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Political Research Quarterly published online 2 March 2011

DOI: 10.1177/1065912910388188

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Serving Two Masters: Using Referenda to Assess Partisan versus Dyadic Legislative Representation

Political Research Quarterly
XX(X) 1–20
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DOI: 10.1177/1065912910388188
http://prq.sagepub.com


Seth E. Masket¹ and Hans Noel²

Abstract

Studies comparing the ideological leanings of voters and elected officials are often hampered by the lack of a common measure. The authors use legislative referenda—on which state legislators and voters both vote on the same issue—as bridging observations to develop a common measure for both. They use this measure to help assess two theories of legislative representation, the well-known dyadic model and a partisan model that assumes legislators are also accountable to a collective party agenda. Examining referenda votes during several sessions of the California Assembly, the authors report several findings that are consistent with the partisan model. They find that legislators are significantly more ideologically extreme than the median voter in their districts. They also find that members of the majority party are considerably more extreme relative to their districts than members of the minority party are and that the majority party becomes even more extreme the longer it maintains control of the chamber.

Keywords

political methodology, political organizations, parties, representation, electoral systems, ideal-point estimation

How representative are our representatives? In their long history examining this central question in representative democracy, political scientists have grappled with two thorny issues, one theoretical and one methodological. First, whom should we expect legislators to represent if they are effective representatives? Second, how can we tell whether they are, in fact, representing them?

This article engages both of these questions. The latter issue is empirical: It is very difficult to get good measures of the preferences of voters that can be compared to the activity or preferences of legislators. We generally know which legislators are more or less liberal, relative to each other, and likewise for constituencies. But we cannot map them to each other.

The former issue is deeper and theoretical. Scholars of representation have suggested a wide range of norms for the relationship between voters and elected officials. We believe one has been undertheorized. Dyadic representation models, in particular, are hard to reconcile theoretically with political parties. The notion of responsible party government, for example, imagines the electorate holding the entire party, not a single representative, accountable for its collective activity. And yet an attempt by a party to be collectively responsible may undermine individual representation.

We attempt to address these two concerns with a new methodological approach. We develop a measure of the ideological divergence of an individual legislator from

her or his district, leveraging votes on legislative referenda. This measure could be used to address a number of representation questions, from class bias to variations in responsiveness at election time. We focus on the question of partisan representation.

The article proceeds in three parts. In the first part, we spell out the theoretical expectations of party representation. In the second part, we address the methodological issues associated with developing a common ideological measurement for both voters and legislators. In the third section, we describe the results of our analysis, and we conclude with reflections on what our findings tell us about the relationship between government and the governed.

Political Parties and Representation

Perhaps the dominant framework for understanding the relationship between elected officials and their constituents is known as dyadic representation (see, e.g., Dexter

¹University of Denver, CO, USA

²Georgetown University, Washington, DC, USA

Corresponding Author:

Hans Noel, Georgetown University, Department of Government, Intercultural Center 681, Washington, DC 20057-1034
Email: hcn4@georgetown.edu

1957; Erikson 1971; Miller and Stokes 1963; Ansolabehere, Snyder, and Stewart 2001; Erikson and Wright 2005). This concept supposes that each member is paired with a constituency that elects her or him and assesses the degree to which legislators and constituents agree on questions of policy. There is some disagreement as to the exact nature of the constituency that members represent. As Fenno (1978) noted, there are multiple constituencies within any given legislative district, and while there is a general normative view that members should be serving the interests of *all* district residents, some have found that they often represent only the more active citizens of their own political party (Fiorina 1974; Gerber and Lewis 2004) or perhaps only their wealthier constituents (Bartels 2008, 2009).

Dyadic representation might be expected because elections hold legislators accountable. If a legislator were to drift too far from the preferences of her or his district, another politician would challenge her or him for reelection and win. However, since voters are not uniformly attentive and informed, it is possible for legislators to shirk their districts, either representing a particular subconstituency (as above) or else representing no one at all.

A second, less well-developed framework for representation is that of partisan representation. Under this model, strong legislative parties may undermine dyadic representation to the point where legislators are voting as solid partisan blocs (Bullock and Brady 1983; Wright 1989; Clinton 2006). On any given vote, a constituency is represented poorly. The party, however, will be well represented, and a constituency's preferences are honored to the extent that they voiced them through their partisan vote in the previous election. These models have varied in their explanatory power across different times in history and even across different states at the same time (Wright et al. 2009). Partisan representation might be expected because party organizations exert pressure on legislators or because legislators are themselves partisan. We return to these mechanisms more below.

Partisan and dyadic representation are distinguishable insofar as the preferences of the district and the preferences of the party differ.¹ It is possible for representation to appear partisan simply because the legislative districts are themselves partisan. Legislators may, in fact, be honoring dyadic representation if the median voters in their districts are uniformly extreme. The alternative is that legislators are voting in partisan blocs despite representing ideologically diverse districts.

Moreover, we have expectations about where these partisan blocs will be, relative to most voters. Parties are collectives of "intense policy demanders" (Bawn et al. 2006; Cohen 2008) who care more about policies than most voters do. These elites can take advantage of their organizational and informational advantages to press for policies that most voters are unaware of and might not

favor. These policies might be "moderate," but empirically they do not appear to be. Both the Democrats and the Republicans, especially in recent decades, clearly favor noncentrist policies. To sum up, the pure form of dyadic representation occurs when the observed behavior of a legislator matches district preferences, and the pure form of partisan representation occurs when the behavior of all legislators of the same party matches a collective preference that is more extreme than that of the median voter.

Of course, we do not observe either pure form. Nor do we expect them. Elections can hold legislators accountable, and so we expect some tendency toward dyadic representation. But legislators are also beholden to party organization, so we expect that tendency as well. Loyal party members, that is, seem to serve two masters.

On one hand, they want to achieve the policies of their ideologically more extreme party. On the other hand, they want to please the demands of their more centrist voting constituency. To the extent that the party is powerful, we expect the party as a whole to manage this tension, in large part through their control of nominations. They seek out candidates who are extreme enough to deliver on the party's ideological goals once in office but are not so extreme as to incur the wrath of voters. Once the party agrees on such candidates, they can often ensure that those candidates win the party's nomination by channeling key resources—endorsements, funding, expertise—to the preferred candidates and depriving other candidates of those resources.

This same logic will continue inside the legislature. To the extent that the party leadership pressures members into voting the party line, they will relax that pressure for members in more moderate districts, allowing those members to generate more moderate voting records (cf. Lawrence, Maltzman, and Smith 2006). But the aggregate tendency will still be to get policy that is more extreme than the district would want.

Under an unfiltered dyadic representation, the legislators should be beholden to their district. Under a reasonable model of partisan representation, legislators will make gestures of responsiveness to their districts, but they will also be pulled toward their more extreme party. This brings us to our first prediction: to the extent that parties are strong, legislators' voting behavior should be more extreme than voter preferences. Downsian pressure notwithstanding, the party will attempt to draw its members to its ideal point. Such a finding would be consistent with others that see divergence from the median voter (Ansolabehere, Snyder, and Stewart 2001), despite the electoral risk associated with such behavior (Wright and Berkman 1986; Canes-Wrone, Brady, and Cogan 2002). Thus, the first implication of a partisan model is ideological deviance.

However, the relative pressures toward the district and toward the party may not affect both parties equally. As

Bawn et al. (2006; see also Cohen et al. 2008) show, the party that has been out of power for a substantial time has a stronger incentive to moderate, temporarily abandoning some of its extremist agenda for the chance of regaining power. Essentially, the desire to please the voters increases the longer a party remains in the minority. This can be seen in the postwar selection of American presidential nominees. Parties out of power for only one term (such as the Republicans in 1964 and the Democrats in 1972) tend to nominate relative extremists (such as Barry Goldwater and George McGovern). Meanwhile, parties out of power for multiple terms (such as the Republicans in 1952 and the Democrats in 1992) tend to nominate relative moderates (such as Dwight Eisenhower and Bill Clinton). This same pattern obtained with Britain's Labour Party and with Germany's Social Democratic Party. Both parties put forward more moderate platforms (Budge, Robertson, and Hearl 1987) the longer they were out of power.

The corollary of this phenomenon is that a party comfortable in its majority status has greater freedom to deviate from the median voter. Hacker and Pierson (2005), for example, argued that modern congressional Republicans, who had been in power for a decade on the book's writing, were more ideologically extreme than their Democratic colleagues.² Being part of the dominant political regime (Skowronek 1997) gives a party's members some leeway to cast votes and push policies outside the mainstream. Or, to put it briefly, the party that appears to have an advantage will capitalize on that advantage when it makes the policy-voters trade-off.

