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The Effect of Political Competition on Democratic Accountability

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Abstract Representing uncompetitive, homogeneous constituencies is increasingly the norm for American legislators. Extensive research has investigated how competition affects the way representatives respond to their constituents' policy preferences. This paper explores competition's effect on the *other* side of representation, how constituents respond to their legislators' policy record. Combining multiple measures of state competitiveness with large-N survey data, I demonstrate that competition enhances democratic accountability. Voters in competitive states are more interested in politics, more aware of the policy positions their U.S. senators have taken, and more likely to hold them accountable for those positions at election time. Robustness checks show that these effects are not due to the intensity of campaigning in a state: general competition, not particular campaign activities, drives citizens' response. The recent increase in uncompetitive constituencies has likely lessened the degree to which legislators are held accountable for their actions in office.

Keywords Accountability · Competition · Heterogeneity · Representation

Introduction

Despite the United States overall being a diverse and politically competitive nation, most legislators represent homogeneous and uncompetitive constituencies. For example, while the 2000 and 2004 presidential elections were, at the national level,

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exceptionally close, just 7 % of House races were decided by less than 10 percentage points in the 2002 and 2004 congressional elections (Abramowitz et al. 2006). Since the 1980s, the creation of majority-minority districts under the Voting Rights Act has resulted in more racially homogeneous constituencies (La Raja 2009). And the increasing self-sorting of like-minded partisans has left constituencies with high levels of ideological agreement, solidly conservative or liberal (Bishop 2008). Whether political competition is conceptualized as the closeness of elections, the conflict between social groups, or the diversity of ideological views, the average American legislator now represents an uncompetitive constituency with little conflict in constituents' political preferences.[1]

This decline in competitive districts is widely assumed to be detrimental to democracy (Samples and McDonald 2006). As Pildes (2006) declares,

> Something has gone awry with American democracy. Since at least the start of this decade, the country has been closely and sharply divided when it comes to national elections and national policy. Yet at the very same time, more and more elections in the United States are becoming little more than formal rituals; they are affairs of acclimation rather than intensely competitive contests that force conflicts over policies and ideologies to the surface and give voters meaningful choice. (p1-2)

The value of politically competitive districts is likewise frequently extolled by interest groups: Common Cause, the League of Women Voters, and Americans for Redistricting Reform all list the creation of competitive constituencies as a key goal to aim for when redistricting.[2]

A long line of political science research, however, questions the idea that competitive constituencies are good for one aspect of democracy, the extent to which legislators represent their constituents' views. Representatives of heterogeneous constituencies are less able to identify policy platforms that a majority of voters prefer (Bailey and Brady 1998; Ensley et al. 2009), are less responsive to the political preferences of their constituents (Bishin 2003; Bishin et al. 2006; Dennis et al. 2000; Fiorina 1974; Gerber and Lewis 2004; Gulati 2004; Kuklinski 1977), and are more likely to abstain from taking votes in Congress altogether (Jones 2003). Political competition, in short, appears to weaken the representative relationship between legislators and their constituents.

We know far less, however, about how competition affects the *other* side of the representative-voter relationship, the extent to which constituents hold legislators

[1] Political competition refers to the degree of (potential) conflict of preferences between groups within a constituency (Bishin 2003, p. 1). Previous research has not settled on a common terminology for this competition, also referring to it as "complexity" (Ensley et al. 2009), "discord" (Fitzgerald and Curtis 2012), "diversity" (Putnam 2007), or "heterogeneity" (Anderson and Paskeviciute 2006; McAtee and Wolak 2011). Throughout this paper, I use the terms "political competition", "diversity", and "heterogeneity" interchangeably.

[2] Common Cause, see http://www.commoncause.org/site/pp.asp?c=5nJCJQPvEhKUE&b=7461781; the League of Women Voters, http://ca.lwv.org/lwvc/action/redistrict/; Americans for Redistricting Reform, http://www.americansforredistrictingreform.org/html/redistricting_reform_principle.html, all accessed July, 2011.

accountable for their policy record in office. The brief academic literature that exists hypothesizes that accountability—like representation—is weakened under conditions of diversity. Ferejohn (1986)'s formal model predicts that heterogeneity in a constituency "permits the incumbent to escape electoral control" (p. 11) and that accountability is greater in homogeneous constituencies (see also Brunell 2008, p. 15). But while the research on how competition affects legislators' responsiveness is extensive, empirical testing of this further claim that democratic accountability is more likely to occur in homogeneous constituencies has to date been lacking. This paper asks the simple question: how does political competition affect how well representatives are held accountable for their policy record?

