiliated nearest ideological neighbor.

We also discard observations under three conditions. First, if fewer than nine justice’s vote on a given case, it introduces a case-specific (*c*-specific) dimensionality to the weight matrix and identifying variation that is then also potentially endogenous. We therefore discard all such cases (861 out of 3,542) and the associated votes on the cases (7,534 of 31,663).<sup>26</sup> Second,

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<sup>25</sup> Segal and Cover (1989) develops an alternative measures of Justice ideology. However, these measures are intended to capture attitudes towards civil liberties, as opposed to overall ideology, and vary in informativeness, dependent on the appointing President. See Epstein and Mershon (1996) and Segal, Epstein, Cameron, and Spaeth (1995) for discussion of these and other limitations. Nonetheless, when the analysis is completed using these measurements of ideology, results (not reported) are qualitatively similar. Epstein et al. (2007) also develops a partially exogenous measure of Justice ideology, informed by Justice votes in their first year on the court. It is time-invariant and could be used for our analysis, but we should then also discard the six terms over our sample in which there is a first-term Justice. This measure also weighs the political ideology of the appointing president directly, introducing common factors across Justices, which would further confound inference. For these reasons, we do not adopt this measure.

<sup>26</sup> In particular, note that only eight Justices were on the bench for the majority of the 1969 term. Despite the small sample size, and thus imprecise point estimates, the information in the term provides insight into possible spatial dependencies.

we give special attention to the 1975 term, the term in which Justice Douglas retired after participating in only six cases. Instead of losing the information for the entire term, we model 1975 after discarding these first six cases and the 12 that cleared the Court’s docket before the appointment of Justice Stevens. Last, in approximately two percent (602) of the remaining votes, the classification of votes as either “liberal” or “conservative” is indeterminable.<sup>27</sup> So to not impose this indeterminacy on related votes, we discard all (149) cases for which there is any Justice vote that is not classifiable as “liberal” or “conservative.”

Other than the 1969 term, after the sample restrictions are applied, the fewest number of cases heard was 62 (in 1987) and the highest number of cases heard was 153 (in 1972). As the Supreme Court saw fewer cases over time during the terms in our sample (Moffett et al., 2016), there is a corresponding decline in the number of cases in our sample each term.

## **Descriptive Statistics**

In Table 1, given the structure of the Court—the number of Republican and Democrat appointees over time—we report the fractions of times the various party specific majorities were realized. For example, of the five Republican-appointed Justices on the Court in 1970, in 54 percent of cases they voted together (i.e., a majority of five), in 27 percent of cases they voted four-to-one, and in 19 percent of cases they voted three-to-two.

Across all terms with seven Republican-appointed justices (1975-1990 and 1994-2008), on average, 21.2 percent of cases were ruled with the Republican-appointed justices divided by one vote (i.e., four-three) and across all terms with five Republican-appointed justices (1969 to 1970 and 2010 to 2014), the average percent of cases in which the Republican appointed justices were divided by one vote (three-two) is 13.1 percent. Similarly, in terms with two Democrat-appointed justices (1975 to 1990 and 1994 to 2008), the two Democrats voted in the same direction on average in 64.4 percent of cases, while in terms with four Democrat

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<sup>27</sup> For example, if in a justice’s opinion for the case, whether the opinion is in the majority, dissent, or concurrence, she sides with both liberal and conservative points of view, as defined by the Spaeth et al. (2017) rubric, the direction of the Justices’ vote is undefined.

appointed justices (1969 to 1970 and 2009 to 2014), the four Democrats voted in the same direction on average in 75.0 percent of cases. We also show the percent of votes cast each term that were in the “conservative” direction. While there is variation across terms, there is no clear link between the average percent of votes in the “conservative” direction and the number of republicans on the court.