This tendency for the out-party to moderate and the in-party to capitalize implies two testable implications. The first is simply an in-party versus out-party dimension. The party in power should be more extreme. The second is a time dimension. Bawn et al. (2006) and Cohen et al. (2008) found out-party moderation to increase with time out of office. This is a testing-the-waters argument. Wanting to be as extreme as possible, the out-party tries to get away with as much as possible early in its minority period, and then incrementally moderates over time. Similarly, a victorious majority party, likely having moderated to win, could slowly become more extreme until it loses.

To recap, then, this theory presents three testable hypotheses about the relationship between legislators and their districts:

1. Legislators will tend to deviate from the median voters in their districts.
2. This deviance will be greater among members of the majority party.
3. Deviance will increase in time with electoral success and decline with electoral failure.

Of course, as with most hypotheses, there are other, rival theories that might also predict similar findings. We address alternative interpretations below.

Testing these hypotheses requires a measure of this deviance of the legislator from the district. That, in turn, requires a common ideological measure for both legislators and legislative districts. We have plenty of measures of legislators' ideological predilections, including interest group ratings and item response theory (IRT) models. We also have no shortage of measures of district preferences, from voting behavior in legislative or executive elections to party registration statistics. But measures of legislator and district ideology are not directly comparable. We develop a common measure for both legislator and district ideology, as explained in the next section.

Data and Method

As noted, measuring the extent to which legislators deviate from their districts is a complicated problem, even when we narrow our focus to ideological substantive representation. One approach might be to simply correlate the district vote on the legislators votes on the referenda they send to voters with the vote shares those referenda got at the polls. And, in fact, this relationship is very strong in California for the period we study: the districts that most support a referendum are more likely to have elected representatives who voted for it. However, this finding, while consistent with expectations, is extremely limited. Not only is it subject to the potentially misleading characteristics of correlations (Achen 1977, 1978), but it also does not give us a sense of how well individual legislatures are representing their constituents, nor does it tell us whether the parties are relatively extreme or moderate.

If we think in spatial terms, our goal is to know how far the legislator's ideal point (as revealed through voting) is from the ideal point of the district median. That requires knowing those two ideal points. It also requires that they be measured in the same metric, in a "common space."

We take measurement of the legislator's ideal point to be relatively simple. Using scaling technology such as nominate or another IRT model (Poole and Rosenthal 1997; Clinton, Jackman, and Rivers 2004) on their votes, we can recover their ideal points in an ideological space. Such measures are subject to the criticism that they are a function of strategic behavior and thus might not reflect sincere preferences. But for our purposes, this is largely irrelevant; we are simply interested in comparing legislator performance to district preferences.³ We thus measure legislator ideal points with a one-dimensional IRT model, following Clinton, Jackman, and Rivers.

Measuring district preferences is more complicated. Scholars have typically used presidential vote shares as a

reasonable approximation of voter ideology (e.g., Erikson and Wright 1980; Canes-Wrone, Brady, and Cogan 2002; Cohen, Noel, and Zaller 2004; Masket 2007a; Levendusky, Pope, and Jackman 2005; Ansolabehere, Snyder, and Stewart 2001). This method has two serious limitations.

The first is that, at least theoretically, the median voter's ideal point and the percentage of the vote for the Republican need not move together (Kernell 2009). Even if the divide between the Democrat and the Republican were entirely ideological, it would be possible for a district with a median voter to the right of another to nevertheless give a lower vote share to the Republican. The vote share is a good approximation of district ideology if the distribution of voters has essentially the same shape in all districts, simply shifting left or right. But if the distributions differ, then vote shares can be wildly off. This is easiest to see by considering two districts with identical medians but with very different variances. The district with the small variance will have a more lopsided vote share than the district with the large variance. The results can be even more divergent if the districts are not normally distributed. Given gerrymandering (especially in California), we should be skeptical of the assumption that voter preferences have the same distribution in all districts.⁴

The second problem with vote shares is far more significant. They are not on the same scale as estimated ideal points. Ideal points are on an arbitrary scale, while vote shares range from 0 to 100 percent. Any attempt to match these will be contrived. We might assume districts and legislators have the same mean and standard deviation or cover the same range. This would be tantamount to assuming away the prediction above that legislators will tend to be more extreme than their districts. Indeed, any attempt to link these two distributions *assumes* some theory about representation, and it is those theories we wish to test.

One way to address this problem is to directly model the ideal point of the median voter with an IRT model linked to votes taken by legislators. Bafumi and Herron (2010) have done some innovative work in this vein. They draw on questions asked of the general population in the 2006 Cooperative Congressional Election Study, in which respondents were asked to take stances on roll call votes as though they were members of Congress. From these responses, ideal points can be calculated for both legislators and voters—both are “voting” on the same issues and are thus on the same scale.

This method represents a significant step forward in our efforts to measure representation. However, one may reasonably criticize this method by noting the differences in the measurement of the preferences of legislators and voters. After all, members of Congress are actually casting a vote, an act that carries both political and policy consequences; survey respondents are simply answering an anonymous question *as if* they were elected officials.

In addition, surveys are representative of the potential electorate, but we might be more concerned with those who actually vote.

A more general problem with the use of surveys is that many surveys are not representative at the district level and many do not include sufficient items to scale. It is the rare survey that has specific items that can be matched to specific legislative votes. Bartels (1991), for instance, focused on the Reagan defense buildup, but this is only one issue.

We address this measurement issue in a different way, by using instances in which legislators and voters have *both* cast votes on a particular subject. Referenda votes are just such instances, and we use these as bridging observations (see Bailey 2005). Legislators vote to send issues to the voters, and the district median then votes on those issues.

For this study, we focus on the relationship between California Assembly members and their constituents. We chose this particular state for reasons of convenience—not only does the state produce frequent legislative referenda, but also it is the only state that regularly publishes the results of direct democracy elections aggregated to the legislative district level.

Although our data emanate from just one state, there is reason to believe that our results generalize beyond its borders. To mention the obvious, California is an enormous state of thirty-six million residents; one in eight members of Congress represents the Golden State, and by itself the state would be one of the ten largest economies in the world. The state legislature is also considered to be the most professional of all the state legislatures, meaning it is the most like the U.S. Congress. Its members are the best paid state legislators in the country and meet year-round. Finally, each of the state's Assembly districts contains roughly 450,000 residents, almost as many as are contained in a congressional district. In short, the state is a large, mature democracy that bears much similarity to the nation as a whole. Even where it differs from the nation, its size and importance make it worthy of study for those interested in understanding the relationship between the elected and the electorate.

For our study, we estimate results for two periods. First, we pool data from 2004 and 2006 elections and the 2003–4 and 2005–6 legislative Assembly sessions. This is a period of Democratic control of the California legislature. We then look at an earlier period, 1995 and 1996, in which Republicans controlled the state Assembly. This variation in control is helpful, allowing us to see whether differences in deviance between Democrats and Republicans are a function of interparty differences or of majority control. It also gives us leverage on our third hypothesis about the length of majority control; Republicans have controlled the state Assembly for only one session (1995–96)

in the past three decades, while Democrats controlled the Assembly for three consecutive sessions prior to our later (2003–6) time period.

Our use of referenda as bridging observations addresses both of the problems raised above. First, we directly model the ideal point of each district's median voter, using their decisions on referenda, initiatives, and higher office. For each election, assuming spatial voting, all we know about each median voter is how she or he voted. That is, if the district votes 51 percent or 99 percent for a referendum, initiative, or candidate, we know the median voter also voted that way. This is a completely distribution-free assumption. We need not make any claims about the distribution of voter ideal points—we know only the median voter. We do end up discarding information, reducing our data to a binary aye and nay for the median voter. The resulting data are exactly analogous to roll call data. We do not observe how far the legislator is from the cutting line for any roll call; we observe only which side she or he is on. Similarly, we observe which side the median voter is on. For 1995–96, we have twenty-seven referenda and initiatives for each district, plus the 1996 presidential election. For the 2003–6 pooled data set, we have fifty-five referenda and initiatives. We also have the district's vote for president in 2004, for senate in 2004 and 2006, and for governor in 2006, giving us fifty-nine choices for each district median to make. This is a sufficient number of observations from which to estimate district ideal points.

The method addresses the second problem as well. Since the median voters and the legislators vote on some of the same questions, we can use these “bridging observations” to put them in the same space. Across the three legislative sessions we studied, the Assembly sent eighteen referenda to the voters (nine during 1995–96 and nine during 2003–6). However, some of those issues are clearly not related to a primary liberal–conservative ideological dimension. Such votes, tossed in among the thousands the legislature considers, wreak little havoc. But if we used mainly off-dimensional issues to link the two spaces, we would not get meaningful results. Since we have so few linking votes, we want to guard against the possibility that unusual votes dominate the results. Thus, we excluded referenda that did not predict legislators' first dimension w-nominate scores or the districts' presidential vote to a statistically significant ($p \leq .05$) degree. This ensures that the bridging referenda are all on the same first dimension for both voters and legislators. That selection leaves us with seven referenda in 2004–6 and only three referenda in 1995–96.⁵ Details on the referenda used are provided in Appendix A.