Answering this simple question requires the measurement of two complex variables: accountability, and political competition. Accountability requires that voters know how their representatives have voted in office, and use that information to support or oppose them at election time (Ansolabehere and Jones 2010; Hutchings 2003). Effectively measuring these features of the electorate has proved problematic due to the lack of survey data that accurately matches voters' preferences with legislators' votes (Weissberg 1979). This paper takes advantage of data from the 2006 Cooperative Congressional Election Study (CCES), a large-N internet survey which included a battery of items specifically designed to measure constituents' knowledge of how well their U.S. senators had represented them, and their responses to that representation.

These individual-level survey data are combined with measures of state-level political competition. Previous researchers have operationalized this concept in a variety of ways—with the empirical results often hinging on which measure is used (Aistrup 2004). Some scholars use margins of victory in previous elections, others the degree of ideological disagreement amongst voters, and still others the diversity of socio-demographic groups in the electorate. Rather than arbitrarily choosing one, the analyses in this paper are replicated for each of these measures.

The results are consistent across each of the different measures (although not always significantly so, as later sections discuss). Voters in politically competitive states are more likely to know the roll call votes their senators have cast, and more likely to use that information to reward or punish them at election time. In short, political competition increases the extent to which voters hold incumbents accountable. The paper proceeds as follows. After reviewing the literature on the effects of political competition on mass behavior, I outline the measures I use to operationalize democratic accountability and state competition. The empirical results confirm the broad predictions from social arena theories: constituents in heterogeneous states are more interested in politics, can correctly identify more of their senator's policy positions, and place greater weight on policy congruence in casting their votes than their counterparts in homogeneous states. Incumbents are rewarded or punished for their record to a greater extent the more competitive their state. The paper concludes by addressing the implications of the decline in competitive constituencies in the modern U.S. Congress.

How Political Competition Affects Mass Behavior

Research on the effects of political competition on citizen behavior has largely fallen into one of two camps: what Fitzgerald and Curtis (2012) refer to as "social arena studies" and "network studies". These two traditions emphasize different psychological mechanisms that link citizen behavior to diversity, and focus their study at different levels of aggregation. For network theories, the relevant level of analysis is the citizen's immediate surroundings and networks. In this conception, citizens respond to political diversity through regular interaction and discussion with others who hold different political views from their own (e.g. Huckfeldt et al. 2004).

For social arena theories, on the other hand, the relevant level of analysis is the broader constituency in which collective decisions are made. In this conception, individuals respond to diversity because the "political stimuli" in their environment orient them towards politics in different ways (Pacheco 2008). As Fitzgerald and Curtis (2012, p. 130) sum up, "social arena studies identify a positive relationship between discord and engagement", explained through one of two psychological mechanisms. Political competition can increase citizens' interest in politics due to the more exciting public conflict it creates (what I refer to as the *excitement* mechanism), and can increase citizens' perceived need to engage in politics to protect their own interests (the *interest-priming* mechanism).

Crucially, these mechanisms have significant implications for the extent to which incumbent representatives are held accountable for their record in office. As I explain below, specific findings from social arena studies lead us to hypothesize that constituents in competitive states will hold incumbents *more* accountable for their policy record than constituents in uncompetitive states.

Political Competition Increases Citizens' Attention to Politics

The first finding from social arena studies is that competition can stimulate citizens' interest in politics. The excitement mechanism posits a relatively straightforward link between competition and voters' interest in politics. The public conflicts prevalent in competitive constituencies lead to a more exciting brand of politics and fuel greater interest in learning about political life (Gimpel et al. 2003; Oliver 2001; Oliver and Ha 2007; Putnam 2007; Scheufele et al. 2006). As Oliver (2001, p. 84) argues,

> In places where different interests struggle to form and organize, gain adherents, and overcome their opposition, political life is more lively. Attracted by the spectacle of conflict, citizens become interested in political issues and are drawn into public action. Since citizen interest and mobilization are key factors determining civic involvement, political conflict—by stirring up political interest—can also strengthen civic life.