## 4 Results

We estimate the models represented in Equation (1) separately for each year of data, for SCOTUS terms 1969 through 1990. In Section 4.1 we allow for vote dependencies between Justices of whom were appointed to the Court by Presidents of the same party and in Section 4.2 we allow for vote dependencies between ideologically similar Justices whom were appointed to the Court by Presidents of different parties. Recall, across the sample, there are three distinct structural compositions of the court. In 1969 and 1970, the Court was populated with five Republican-appointed Justices and four Democrat-appointed Justices—this is the strongest *a priori* voting block the Republican-appointed Justices will see in the time series. Between 1971 and 1974, the Court was populated with six Republican-appointed Justices and three Democrat-appointed Justices, and between 1975 and 1990, the Court was populated with seven Republican-appointed Justices and two Democrat-appointed Justices.

As an ideologically based  $\hat{\rho}^{Party}$  (i.e., based on  $W^{NO}$ ) is only estimable through 1990, we report on the analyses of party and ideology together in Figure 2 from 1969 through 1990. We discuss the post-1990 behavior separately in Section 4.3.

### 4.1 Are there evident relationships in the votes of party-affiliated Justices?

In Panel A of Figure 2, we plot separate estimates of  $\hat{\rho}^{Party}$  over time, with 95-percent confidence intervals. With no restrictions on the estimates across terms, the structural breaks



in the composition of the Court are evident in the estimated  $\hat{\rho}^{Party}$ , one occurring between the 1970 and 1971 terms and one occurring between the 1974 and 1975 terms. As the Court becomes more imbalanced in terms of the party of the appointing presidents, the measurable vote dependency within party-affiliated Justices declines. Point estimates of  $\rho^{Party}$  in 1970 and 1971, and in 1974 and 1975, are statically different from each other at the 1-percent level, while no other term-consecutive estimates of  $\rho^{Party}$  are statistically different from each other, even at the 10-percent level. This is consistent with more internal pressure (or bargaining) for Justices to vote in the same direction when the margins are thin—when the potential consequence of party-affiliated Justices splitting their votes are higher.<sup>28</sup>

While the differences in  $\hat{\rho}^{Party}$  between 1970-to-1971 and 1974-to-1975 are striking, it is possible that they are not a result of changes in the partisan-divide of the court and instead reflecting other changes. If SCOTUS cases vary systematically with changes in the partisan-divide of the court, for example, the parameter estimates reflect both the relationship between the partisan-divide and voting behavior of Justices and the selection of cases. In Figure 3 we explore this possibility.

In Panel A of Figure 3, we report the percent of cases in which the lower court’s ruling was in the liberal direction. Importantly, we restrict the sample of cases to those SCOTUS cases that identify  $\hat{\rho}^{Party}$ —namely, cases with non-unanimous SCOTUS votes. While the percent of cases that were ruled in a liberal direction by the lower Court is a somewhat noisy process, no systematic variation appears and there is clearly no pattern coincident with structural changes to the party-affiliations surrounding the 1970-to-1971 and 1974-to-1975 terms. In Panel B of Figure 3, we report the percent of ( $\hat{\rho}^{Party}$  identifying) cases in which

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<sup>28</sup> The negative estimates of  $\rho^{Party}$  in the late 1980s deserve note. Throughout much of the 1980s, only two Democrat-appointed Justices (i.e., Justice White and Justice Marshall) sat on the bench. Mechanically, each vote cast by Justice White and Justice Marshall in this time span receives six times the weight of the average republican vote in the estimation of  $\rho^{Party}$ , as the total effect of six Republican-appointed Justices’ votes on the remaining Republican-appointed Justice is normalized to one. While this does not inherently lead to a reduction in  $\hat{\rho}^{Party}$ , Justice White and Justice Marshall happened to have voted in opposite directions somewhat regularly—increasingly so in the late 1980s. For example, as suggested in Table 1, between 1975 and 1984 (when  $\hat{\rho}^{Party}$  is not statistically different from zero), the two Democrat-appointed Justices voted in the same direction in 48 percent of non-unanimous cases. Yet, between 1985 and 1990, they voted in the same direction in only 33 percent of non-unanimous cases.