There are a few concerns with this approach. The first is that seven and especially three may be too few bridging observations. How many do we need for this method to

work? No one in the literature has conducted a systematic study of how many bridging items might be needed, although Shor, Berry, and McCarty (2008, 2010) have explored the question of how many bridging legislators are necessary. We do not enter into that level of rigor, but we do offer a few observations. First, converting one scale to another requires simply a linear transformation of one of the scales. Two observations would be enough to accomplish this. That is, if we knew the values of two observations on both scales, without error, that would be enough to fix the rest of them.

However, our bridging observations represent cut points and not ideal points themselves. We know only whether the actors' preferences are to the left or to the right of the cut points. If we had two bridging observations that were not mixed among the actors' ideal points, they would not be helpful. What is preferable, then, is that the bridging cut points be distributed among and throughout the actors. The more distribution we have, the better.

On this measure, our method is imperfect. A number of referenda were controversial among the legislators but then passed unanimously among districts. Other referenda were popular in the legislature and controversial with voters. Meanwhile, axiomatically, all our referenda won a majority in the legislature before they were passed on to voters. Since the Democrats controlled the agenda between 2003 and 2006, for example, this means that all of the bridging observations from that time period have cut points to the right of some majority. Similarly, in the period of Republican control, all referenda have cut points to the left of a majority. Nevertheless, there is some mixing. All of the cut points are not located in the same place, and there are both districts and legislators intermixed among them, in both years. We would like to have more points on which to rest our connection. But note that these overlapping cut points have only one job—to rescale the estimates of the legislators and the districts. We have many other observations on which to estimate the ideal points of the members of each of those groups within their groups. If the cardinal scaling is well accomplished with those many observations, the remaining task is just to rescale them. We thus believe that the bridging observations are informative, although we would prefer more.

A second concern with using referenda as bridging observations is that the legislators might not view voting on sending an issue to the voters the same way that the voters view voting on the issue itself. While some pieces of legislation—specifically, bond issues and constitutional amendments—are required to be sent to the voters for ratification, others are submitted to the voters at the discretion of legislators. These legislators might send the issue to the voters as a way to dodge responsibility for it. They might even believe that the voters will vote the referendum down, absolving opponents of responsibility for

killing it.⁶ If legislators are thinking in this way, the strategic equivalent of opposing the referendum might be to vote for it.

There is little reason to believe this is the case in California, however. Most of the bridging referenda we use passed with the voters, and it is reasonable to assume that, in most cases, legislators expected public passage. Legislative referenda have a very high rate of passage in California. Of the thirty-five legislative referenda sent to California voters between 2000 and 2006, thirty-one passed (National Conference of State Legislatures 2008), even while only about one in three general initiatives passed in California during that same time (Hasen 2009). Except in rare circumstances, voting to send the issue to the voters is the same as supporting the issue itself. However, applications of this approach to other settings should take account of this possibility.

A third concern is that the electorate that chooses state legislators is not the same electorate that votes on referenda and initiatives. Referenda tend to have lower voter turnout than contests for constitutional offices (Butler and Ranney 1994; Zimmerman 2001). However, the bulk of referenda we are examining are part of regular elections, and roll off appears to be only trivial within any given election. Furthermore, as Snyder (1996) found in his study of constituencies, district ideal points derived from ballot initiative voting are remarkably stable even when pooling across electorates of substantially different sizes.

With these bridging observations, estimation of the model is straightforward. Since we are using the exact same issues, we wish to constrain the bill parameters on the vote to send the referendum to the voters to be the same as the parameters for the voters on those issues. We can do this by treating them as the same vote. The merged data set is constructed from the two roll call matrixes stacked one atop the other but overlapping on only the referenda votes. We then estimate a standard IRT model. For the 1995–96 session, this gives us 3,485 votes for 84 legislators and 24 votes for 80 median voters with a 3-vote overlap. For the 2003–6 data (pooled across both sessions), we have 3,055 votes for the 104 legislators, 57 votes for the 80 median voters, with the 7-vote overlap.

The model for each “vote” y_{ij} (in the legislature or in the district) is a logit function, as follows,

$$y_{ij} \sim \text{binomial}(\pi_{ij})$$

$$\pi_{ij} = \text{logit}(\beta_j(x_i - \alpha_j))$$

where x is the ideal point to be estimated, α and β are vote-specific cut point and discrimination parameters, i indexes the legislators and median voters, and j indexes the roll calls and votes.

The model is estimated with Bayesian MCMC methods in WinBUGS 1.4. We allow twenty thousand iterations for burn-in, but the model meets convergence standards at five thousand to ten thousand iterations. We then base our measure on five thousand iterations after burn-in. For more on estimating Bayesian models, see Gelman et al. (1995). Code for estimating the model is provided in Appendix B.

Results

The resulting ideal points appear to be highly reliable indicators of legislator and district preferences. Legislators’ ideal points correlate with first dimension w-nominate scores at better than .99. The correlation of the district ideal points with the average Republican vote share in recent statewide elections is also above .99. The real advantage of our method, however, is that these ideal points are now on the same scale.

A listing of all the members and districts in the 1995–96 session with their ideal points appears in Figure 1. This figure shows each member and district, from most liberal to most conservative, with the ideal points as depicted as hollow dots and horizontal lines indicating 95 percent confidence intervals. As expected, the confidence interval bands tend to be wider for districts than for members since the legislators have so many more points of observation (thousands of legislative votes rather than a few dozen elections) than voters do. Figure 1 bears out our first hypothesis: the districts are located toward the center of the distribution, while the members are located at the extremes.

A listing of members and district ideal points for 2003–6 can be seen in Figure 2. We see the same pattern as we saw in Figure 1, with districts located toward the center of the distribution and legislators toward the extremes.

This lesson becomes clearer in Figures 3 and 4, which show kernel density plots of the ideological distributions of members and districts during the two time periods under study. In both time periods, the distribution of district ideal points is unimodal, while that of legislators is bimodal. In other words, moderate districts exist; the same cannot be said of moderate legislators. In the latter period, notably, while the scale of legislator ideal points ranges from -1.75 to $+2.33$, there is roughly a 0.8-unit gap between the most conservative Democrat (Lou Correa of Anaheim) and the most liberal Republican (Abel Maldonado of San Luis Obispo).

For another view, Figures 5 and 6 offer scatterplots with district ideal points along the horizontal axis and legislator ideal points along the vertical axis. Points are labeled by the party of the legislators. In both figures, we see that there is an ideological continuum of districts that