The greater interest in politics that the high-octave public conflict in competitive states fosters leads to greater information-seeking, and thus greater knowledge of the political world. Citizens who are embedded in environments of competing

political ideas are more sophisticated in their political reasoning (Gastil and Dillard 1999), more aware of the logic underlying opposing views (Mutz 2002) and better able to correctly answer factual questions about political life (Putnam 2007; Scheufele et al. 2006). In short, the exciting public conflict that is produced by diverse and competing interests in a constituency creates an electorate that is more interested in politics, more likely to seek out information about politics, and more knowledgeable about politics as a result.[3]

Political Competition Increases Citizens' Focus on Protecting Their Own Interests

The second finding from social arena studies is that competition can prime constituents to view politics as a means of protecting their own interests from opposing groups. In their review of the literature, Costa and Kahn (2003, p. 108) sum up what they call an "empirical regularity" across various disciplines and studies: levels of trust and civic engagement are lower in more diverse communities. Voters in heterogeneous areas are less likely to trust their fellow constituents and as a result more likely to perceive a need to protect their own needs from opposing groups (Alesina and Ferrara 2000; Fieldhouse and Cutts 2010; Putnam 2007).

In homogeneous, uncompetitive states, voters assume that those around them share their preferences and are more willing to share public goods with them. In contrast, residents of competitive states are more likely to defend the benefits their group receives at the expense of others (Alesina et al. 1999; Glaser 2003; Habyarimana et al. 2007; Luttmer 2001). Rather than perceiving politics as a means for benefiting the entire community, in heterogeneous areas, individuals "are likely to value only the benefits of public goods that accrue to their groups, and discount the benefits for other groups" (Alesina et al. 1999, p. 1244).

This need to protect one's interests affects political behavior as well as attitudes. Campbell (2006) shows that the prevalence of two motivations to vote—to protect one's interests from others, or to fulfil one's civic duty—vary with heterogeneity. The more competition, the more likely people are to view voting as an instrumental means to ensure their needs are heard in government. "Diverse interests breed conflict," notes Campbell (2006, p. 4), and in these competitive areas, "voters come to the polls to protect their interests". Accustomed to conflict and distrusting of others, residents of diverse areas are more likely to approach politics as a competitive fight to protect their own interests.

The Implications for Democratic Accountability

In order to hold incumbents accountable, constituents must know how their representatives have voted and must use this information to reward or punish them

[3] A separate literature explores how media coverage of politics—and in particular, of incumbent legislators' records—varies across contexts (e.g. Arnold 1990; Hutchings 2003). Assessing the quality of the information communicated by the media in competitive states is beyond the scope of this paper. Instead, I focus on the narrower claim from social arena studies that political competition drives interest in politics, and thus increases information-seeking.

at election time (Ansolabehere and Jones 2010; Hutchings 2003). The two mechanisms from social arena studies described above lead directly to expectations about how political competition affects these two aspects of democratic accountability.

First, the excitement mechanism predicts that in competitive states, voters are likely to be more interested in and knowledgeable about politics. As applied to theories of accountability, this engagement with politics is hypothesized to result in increased knowledge of how well the incumbent has represented their views:

H1 Voters in competitive states will be more aware of the incumbent senator's record than voters in uncompetitive states.

Second, the interest priming mechanism predicts that voters in competitive states are likely to approach politics in a different way than their counterparts in uncompetitive states. In diverse areas, voters experience politics as a fight to protect their interests against those of opposing groups. As a result, we would expect senators from competitive states to face an electorate more likely to judge them on how well they have represented their interests:

H2 Voters in competitive states will weigh the incumbent senator's record of representation more heavily in their vote choice than voters in uncompetitive states.

The combination of these two hypotheses predicts that diversity leads to greater accountability: senators from competitive states are likely to face an electorate that is more aware of the policy votes they have cast, and less forgiving of any mis-steps they have made.