the lower court had disagreement in their ruling—that is, the percent of lower court rulings that were not unanimous. While a slight increase seems to occur over time, there is again an absence of shape that could be consistent with the structural changes in the court. In Panel C of Figure 3, we report the percent of ( $\hat{\rho}$  identifying) cases originating from the Ninth Circuit Court, often believed to be the most liberal Circuit. Again, there is no indication of changes aligning with the structural changes in the court. Last, we re-estimate Equation (1) with the exclusion of the spatial lag (i.e., dropping the spatial component, or estimating Equation (1) with the restriction that  $\rho^{Party} = 0$ ). In Panel D of Figure 3, we report the mean-squared error for each of these specifications, which steadily declines in a way that is consistent with the remaining covariates better capturing the decision-making process over time.<sup>29</sup> Importantly, there are no discontinuities in the MSEs across the structural divides of the court.

## 4.2 Has ideology replaced partisanship in Justice voting?

In Panel B of Figure 2, we report the results of having re-estimated Equation (1), but with a weighting matrix that reflects ideology. Specifically, ideology that informs voting from “across the aisle,” as we capture in  $W = W^{NO}$ .<sup>30</sup>

Interestingly, as the Court itself becomes more imbalanced with respect to party affiliation (and the measurable within-party vote dependencies decline), seemingly in accord with these structural changes, the influence of ideologically-similar Justices of *different* party affiliation... increases. While the step-function is somewhat less pronounced in  $\hat{\rho}^{NO}$  (in Panel B) than it

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<sup>29</sup> This suggests that variation across Justices on ideology has itself played a more important role in explaining variation in voting over the twenty-year period we consider. This corroborates a rich literature that suggests that the Court has become increasingly ideologically focused (Nelson et al., 2009; Landes and Posner, 2009).

<sup>30</sup> In the first stage of the 2SLS approach, we estimate the spatial lag of  $V_{jc}$  weighted by  $W^{NO}$ , using weighted versions of  $\beta_c Ideology_j$ . As  $W^{NO}$  is a nearest-neighbor weighting matrix that conditions on neighbors  $j$  and  $k$  being appointed by presidents of *different* parties,  $Ideology_j$  and  $Ideology_k$  are highly correlated. Thus, as  $\beta_c Ideology_j$  is included in the first stage to predict  $WV_{jc}$ , there is little variation in  $WV_{jc}$  for the instruments  $\beta_c Ideology_k$  to explain. The first-stage  $F$ -statistic is on the small side. However, we do not interpret this as indicative of  $\beta_c Ideology_k$  being irrelevant instruments, but that  $\beta_c Ideology_k$  are highly correlated with the included exogenous parameters—specifically, with  $\beta_c Ideology_k$ . Nonetheless, the results are suggestive.

is in  $\hat{\rho}^{Party}$  (in Panel A), the pattern is evident, suggesting that these two processes together tell an important story of how partisan and ideological dependencies move together.

There is an upward trend in  $\hat{\rho}^{NO}$  in the period following the seven-two imbalance of the Court, which one could interpret as an eventual learning of sorts. One possible interpretation is that less dependency within party-affiliated Justices (Figure 2, Panel A) allows Justices to weigh other sources of information in order to assist in their decision-making, and the views of likeminded “others” gradually takes on an importance of sorts. As Justice-specific ideology is controlled for, the results suggest that Justices’ votes were positively influenced by the vote of their “other” in a way that is consistent with a discarding of the partisan-divided Courts of the early 1970s (when  $Party_j$ -type bargaining was highly influential), suggestive of the rise of an ideologically-guided court.

### 4.3 The post-1990 Court

In 1991, Justice Marshall (a Democratic appointee) retired and was succeeded by Justice Thomas, who was appointed to the bench by a Republican, leaving just one Democrat appointed Justice on the Court. This defines the end of the set of terms for which a parameter on  $W = W^{NO}$  is estimable, given the singular Democrat appointee. The eight-one divide continued until the 1994 term, when Justice Blackmun (a Republican appointee) replaced with the Democrat appointee Justice Breyer. This seven-two split continued through 2008, followed by a single term of six-three split, and five-four split thereafter.