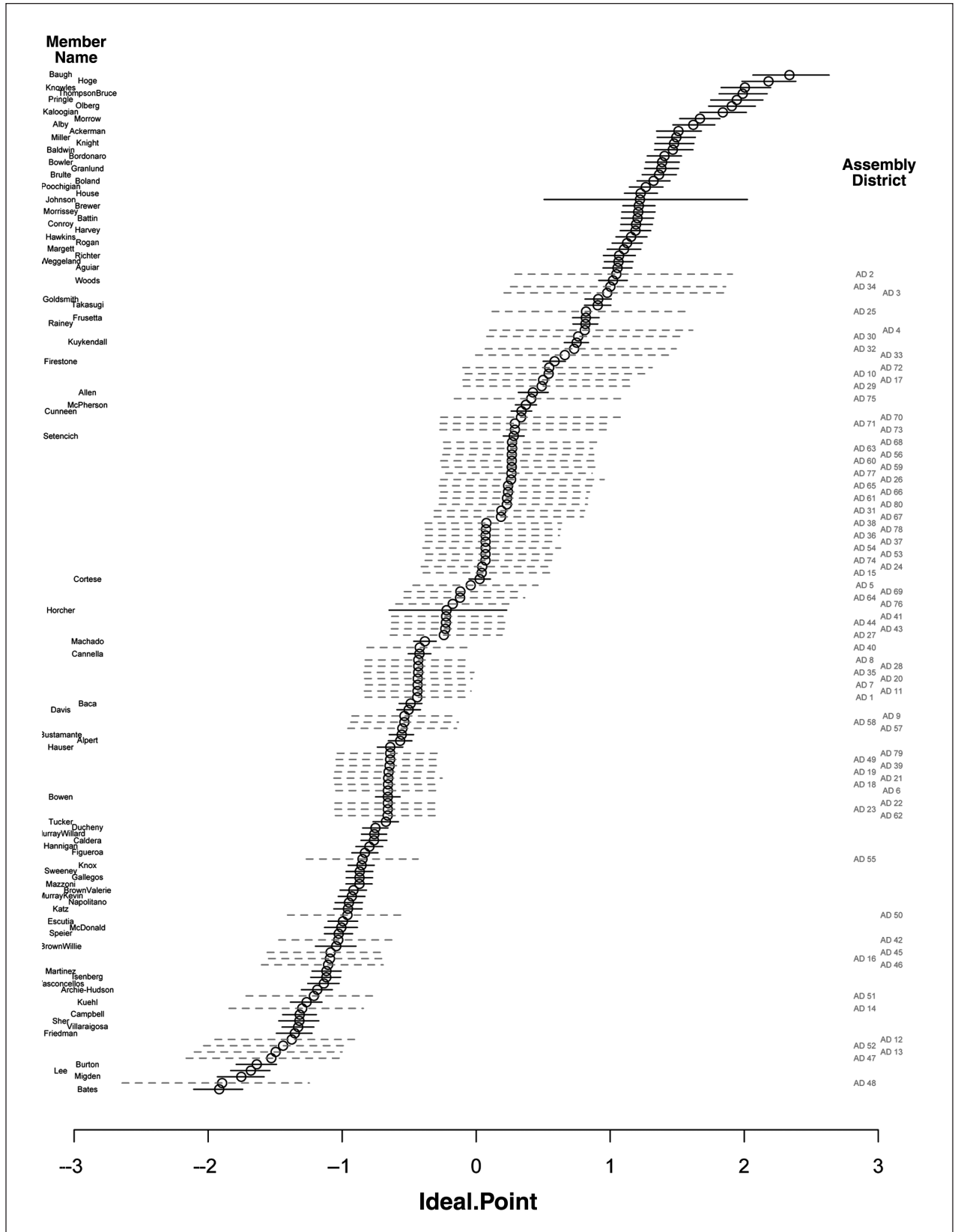


Figure 1. Ideal points of California Assembly districts and legislators, 1995-96

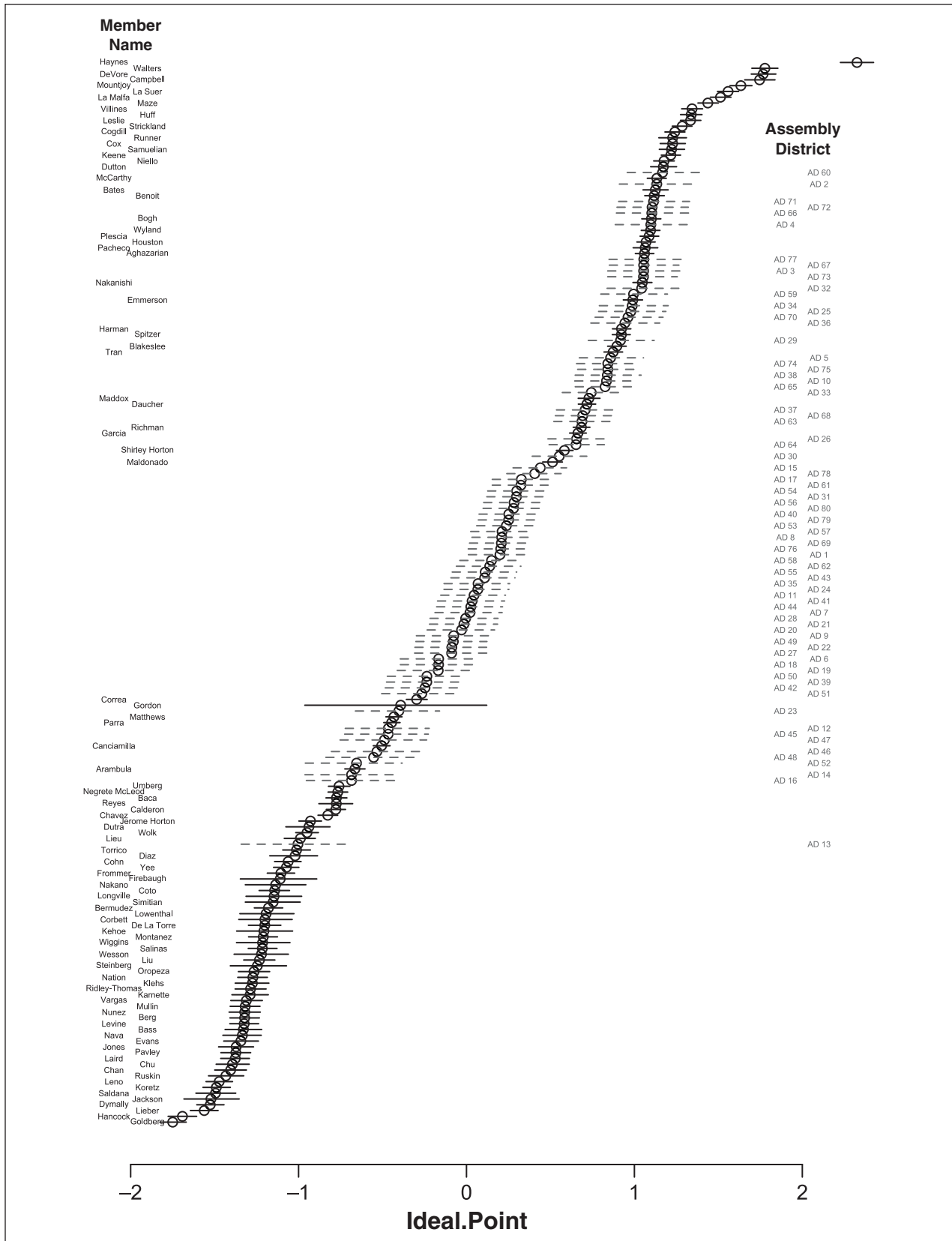


Figure 2. Ideal points of California Assembly districts and legislators, 2003–6

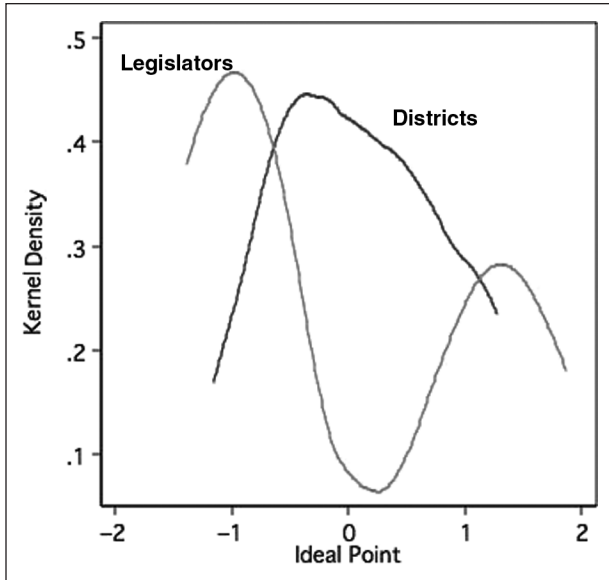


Figure 3. Density plot of ideal points for California districts and Assembly members, 1995–96

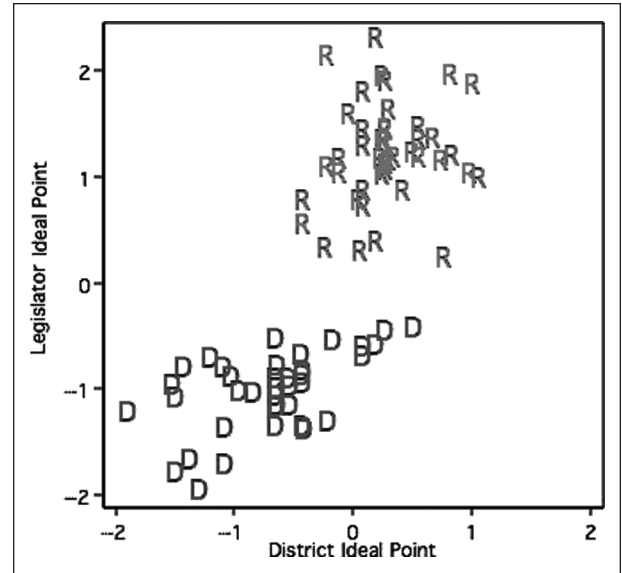


Figure 5. Scatterplot of California district and legislator ideal points, 1995–96

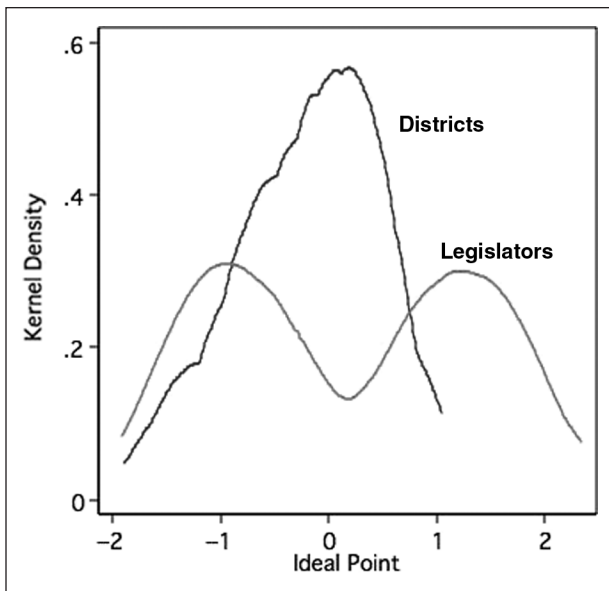


Figure 4. Density plot of ideal points for California districts and Assembly members, 2003–6