The null hypothesis for both of these elements of accountability is that there is no relationship between a state's level of political competition and constituents' responses to their senators. The analyses in this paper also test for a rival hypothesis, that the vigor of election campaigning in a state shapes citizen behavior. A more intensely-fought campaign in a particular year, featuring high-quality candidates, may drive citizen interest, knowledge, and vote choice regardless of the *general* level of competition in a state (for a version of this argument, see Hutchings (2003)). And if generally-competitive states feature more vigorous and engaging election campaigns, then we may mistake the effect of short-term campaigning for an effect of long-term heterogeneity. Although campaigning for Senate is not the focus of this paper (for a comprehensive treatment, see Kahn and Kenney (1999)), the analyses pay special attention to whether any estimated relationship between competition and accountability is a spurious one due to the intervening effect of campaigns. In the next sections, I introduce the data used to test these hypotheses: first, the individual-level survey data to measure accountability, and then the state-level data to measure competition.

Measuring Accountability: Individual-Level Survey Data

Measuring congruence between legislators and the public has long proven problematic since generic survey questions cannot be easily mapped on to the

specific roll call votes that representatives cast (Weissberg 1979). To overcome these problems, the 2006 Cooperative Congressional Election Study (CCES) included a unique battery of questions designed to measure constituents' knowledge of, and responses to, policy representation by their U.S. senators (Ansolabehere and Jones 2010).

Conducted by Knowledge Networks for a consortium of universities, the Internet survey interviewed around 36,000 U.S. adults (for full details of the survey, see Vavreck and Rivers 2008).[4] Respondents were asked for their own position and the position of their senators on several bills that the Senate had recently considered: (1) a ban on late-term, "partial-birth" abortions; (2) the provision of federal funding for embryonic stem cell research; (3) proposals to begin withdrawing troops from Iraq; (4) reforms to immigration policy that would have created a guest-worker program and a path to citizenship; (5) an increase in the federal minimum wage; (6) extending the 2003 capital gains tax cuts; and (7) the Central American Free Trade Agreement (CAFTA).

From these questions, I develop several key variables for the analysis. To measure the accuracy with which constituents perceive their senator's voting record, I calculate a count of the **number of policy positions correctly identified**. For each of the seven roll call votes, I code a correct identification of the senator's position as 1, and an incorrect identification of her position or a "don't know" response as 0. The sum of correct identifications ranges from 0 to 7.

To measure the extent to which voters perceive themselves to be well-represented, I construct a measure of **perceived policy congruence**, which captures the proportion of roll call votes on which respondents believe their senator took the same position as they would have taken. For each roll call, I code perceived agreement as +1 and disagreement as 0. I then calculate the mean of these indicator variables, resulting in a score of +1 if the respondent perceived agreement on all and 0 if they perceived disagreement on all of the policies. **Actual policy congruence** is measured in the same way, substituting the senator's actual vote for the constituent's perceptions of it.

Accountability occurs when constituents use this knowledge of how they have been represented to reward or punish the incumbent at election time. I code the respondent's **vote choice** in the 2006 election as a dichotomous variable which takes on a value of +1 if the respondent reported voting for the incumbent senator, 0 if not.

Finally, in order to test the broader prediction from social arena studies that state heterogeneity drives general interest in politics, I use a measure of **political interest** based on responses to a question asking "How interested are you in politics and current affairs?". Response options were "Not much interested" or "Not sure" (combined into one category), "Somewhat interested", and "Very much interested", which I code as an ordered categorical variable.

[4] Concerns about the representativeness of Internet sampling are significant but less germane to this research design, which rests on comparing differences between respondents in competitive and uncompetitive states rather than measuring absolute levels of knowledge or vote choice in the electorate. Nonetheless, the sample represents the electorate of 2006 very closely in vote choice and demographic characteristics (Vavreck and Rivers 2008).

Other Individual-Level Variables

In addition to these measures, I utilize several items from the survey that previous research has shown affect an individual's levels of awareness about politics, and their responses to incumbent legislators. These can be broken down into three broad groups.