This development provides an opportunity to examine a new set of transition periods and observe if the strength of dependency of within party-affiliated Justice votes increased as the Court’s party divide returned to a more-equal division. In Figure 4, we report the estimated spatial-lag coefficients associated with within-party vote dependency ( $W = W^{Party}$ ). We do

so separately for terms 1994 through 2014.<sup>31</sup>

While the estimate of  $\rho^{Party}$  does not change in a statistically significant manner with the Court’s transitions from a seven-two (2008) or to six-three (2009), there is a large and statistically significant increase in  $\hat{\rho}^{Party}$  as the Court transitions from six-three back to five-four (2010). The estimate of  $\rho^{Party}$  in 2010 (.53), which is the first year the Court returns to a five-four Republican Court, is moderately smaller than the estimates we retrieve for 1969 (.78) and 1970 (.77), the most-recent terms in which the Court was similarly structured. If anything, this suggests that the dependency between party-affiliated Justices has weakened over time. The quick convergence of  $\hat{\rho}^{Party}$  to zero further suggests that any dependency has lost importance in recent years, despite *a priori* balance returning, which is consistent with our finding that vote dependencies began to take on more of an ideological focus in the 1980s.

## 5 Conclusion

As the final arbiter of US law, the Supreme Court is charged with ensuring the American people the promise of equal Justice under law and, thereby, functions as guardian and interpreter of the Constitution. Given the importance, it is surprising to find that our understanding of how Justices of the Court function is relatively unexplored.

In this paper, we examine the voting behavior of Supreme Court Justices while allowing for co-dependencies in the votes of the Justices. Doing so, we find relationships between the votes of the Justices who share party affiliation (i.e., those having been appointed by Presidents of the same political party). Sharp discontinuities in these dependencies are also evident,

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<sup>31</sup> Recall, the single Democrat-appointed Justice in 1991 through 1993 precludes the estimation of both  $\rho^{Party}$  and  $\rho^{NO}$ , while the political polarization after 1990 prohibits the estimation of  $\rho^{NO}$  for all subsequent years. Additionally, as Justice Scalia was only present for 18 cases in the 2015 term before passing away, we do not report analysis for the 2015 term, as only eight Justices were present on the Court. Moreover, regarding the 2015 term, Justice Elena Kagan remarked that “[The Court] didn’t want to look as though [it] couldn’t do [it’s] job. ... And so we worked very, very hard to reach consensus and to find ways to agree that might not have been very obvious” (Biskupic, 2018). As such, the data-generating process in 2015 seems somewhat unique, *a priori*, as Justices not only cared about the case outcome, but specifically the makeup of the Justices’ votes. (While tied votes are possible with eight Justices, it appears Justices actively avoided such outcomes in an attempt to uphold the integrity of the Court.)

coincident with changes in the party imbalance of the Court over time. Specifically, we find that in terms of larger imbalance—terms when the Republican-affiliated Justices outnumber Democrat-appointed Justices by a larger number—measurable co-dependencies between party-affiliated Justices are attenuated. Moreover, in these same terms there is evidence of a larger role for information sharing among ideological neighbors. Overall, voting patterns suggest a tradeoff—a tradeoff between political affiliation and ideology, with more-equal party representation on the Court encouraging greater party-awareness in Justice voting, and less-equal party representation allowing those across party lines but with similar ideologies to inform each other’s votes. While the polarization of the recent Court inhibits researchers from separately identifying the roles of party affiliation and ideology, it seems party related dependencies, even as the Republican-Democrat balance has returned, have not returned.

Moreover, while the periodic changes in the structure of the Supreme Court—driven by Presidential nominations and Congressional confirmation—allows for a unique opportunity to consider the various roles of affiliation and individual ideologies, we see intuition available here that may inform other empirical applications. Though individual votes or actions are not always observable—thus, the Supreme Court offers something of a unique opportunity—such tensions may well be anticipated in varieties of decision-making environments well beyond those faced by Supreme Court Justices, and inform the makeup of committees and decision making authorities more broadly.