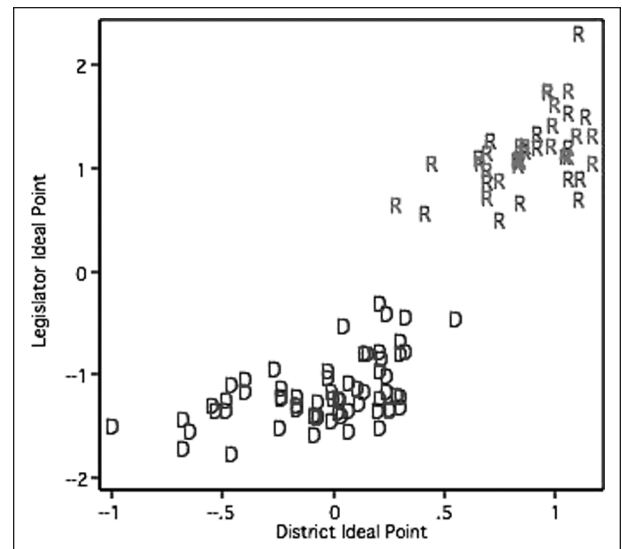


Figure 6. Scatterplot of California district and legislator ideal points, 2003–6

includes conservative, moderate, and liberal locales. Residents of liberal districts are invariably represented by liberal Democrats; those in conservative districts are invariably represented by conservative Republicans. Voters in moderate districts, however, tend not to be represented by moderate legislators. Their task in elections is merely to choose between a Democrat and a Republican who are roughly as ideologically extreme as those from the more lopsided districts. While there are some curious differences

between the two time periods, these ideal points are not directly comparable across time periods.

Figures 5 and 6 showed scatterplots of the point estimates for the ideal points of the legislators and the districts. However, since these ideal points are measured with error, we should confirm that the deviance is statistically significant. Figures 7 and 8 show the estimated distance between each legislator and her or his district, including

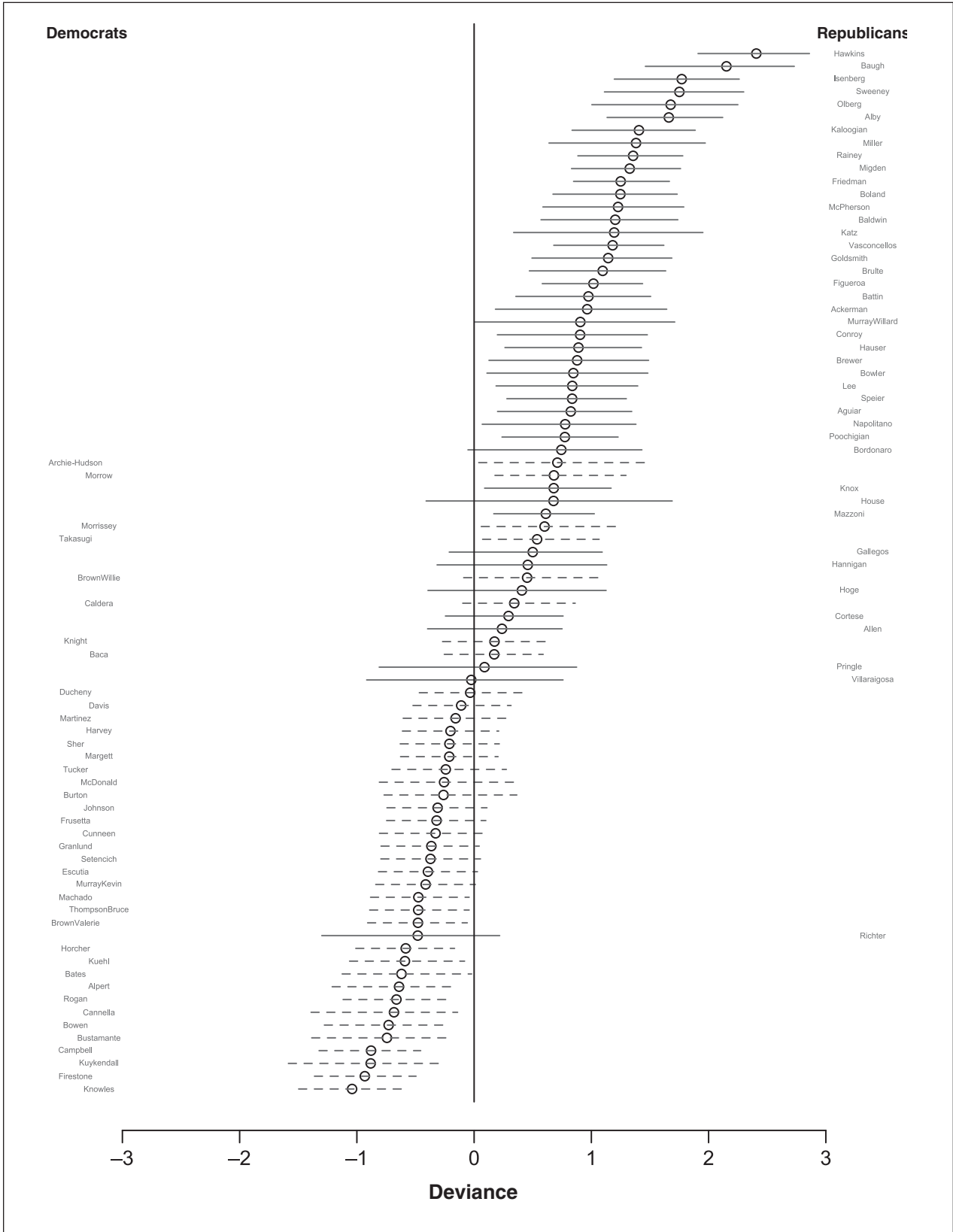


Figure 7. [BF] California | Legislator ideal point minus district ideal point, 1995–96

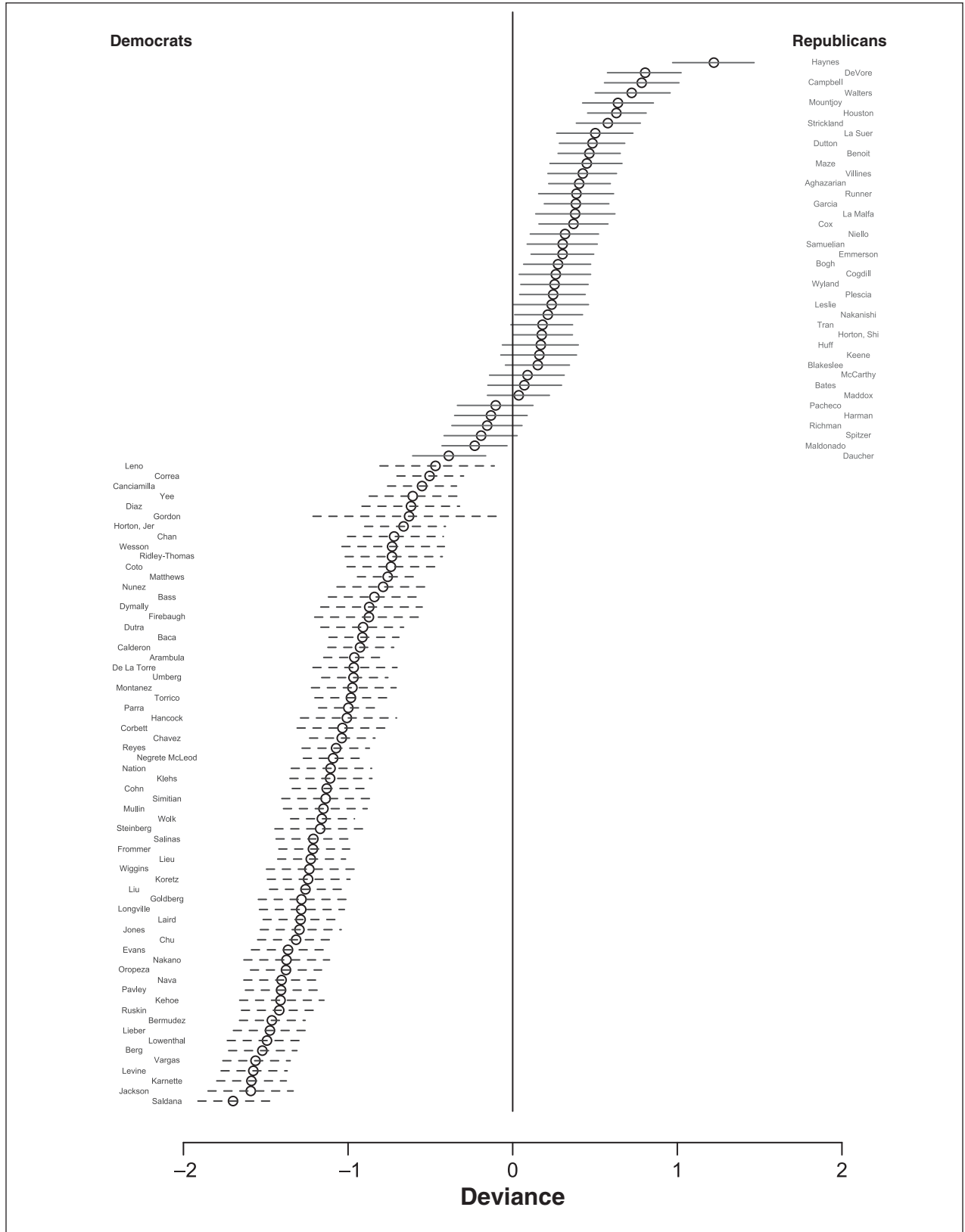


Figure 8. [BF] California I Legislator ideal point minus district ideal point, 2003–6