First, demographic characteristics have been shown to strongly shape the level of information voters have about politics and their engagement with the political process (Verba et al. 1995). I include a measure of the highest level of education the respondent received, coded as a categorical variable with those who didn't complete high school as the excluded category, and **high school**, **some college**, **college**, and **post-college** education as the other levels. I also take account of the respondent's **age** (measured in years) and the respondent's annual family **income** (recoded such that incomes less than $20,000 = 1; $20–$40,000 = 2; $40–$60,000 = 3; $60–$80,000 = 4; $80–$100,000 = 5; $100–$120,000 = 6; $120–$150,000 = 7; more than $150,000 = 8). To aid in the interpretation of the varying-intercepts used in the multi-level models, both of these variables are centered around their means (49.4 and 3.77, respectively) and missing data set to zero. The models include a measure of the respondent's self-identified race, coded as an unordered categorical variable with **White** as the reference category and **Black**, **Hispanic**, and **Other race** as the other levels, and of the respondent's gender, coded as +1 if the respondent is **female**, 0 if male.

Second, substantial research has shown that many voters rely on partisan labels as heuristics to infer the positions of their representatives and to guide their vote choice (Lodge and Hamill 1986; Rahn 1993). To assess how party affects the accuracy of perceptions of policy congruence and the weight given to them, I include a measure of *party* congruence, which is coded as a categorical variable with several levels: **Co-partisan** if the respondent believes the senator to be of the same party as them; **Other party** if the respondent believes the senator to be of the opposite party to them (this is the excluded category); **Independent** if the respondent does not have a party affiliation; and **Don't know** if the respondent doesn't know their senator's party.

Finally, in the models predicting vote choice, I also account for retrospective evaluations of the state of the economy and foreign affairs (Fiorina 1981). Two standard measures of retrospective voting are included. The first, **evaluation of economy** is an unordered categorical variable based on responses to the standard question "Would you say that over the past year the nation's economy has gotten much worse, worse, stayed about the same, gotten better, or gotten much better?". "Much worse" serves as the excluded category. The second, **evaluation of Iraq war** is measured from responses to the question, "Do you think it was a mistake to invade Iraq?". "Yes" serves as the excluded category. Both are included to control for the possibility that voters care not about the positions an incumbent has taken but rather the outcomes they have presided over (Jones 2011).

Measuring Political Competition: State-Level Aggregate Data

Researchers have generally used one of three measures of political conflict in a constituency: the closeness of previous elections, the level of ideological

disagreement amongst voters, or the demographic diversity of the state. Unfortunately, as Aistrup (2004, p. 267) notes, "the findings obtained depend on which measure of constituency diversity is used". To provide greater confidence in the results, I replicate the analyses in this paper for various measures of competition. The rest of this section describes the logic behind each of the measures and how the data were collected.

Margins of Victory in Previous Elections

A long line of research uses the closeness of elections as a measure of political conflict within a state (Fiorina 1974; Gulati 2004; Campbell and Jurek 2003; Kuklinski 1977; Bullock and Brady 1983; Griffin 2006). The more closely fought elections tend to be, the more conflict amongst the electorate's preferences is assumed to exist.

I follow these previous studies and construct a scale of **electoral competition** based on the closeness of state-wide election results in the three election cycles prior to 2006, the time of the CCES survey. Averaging competition over several election cycles reduces the influence of any idiosyncratic election results in the preceding years and allows for direct comparisons with other researchers using similar measures (Gulati 2004). The scale of electoral competition, E, in state i is constructed as a simple average of the margin of victory for winners of previous statewide elections:

$$E_i = 100 - \frac{1}{3}(P_i + S_i + G_i)$$

where P_i is the absolute difference in the percentage of the vote received by John Kerry and George W. Bush in the 2004 presidential election; S_i is the absolute difference in the percentage of the vote received by the two major-party candidates in the state's 2002 or 2004 senatorial election; and G_i is the absolute difference in the percentage of the vote received by the two major-party candidates in the state's previous gubernatorial election (these range in timing from 2002 to 2005).