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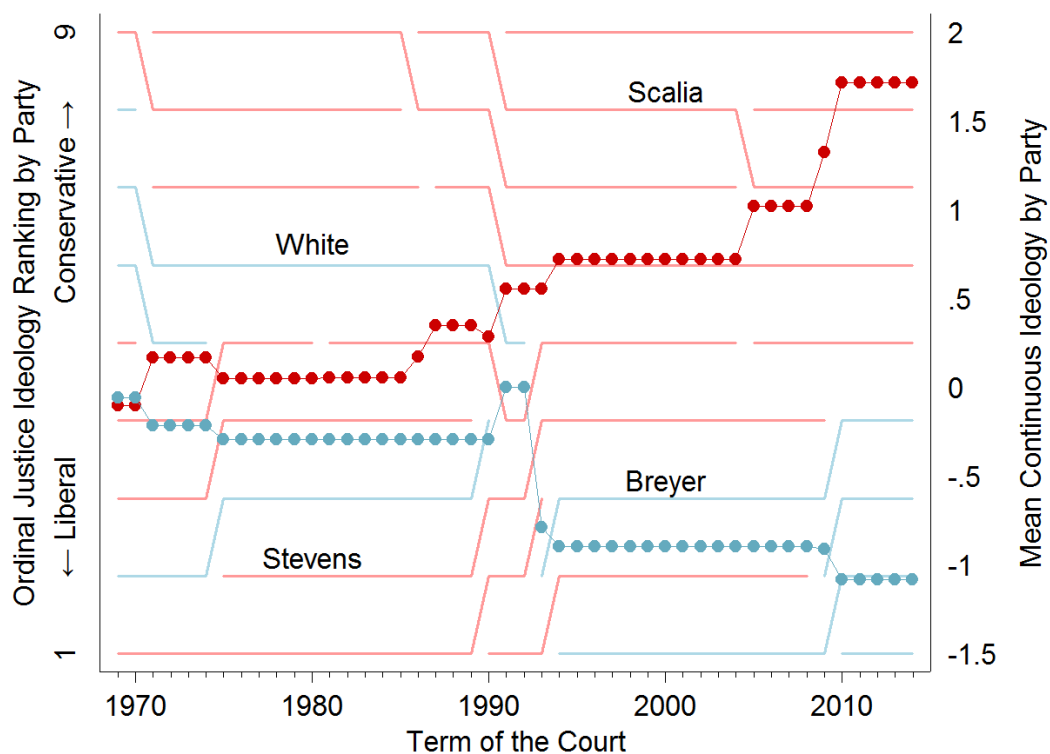
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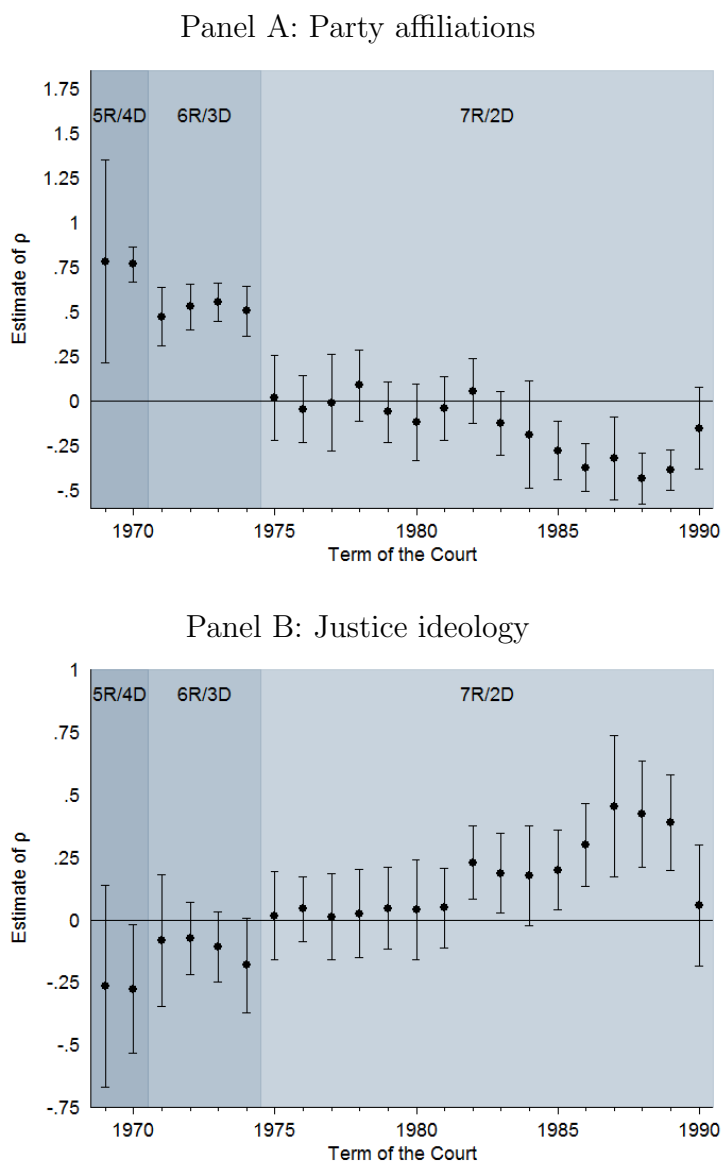