95 percent confidence intervals, in the years 1995–96 and 2003–6. We simply subtract the district's ideal point from the legislator's. Those members on the right, with distances greater than 0, are to the right of their districts, while those with negative distances are to the left of their districts. With the exception of only six Republicans in 2003–6, Republicans tend to be to the right of their districts, while Democrats tend to be to the left. And for four of those six, the distances are statistically indistinguishable from zero.

The evidence presented above is consistent with the hypothesis that legislators are ideologically extreme relative to their districts, confirming our first hypothesis. But what of the second hypothesis? We developed a measure that we call "deviance," defined as a member's ideological extremism, in the direction of her or his party, relative to her or his district's ideological preferences. This allows us to distinguish a particularly liberal member from, say, San Francisco, who is actually representing her or his district, from a member from a more moderate district who is nonetheless voting the Democratic Party line. This is a party-based measure. Although Lynn Daucher and Mark Leno are both about 0.4 units "too liberal" for their districts, for example, that means something different for Daucher, the Republican, than for Leno, the Democrat. Deviance is thus measured as the member's ideal point subtracted from her or his district's ideal point, and then for Democrats that difference is multiplied by -1 , so that for members of both parties more positive numbers mean greater ideological extremism relative to the district.

Tellingly, of the 104 members in our 2003–6 data set, only 6 have deviance scores below zero (only 2 of which were statistically discernable from zero)—the rest are more extreme than their districts. The average deviance in 2003–5 for Democratic members is 1.10; for Republicans, it is 0.30. This interparty difference is statistically significant at the $p \leq .001$ level. On the metric we are using, a difference of about 0.8 may not seem drastically large. But by comparison, the standard deviation of legislator ideal points is 0.362 among Republicans and 0.313 among Democrats. So 0.8 is more than two standard deviations.

This pattern was reversed in the 1995–96 session. Of the ten most representative, or least deviant, members that year, eight were Democrats, and the ten most deviant members were all Republicans. This is consistent with our hypothesis that members of the majority party would deviate somewhat more from their districts than members of the minority party.

We cannot say, of course, that parties are the cause of this interparty difference. The kinds of districts that elect Democrats are different than those that elect Republicans. Some other features of the districts might allow members to get away with not representing the median member. We thus control for a number of alternative explanations

for deviance. For instance, variables that affect party strength might make it easier for the party to pressure its members in a particular district. Variables that affect polarization at the local level might affect a member's reelection constituency (Fenno 1978), even if they did not move the median voter. Variables that affect the voters' attention to politics might affect the electorate's ability to hold its member accountable. In some cases, demographic variables might affect representation through more than one of these mechanisms.

We chose to control for many political and demographic characteristics of each member's home county and home district. District characteristics are an obvious control, but there is a growing consensus that counties are more important for studying politics and partisanship. As Aistrup (1993) notes, (1) counties have relatively fixed borders, (2) many races are contested at the county level, and (3) people identify with their counties much more than they do their congressional district. For these and other reasons, counties are a natural locale for the emergence of organic political communities (Masket 2009). Thus, we might expect county characteristics to exert a greater influence on elected officials than the characteristics of the more ephemeral, less salient legislative districts. For the purposes of this article, we are not particularly interested in whether county- or district-level indicators are more reliable; we simply want to determine whether any such variables can explain away the interparty difference in district deviance. We thus consider both county- and district-level measures.

First, we seek to control for differences in the size and potential complexity of the political environment. For this, we use population measures for the county that the district is in. *Log population* is the log of the population of the county. Previous research has suggested a link between the size of a constituency and the partisanship of its elected officials (Epstein 1956; Lee and Oppenheimer 1999; Masket 2007b). Similarly, we include *log density*, the log of the population density in the county, on the chance that more dense populations are conducive to stronger party organizations (Gimpel 1993). More dense populations also tend to have more districts fit into a single community and covered by common media outlets (Cohen, Noel, and Zaller 2004), which can make it harder for voters to monitor their legislators.

Population growth, which can strain county resources and induce divisiveness in its political environment, is included here as well. We measure it as the percentage increase in county population between 2000 and 2006 for the 2003–6 data set and between 1990 and 1996 for the 1995–96 data set. We also measure the percentage of the district that is urban, reasoning that cities may be more prone to strong party organizations than rural areas, and urban areas also tend to have more districts per media market.

We also account for differences in the income of the constituents. It might be easier for a member to shirk when her or his constituents are poorer, and Democrats tend to represent those voters. In addition, there is evidence that income inequality is linked to polarization in the aggregate (McCarty, Poole, and Rosenthal 2006). The Gini coefficient measures the general disparity of the income distribution in the county. We then control for per capita income at the county level in 1989 (for the 1995–96 data) and 1999 (for the 2003–6 data). Similarly, it might be easier for a representative to shirk when a district is ethnically or racially diverse. We thus include the percentage of county residents who are foreign born, which is also linked, at the aggregate level, to polarization (McCarty, Poole, and Rosenthal 2006). We also include the percentage of the Assembly district that is African American and the percentage that is Hispanic. We also include a variable for county ideology, measured by the county's vote for Bob Dole's presidential bid (for the 1995–96 data) and for George W. Bush's 2004 presidential bid (for the 2003–6 data). Finally, since there is reason to believe that politics is different in Northern California than in Southern California, we include a dummy for the north.

Finally, we have so far been assuming that it is as likely for a member to be extreme with an extreme district as with a moderate one. But neither party wishes to pull policy all the way to plus or minus infinity. Democratic elected officials, even in California, are not communists. And their Republican counterparts are not fascists. It may just be that Republicans are more representative because they have more extreme districts to represent. The median voters in Orange County might be as conservative as they come, and their representatives might be just closer to their ideal point.

We thus control for the ideal point of the district median voter and for that ideal point squared. This will allow for a nonlinear and nonsymmetrical (if necessary) effect of the district's ideology to affect how far the members are even able to stray from the district.

Table 1 reports results for these models in 2003–6, during a Democratic majority, and Table 2 reports for 1995–96, when Republicans were in charge. We present here six models for each chamber. We report a bivariate model and two models with some or all of the variables discussed above. We also add to all three of those models variables for the district ideal point and its squared term. Even controlling for all of these issues, the interparty difference remains roughly as it is in the bivariate relationship, statistically significant ($p \leq .001$) and of roughly the same magnitude. We ran a number of other specifications (including some with variables not presented here), and in all cases with similar results.

This is support for our second hypothesis: that the majority party will be more divergent. This result holds

up in both periods, when the Democrats were in charge (and had been for some time) and during the brief period when the Republicans were in charge.

Several control variables—the ones measuring population and racial diversity—are statistically significant in this model. Specifically, more populous, less densely populated counties tend to elect legislators who diverge more from the median voter, as do districts with lower percentages of African Americans or Latinos. Substantively, these variables have a meaningful effect. The difference in density between rather dense Los Angeles or Orange County and less dense Napa or Sonoma is about two points in the log scale. That translates to about half of the interparty difference in this model. The density variable is also significant, and negative. So in less densely populated areas, where parties may be stronger, the party does seem to get its way.

The ethnicity variables are of a similar magnitude. Increasing the percentage of the county that is black or Hispanic by 10 percentage points would lead to a change of the same magnitude as the density variable. This is counter to some expectations that minority populations might be easier to shirk. Possibly, ethnic politics in these districts creates solidarity with the district against the party.

With the control for the ideal point of the district, the interparty difference changes only trivially and remains statistically significant ($p \leq .001$). Finally, we turn to the third hypothesis, that the majority party will be more extreme the longer it is in the majority and that the minority party will be less extreme the longer it is in the minority. The ideal way to test this hypothesis would be with over-time data. If we estimated the model for several decades, we could trace the trajectory of each party. Unfortunately, these data are time-consuming to collect and process. So we look for preliminary evidence with the data we have.