The mean of these absolute differences is subtracted from 100 so that higher scores on the scale indicate greater electoral competition, lower scores less competition. A hypothetical state where previous winning candidates had all received 100 % of the votes would receive a score of 0 (100–100). A hypothetical state where the two parties split the vote exactly equally in every election would receive a score of 100 (100–0). In the 27 states with an incumbent senator running for re-election at the time of the CCES survey, the score ranges from 51.0 in Nebraska (where elections tended to be relatively uncompetitive and won by large margins) to 94.6 in Wisconsin (where elections tended to be highly competitive), with a mean of 79.6.[5]

[5] Residents of Hawaii and Indiana were also surveyed but are excluded from these analyses. Measures of ideological disagreement at the state level are only available for the 48 contiguous states. In Indiana, incumbent Senator Dick Lugar faced no major party challenger and won 87 % of the vote, making the state a distinct outlier in the vote choice models.

Ideological Disagreement Between Partisan Groups

The second way that researchers conceptualize political competition is in terms of ideological disagreement between subgroups, specifically the extent to which Democrats and Republicans in the electorate disagree on policy issues (Levendusky and Pope 2010). The further apart partisan groups are ideologically, the more conflictual and competitive an electorate the incumbent faces (Ensley et al. 2009; Dennis et al. 2000; Shapiro et al. 1990).

This measure of competition is operationalized with Levendusky and Pope (2010)'s estimates of the **ideological disagreement between partisans** in each state. Using survey data from the 2000 National Annenberg Election Study (NAES), they estimate disagreement by subtracting the mean ideological position of all Democrats in a state from the mean ideological position of all Republicans in a state.[6] For the states under analysis here, the variable ranges from 0.23 in North Dakota (where Democrats and Republicans are very close ideologically and there is less competition between them) to 2.51 in Washington State and 2.47 in California (where Democrats and Republicans are relatively further apart ideologically, indicating greater competition), and a mean of 1.65.

I also include a measure of the extent to which incumbents are able to rely just on their fellow partisans to put together a winning electoral coalition. If a Republican [Democratic] senator can win a majority of votes without the support of Democratic [Republican] voters, then the ideological distance between partisans is obviously a less consequential measure of "competition" (Fiorina 1974). The models that use this measure of ideological distance control for the **proportion of same-party identifiers** as the incumbent in the state, also measured by the 2000 NAES. For states represented by Republican incumbents, this is the proportion of Republicans in the state; for Democratic incumbents, the proportion of Democrats in the state.

Demographic Diversity

The final measure of competition used in the literature is the diversity of socio-demographic groups in a state. In states with a greater diversity of groups, there is assumed to be a greater diversity of interests, and thus a more competitive political environment (Bailey and Brady 1998; see also Bullock and Brady 1983; Bishin 2003; Bishin et al. 2006; Dennis et al. 2000; Aistrup 2004; Gronke 2001).

By far the most commonly used measure of diversity is the Sullivan index, which represents the likelihood that a pair of randomly selected individuals from a population will differ on a range of characteristics (Sullivan 1973). The index, S, in state i is calculated as

[6] Updated measures of ideological disagreement using a more recent survey such as the 2004 NAES are not yet available. Levendusky and Pope (2010) also estimate the same measure using the 2006 CCES survey data, including the seven roll call vote questions used here. To avoid problems of endogeneity in using the same survey source, I rely on their estimates from the 2000 NAES. Empirically, the measures are correlated at .48 for the states in this analysis, suggesting that using the 2000 measure should not significantly bias the results.

$$S_i = 1 - \sum_{k=1}^{p} \left(\frac{Y_k^2}{v} \right)$$

where Y_k is the proportion of the population in state i that falls into category k within each of the socio-demographic variables, v is the total number of variables, and p is the total number of categories within all of the variables. The index theoretically ranges from 0 to 1. Low values indicate that the population is largely alike in demographic terms—a randomly selected pair of people would be expected to differ on only a small number of demographic characteristics—while higher values indicate a much more diverse population.