Figure 1: Justice ideology and party affiliation on the Supreme Court, 1969–2014



*Notes:* In each term, the Justices are ranked from most liberal (1) to most conservative (9). Each line represents the ordinal ranking for a single Justice throughout her career. As Justices have a fixed ideology across all terms, changes in rank occur to the arrival and departure of Justices. The connected scatter plot, associated with the right vertical axis, displays the mean (cardinal) ideology of Justices, separately for Republican and Democrat appointees to the Court.

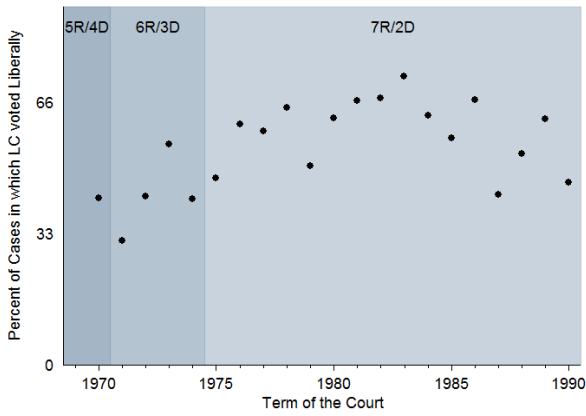
Figure 2: Measurable dependencies of Justice votes and the structure of the Supreme Court, 1969–1990



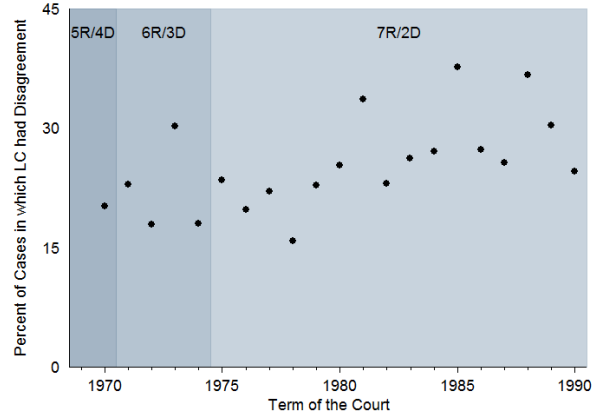
Notes: Each estimate of  $\hat{\rho}$  is derived from a separate model. The weighting matrices in Panel A,  $W^{Party}$  allows for the votes of a Justice to vary with the votes of all other Justices who were appointed to the Court by a president of the same party. For example,  $\hat{\rho}^{Party} = 0.2$  would imply that if one Justice in Justice  $j$ 's party changed their vote from the conservative to the liberal direction, the likelihood Justice  $j$  would vote in the liberal direction increases by 20 percentage points. The weighting matrices in Panel B,  $W^{NO}$  allows for the votes of a Justice to vary with the votes of the Justice who is closest in ideology, but affiliated with the other party. Confidence intervals (95%) are derived from errors which are allowed to cluster by case.