In terms of our data, the prediction is that a long-standing majority party will be much more extreme than a short-term majority party. Similarly, a short-term minority party will be more extreme than a long-term minority party. These predictions are reinforcing in our deviance measure. The theory predicts that the minority will move toward the median as the majority moves away and the gap in their relative extremism will thus widen.

We should be cautious about using these results to test this prediction. The two periods are not directly comparable because they have not been linked to the same scale. However, for both periods the scale has been normalized. If we assume that the general range and distribution of the policy space in the late 1990s are similar to those in the early 2000s, we can make a comparison. In that case, the relative extremism of the two parties, which the majority party coefficient in the above models captures, should be larger for the Democrats, who had controlled the chamber for four consecutive sessions by the 2003–4 session.

Table 1. Predicting California Party Deviance in 2003–6 (Democratic Control)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Majority party	0.80*** (0.06)	0.90*** (0.13)	1.04*** (0.09)	0.97*** (0.13)	1.00*** (0.08)	0.96*** (0.13)
Per capita income in county			0.00 (0.00)	0.00 (0.00)		
Urban in district (%)			0.00 (0.01)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00)
Bush 2004 vote in county			0.02 (0.43)	0.09 (0.48)		
Log population in county			0.15** (0.06)	0.12** (0.06)		
Log population density in county			-0.11** (0.04)	-0.09** (0.04)	-0.08** (0.04)	-0.06 (0.04)
Black in district (%)			-0.02*** (0.00)	-0.01* (0.01)	-0.01*** (0.00)	-0.01 (0.01)
Hispanic in district (%)			-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)
Gini coefficient in county			0.44 (0.72)	0.15 (0.75)	0.55 (0.34)	0.37 (0.35)
North dummy			0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Foreign born in county (%)			0.00 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Population growth in county			0.01 (0.01)	0.01 (0.01)	0.01* (0.01)	0.01 (0.01)
District ideal point		0.37*** (0.10)		0.10 (0.15)		0.21* (0.12)
District ideal point squared		0.34*** (0.12)		-0.19 (0.13)		-0.26*** (0.12)
Constant	0.30*** (0.05)	0.25* (0.13)	-0.59 (0.69)	-0.34 (0.71)	0.56 (0.38)	0.66 (0.42)
Observations	104	104	104	104	104	104
R ²	.62	.69	.73	.74	.71	.73

Standard errors are in parentheses.

* $p < .1$. ** $p < .05$. *** $p < .01$.

Figure 9 charts the majority party coefficient, and its standard error, for the years when the Republicans held the majority (1995–96) and those when Democrats ran the chamber (2003–6). In all of the different model specifications, the coefficient is substantially larger for the Democratic majority than for the Republican majority. In only one of those specifications (model 5) is that difference statistically significant, although it approaches statistical significance in at least three others. The consistency of this pattern makes it difficult to dismiss as the result of chance. This finding offers some support for our third hypothesis, that time out of power tends to induce moderation. However, as we note, we are now assuming a lot about the comparability of the two periods.

In addition to the hypotheses about parties that we set out to test, our results can speak to some methodological issues. We argued above that simply using vote shares to

infer the ideal points of the district median might be misleading. However, vote shares do conform to conventional wisdom about which districts are especially liberal and especially conservative. How does our measure compare?

As it happens, our estimated ideal points are correlated with vote shares at greater than .9. The measure does include the results from those elections, but it reduces them to “for” and “against.” That is, district 13, in San Francisco, gave George W. Bush 12.68 percent of its vote in 2004. District 15, located on the east side of San Francisco Bay, voted 49.98 percent for Bush. Both districts were coded as 0 on the vote-for-Bush item. But the ideal points of their respective median voters are estimated at -1.004 and 0.440. That is, the districts’ different voting records on the other issues allow us to recover the difference between very liberal San Francisco and more moderate Alameda. This suggests that we can be somewhat

Table 2. Predicting California Party Deviance in 1995–96 (Republican Control)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Majority party	0.51*** (0.10)	0.71*** (0.13)	0.51*** (0.12)	0.62*** (0.15)	0.50*** (0.12)	0.60*** (0.14)
Per capita income in county			0.00 (0.00)	0.00 (0.00)		
Urban in district (%)			0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)
Dole 1996 vote in county			-0.19 (0.69)	0.60 (0.72)		
Log population in county			0.00 (0.08)	-0.05 (0.08)		
Log population density in county			-0.03 (0.08)	0.01 (0.08)	-0.04 (0.05)	-0.03 (0.05)
Black in district (%)			0.00 (0.01)	0.01* (0.01)	0.00 (0.01)	0.01* (0.01)
Hispanic in district (%)			-0.01 (0.00)	-0.01* (0.00)	-0.01* (0.00)	-0.01 (0.00)
Gini coefficient in county			1.14 (0.87)	0.72 (0.84)	1.16 (0.86)	0.81 (0.83)
North dummy			0.13 (0.14)	0.11 (0.13)	0.11 (0.12)	0.11 (0.12)
Foreign born in county (%)			0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	0.01 (0.01)
Population growth in county			0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)
District ideal point		0.36*** (0.12)		0.31* (0.18)		0.23 (0.15)
District ideal point squared		-0.27*** (0.09)		-0.38*** (0.13)		-0.34*** (0.12)
Constant	0.47 (0.07)	0.42 (0.10)	0.37 (0.99)	1.12 (0.98)	0.21 (0.56)	0.78 (0.58)
Observations	82	82	82	82	82	82
R ²	.26	.36	.38	.45	.38	.45

Standard errors are in parentheses.

* $p < .1$, *** $p < .01$.

comfortable using vote shares in other applications, or else this measure, based on an entirely different logic, must nevertheless lead to the same errors to which the vote shares measure might be prone.

The estimated legislator ideal points are similarly plausible. Since the IRT model we use is based on the same votes and a similar model to w-nominate, we would expect our results to be correlated with estimated w-nominate scores for the California legislature. For the pooled 2003–4 and 2005–6 sessions, our results are correlated with first-dimension w-nominate scores from each of those sessions at greater than .988.

Discussion

The evidence presented above supports our first two hypotheses about the nature of parties, and it is suggestive

about the third. First, it demonstrates that legislators are nearly always more ideologically extreme than the median voters in their districts. There is no evidence for successful dyadic representation in these data, although constituencies are represented through the parties they choose to elect. Second, the evidence shows that members of an entrenched majority party tend to be more ideologically extreme relative to their districts than members of the long-standing minority party. Finally, this evidence suggests that time out of power tends to induce moderation. The majority Democrats, who have held the majority in the Assembly for thirty-six of the past thirty-eight years, had nearly twice the deviance score of Republicans during their brief stint of chamber control. Despite the very conservative base of today's California Republican Party, its members are pursuing a strategy of moderation (at least relative to the Democrats) in the hopes of regaining the majority.