Figure 3: Are there potential confounders that move similarly with the Court's structure?

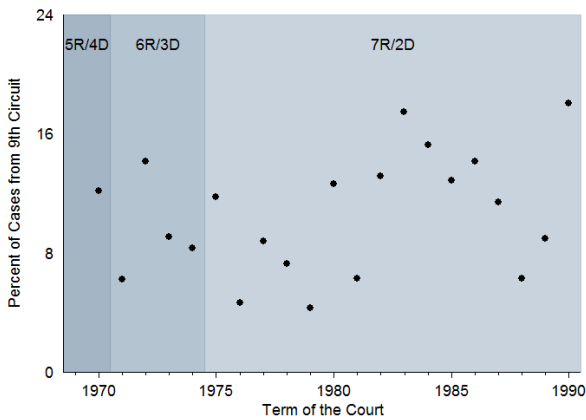
(a) Are there similar discontinuities in the ideology of lower-court decisions?



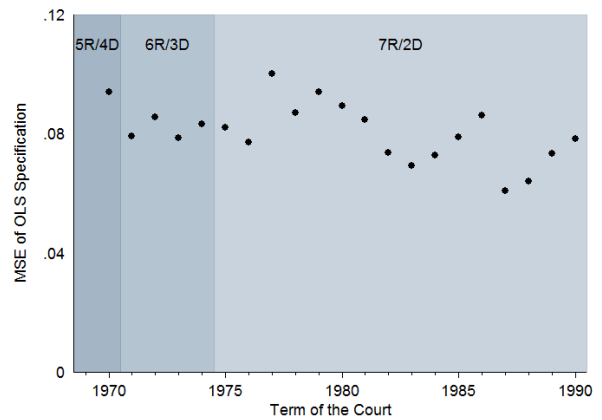
(b) Are there similar discontinuities in the unanimity of lower-court decisions?



(c) Are there similar discontinuities in the share of cases originating in the 9<sup>th</sup> Circuit Court?

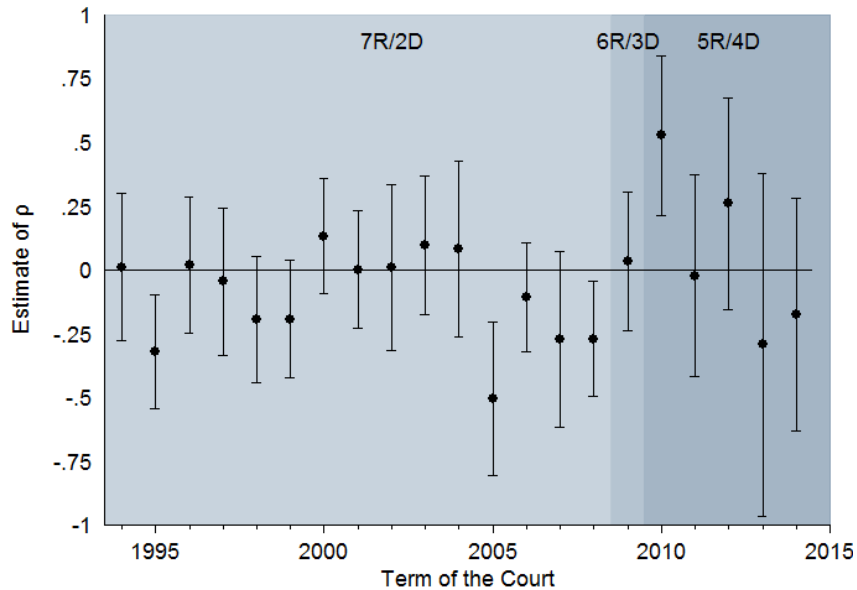


(d) Are other (non-spatial) covariates explaining votes differently?