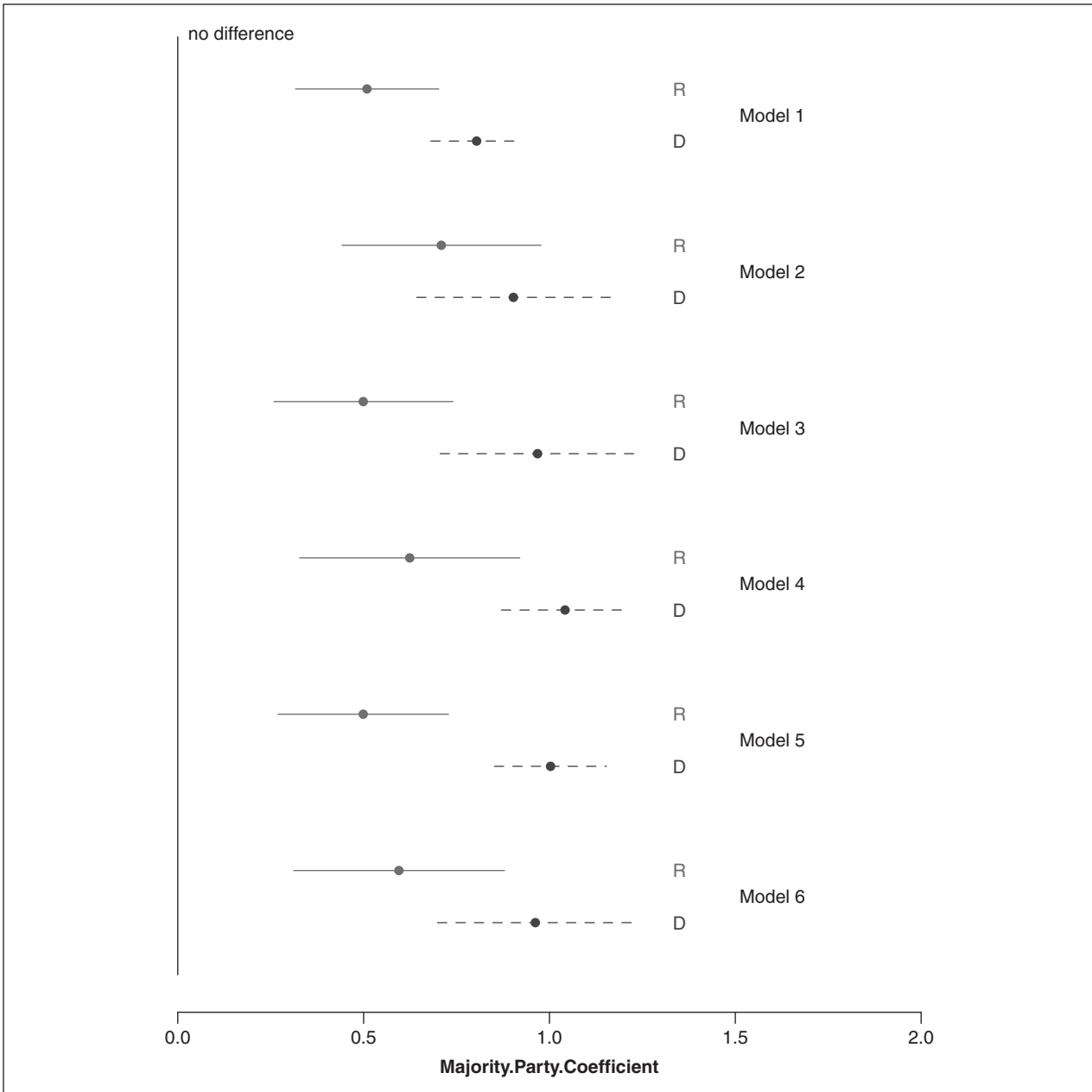


Figure 9. Relative extremism for California Democrats and Republicans in the majority

A number of alternative theories to our interpretation of these data present themselves. First, one may point out that the latter data set comes after a legislative redistricting plan that was drawn up by Democratic legislators and signed into law by a Democratic governor. Since Democrats would naturally seek to increase the number of Democratic-leaning districts, they would pack Republican voters into as few districts as possible. This would make the Republican districts appear more ideologically extreme, with their Republican representatives appearing closer to the median voter. This is possible, although, we believe, unlikely. The 2001 redistricting plan was actually widely derided

by liberal activists at the time as being an incumbent-protection plan, shoring up constituencies for incumbents of both parties (Mercurio and Wallison 2001; Associated Press 2001). If anything, it likely led to a modest polarization in all districts across party lines.

One may also argue that the difference in party deviance we found is simply the result of the living patterns of Democrats and Republicans. Democrats tend to live more compactly in dense urban areas; Republicans are distributed more evenly across the land. This is certainly true, although we do not believe it has a particular effect on the desire (or lack thereof) of legislators to represent their

districts. A representative of a densely packed Democratic district should theoretically be just as interested in winning over the median voter as a representative of a sparse Republican district. And the fact that the Republicans were the more deviant party relatively recently when they ran the chamber suggests that the difference has little to do with living patterns. We also control for many of these demographic characteristics.

Yet another concern is that what we are seeing is an artifact of agenda control (Cox and McCubbins 2005). The majority party in the California Assembly has historically maintained tight control over what gets voted on and what does not. This has the consequence of censoring any cutting lines that would divide the majority party. We have already observed that this is the case for referenda—even if a referendum vote that would split the majority were to get to the Assembly floor, it would not be voted on by the electorate. Something systematic in this might make the majority party seem more extreme. However, strictly speaking, the effect of this should be to reduce variation within the majority party's ideal points but not to make it more extreme. Meanwhile, when possible, the majority would have an incentive to bring to the floor votes that would make the minority seem extreme. Further analysis with more years of data could help shed light on this topic.

Methodological Implications

The model we use to measure ideology has a number of important implications. First, as noted above, the estimated ideal points for the median voters are highly correlated

with the percentage of the vote cast for partisan offices. This is despite the fact that the vote share data was discarded in the estimation and only the outcome of the final vote was used. Theoretically, the vote shares may not be accurate estimators of the median voter's ideal point. But in practice, in this example, they are. This suggests that the common practice of using vote shares as a measure of district or state ideology is probably not all that dangerous. It is always better to get the best possible measure, but since corrections may not always be possible, this finding is reassuring.⁷

Second, our use of bridging observations provides a useful option when the data are available. However, the data usually are not. For one thing, California is unique in that it conveniently makes available election returns compiled at the legislative district level; compiling such data from the precinct level is often prohibitively time-consuming for individual researchers. In addition, referendum politics in other states may not be as amenable to this analysis as it is in California. If legislators use the referenda in strategic ways, or if the agenda sent to voters is particularly nonideological, this method might not be usable. However, the evidence from California may provide a useful check on those methods that are applied elsewhere. We recommend that results from this method be used to validate other methods.

Ultimately, the study of representation requires that we compare the preferences of legislators to those of their constituents, and all such comparisons require some assumptions. We recommend our method be added to the toolbox of representation scholars, alongside survey-based approaches.

Appendix A

California Referenda Used as Bridging Observations

Election date	Ballot listing (legislative bill)	Title	Percentage of voters approving	Vote in Assembly
3/26/96	Prop. 192 (SB 146)	Seismic Retrofit Bond Act	59.9	59–12
3/26/96	Prop. 197 (SB 28)	Amendment of the California Wildlife Protection Act: Mountain Lions	41.9	44–30
11/5/96	Prop. 204 (SB 900)	Safe, Clean, Reliable Water Supply Act	62.8	74–4
11/2/04	Prop. 60 (SCA 18)	Election Rights of Political Parties	67.6	55–21
6/7/06	Prop. 81 (SB 1161)	Reading Improvement, Library Renovation Bond Act	44.2	60–14
11/7/06	Prop. 1A (SCA 7)	Transportation Funding Protection	77.0	58–11
11/7/06	Prop. 1B (SB 1266)	Highway Safety/Air Quality/Port Security Bond 2006	61.4	61–10
11/7/06	Prop. 1C (SB 1689)	Housing/Emergency Shelter Trust Fund 2006	57.8	54–16
11/7/06	Prop. 1D (AB 127)	Public Education Facilities Bond 2006	56.9	58–12
11/7/06	Prop. 1E (AB 140)	Disaster Preparedness/Flood Prevention Bond 2006	64.2	62–10

Appendix B

WinBUGS Code for Estimating Ideal Points

```

### Notes:
###
### List of all nodes: (parameters and variables)
###
### n = number of actors (DATA)
### k = number of issues (DATA)
### y = n x k matrix of issue positions (0,1) (DATA)
### y is pooled Legislators and Districts, with
    overlap on
### bridging observations
### x = n-vector of ideological positions for each
    actor (P)
### py = probability of a positive issue position (P)
###
###
model {
## MODEL IDEAL POINTS
for (j in 1:k) { ### Loop over k issues
for (i in 1:n) { ### Loop over n legislators/districts
## Draw y from bernoulli
y[i,j] ~ dbern(py[i,j])
    logit(py[i,j]) <- discrim[j]*x[i] - cutpoint[j]
}
}
for(i in 1:n){
x[i] ~ dnorm(0,1)I(-5,5)
}
## priors
for(jj in 1:k){
discrim[jj] ~ dnorm(0.0,0.1)I(-5,5)
cutpoint[jj] ~ dnorm(0.0,0.1)I(-5,5)
}
}

```

Declaration of Conflicting Interests

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Financial Disclosure/Funding

The authors received no financial support for the research and/or authorship of this article.

Authors' Note

The authors wish to thank Kathleen Bawn, Jeff Lewis, Bryan McQuide, Nolan McCarty, Michael Peress and Jesse Richman for useful comments and suggestions.

Notes

1. Dyadic representation and partisan representation are, of course, not the only models available. We focus here

on them because they are what our method is designed to detect. Descriptive representative, for example, does not depend on the policy preferences of the representative or the represented, although it is expected that it might end up reflecting them.

2. Hacker and Pierson (2005) focus on the Republican Party in their analysis. Our approach compares all members of the legislature.
3. Other criticisms, such as that the agenda might be manipulated and so distort the issue space, might still be an issue.
4. Kernell (2009) offers a partial solution, transforming vote shares into medians on the assumption that voter preferences are normally distributed, but with different variances. This solution does not, however, address any other likely variation in distributions, including lopsided, bimodal, or even nonnormal unimodal distributions.
5. Including other referenda does not usually change our results, although in some cases it leads to wildly unstable estimates and in other cases it gives results that are even stronger for our hypotheses than those reported here.
6. Hug and Sciarini (2000) show that voters do respond to institutional conditions of a legislative referendum, including whether it is binding and which party is in power.
7. See also Levendusky, Pope, and Jackman (2005) for a similar observation.

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