*Notes:* In Panels (a), (b), and (c), each percentage point displays the percent of cases seen by SCOTUS in a term in which the lower court issued a liberal ruling, was unanimous, and was on appeal from the Ninth Circuit (often thought of as the most liberal Circuit), respectively, taken from the subset of cases in which SCOTUS's ruling was divided. In Panel (d), each point displays the mean squared error from a term-specific OLS regression of justice-level fixed effects, case-level fixed effects, and Justice ideology, which is allowed to interact with each case independently, on Justice vote. No spatial dependencies are allowed. In all Panels, values for the 1969 term are excluded due to the small number of observations.

Figure 4: Measurable party dependencies in Justice votes and the structure of the Supreme Court, 1994–2014



*Notes:* Each estimate of  $\hat{\rho}$  is derived from a separate model. In each, the weighting matrix,  $W^{Party}$  allows for the votes of a Justice to vary with the votes of all other Justices who were appointed to the Court by a president of the same party. Confidence intervals (95%) are derived from errors which are allowed to cluster by case.

Table 1: Party-line Voting on the Supreme Court, 1969-2014

Number in majority =	Percent voting with the party majority										“Conservative” votes (percent)	
	Republican					Democrat						
	3	4	5	6	7	8	1	2	3	4		
1969	0	17	83					0	17	83		70
1970	19	27	54					19	39	42		50
1971	8	26	18	48				42	58			46
1972	9	24	26	41				54	45			49
1973	6	18	34	42				45	55			48
1974	7	20	27	45				46	55			43
1975		18	22	20	40			33	67			49
1976		18	21	21	39			33	67			58
1977		21	33	14	31			27	73			48
1978		23	23	20	34			28	73			55
1979		24	27	20	29			38	62			47
1980		20	22	23	34			37	63			53
1981		26	20	16	38			33	67			53
1982		22	18	15	45			34	66			51
1983		20	18	17	45			34	66			53
1984		23	18	20	40			38	63			52
1985		29	22	14	35			44	56			54
1986		36	24	9	31			51	49			48
1987		27	15	11	47			32	68			48
1988		29	19	10	41			46	54			52
1989		33	17	13	37			46	54			50
1990		20	21	17	41			36	64			46
1991		8	22	24	8	38		100				49
1992		8	15	18	12	47		100				48
1993		5	19	24	9	43		100				53
1994		22	18	18	42			11	89			57
1995		15	17	23	44			17	83			52
1996		16	14	18	52			10	90			58
1997		16	16	17	52			13	88			56
1998		12	23	27	39			17	83			58
1999		16	27	17	41			18	82			45
2000		18	22	10	50			7	93			49
2001		25	25	9	42			9	91			60
2002		19	23	12	45			13	87			59
2003		21	21	10	49			8	92			56
2004		23	28	10	38			12	88			47
2005		13	28	8	51			23	77			50
2006		18	27	15	40			12	88			55
2007		15	32	15	38			23	77			46
2008		19	33	10	39			21	79			54
2009	4	20	27	49				19	81			46
2010	6	24	71					6	16	78		56
2011	10	19	71					6	28	67		55
2012	16	16	67					3	12	85		50
2013	16	6	78					4	6	83		45
2014	25	24	51					1	12	87		46

*Notes:* For each term-party pairing, the value indicates the percent of cases in which were ruled by a within-party majority of the given number. For example, of the five Republican-appointed Justices on the Court in 1970, in 54 percent of cases they voted together (i.e., a majority of five), in 27 percent of cases they voted four-to-one, and in 19 percent of cases they voted three-to-two. For each term, we also report the percent of votes that were in the “conservative” direction.