I replicate the **Sullivan index of demographic diversity** for each state using data from the 2000 U.S. Census. The index is based on seven demographic characteristics of the state's population, which have 27 overall categories: (1) race; (2) ethnicity (identification as Hispanic/Latino or not); (3) level of education; (4) place of birth (in the U.S. or not); (5) occupational sector; (6) homeownership; and (7) adjusted gross income (based on IRS tax returns data). The main difference between my calculation and that of previous scholars is that I include the measure of Hispanic ethnicity (unavailable as a separate measure prior to the 2000 Census) in addition to racial identification. For the states in this analysis, the index ranges from .30 in Maine and .32 in Wyoming (states with more homogenous populations) to .52 in California and .48 in New York (more heterogeneous populations), and has a mean of .40.

Overall, these state-level measures of heterogeneity tap distinct, if related, state attributes. The correlation between electoral competition and ideological disagreement is .41; between ideological disagreement and demographic diversity .42; and between demographic diversity and electoral competition .06.[7] The lack of correlation between these two final measures of competition echoes previous findings (e.g. Bond 1983) and confirms Bishin et al. (2006 p. 212)'s intuition that "a diverse constituency on one dimension may be quite homogenous on another". To provide greater confidence in the results, the analyses in this paper are replicated for each measure in turn.

Other State-Level Variables

Several other control variables are included at the state level to reduce the possibility of uncovering spurious correlations between states' characteristics and constituents' behavior. Two variables measure attributes of the state population. **High school graduates** is the proportion of adults aged 25 and over in each state who graduated from high school, according to the U.S. Bureau of the Census' 2006 American Community Survey (ACS). **Turnout 2004** is the proportion of the state's voting eligible population (VEP) that cast a ballot in the presidential election, using data collected by Michael McDonald (see http://elections.gmu.edu/voter_turnout.htm). Both of these variables serve as proxies for the *general* level of political engagement

[7] Table A1 in the Online Appendix gives the rank and value of each measure for the states in this analysis.

and sophistication in a state, which might mediate the relationship between competition and how accurately constituents recall and respond to their senators' policy record (Gronke 2001).

Several variables capture characteristics of the incumbent senator and her record. An indicator for a **GOP senator** measures the incumbent's party affiliation. This is included since previous studies have found differences in representational strategies between Democrats and Republicans (Bailey and Brady 1998; Dennis et al. 2000), and also to assess the extent to which the electorate perceived (majority) Republicans differently from Democrats in the 2006 midterms (Jones 2011). Previous research leads us to expect voters to be more aware of their senators' records when the senator has a high-profile position within the institution or has served for a long time (Sinclair 1990). Accordingly, I include a measure of the senator's **years in office** and an indicator variable for the senator being a **committee chair** prior to the 2006 elections.

Finally, in several specifications of the models, I include measures of the 2006 campaign's intensity, drawn from Kahn and Kenney (1999)'s work on Senate campaigns. **Quality challenger** is an indicator variable that equals +1 if the main-party challenger to the incumbent senator has previously held elective office, 0 otherwise (Jacobson 2004). **Incumbent fundraising** and **challenger fundraising** measure the total amount of money (in millions of dollars) raised during the 2006 cycle by the incumbent and challenger respectively, as reported to the Federal Elections Commision. Including these three variables measures whether current election campaigns, and not general competition in a state, influence voters.

One major concern with including these campaign variables in the regression models is that they might be highly correlated with long-term competition—i.e. that generally heterogeneous states might have been more likely to have vigorous campaigns in 2006. If so, including them in the models could bias the estimates. I deal with this problem in three ways. First, I note that in these data, the correlations between state heterogeneity and campaign intensity are low and statistically insignificant, ranging from −.12 to .29, which offers little evidence of endogeneity (full correlations are in Table A2 in the Online Appendix). Second, throughout the paper, I present the models including 2006 campaign intensity side by side with models excluding them, to allow readers to compare the estimates from the two models. In almost every case, the coefficients for state heterogeneity are unaffected by the inclusion of the 2006 campaign variables, indicating that long-term levels of competition, not a short-term campaign, drive accountability. Finally, in the Online Appendix, I replicate all of the models in the paper using the campaign intensity variables but *excluding* the state heterogeneity measures. If the two were endogenous, then we would expect the campaign intensity variables to predict the dependent variables in the absence of the heterogeneity measures. This is not the case: across the models, there is very little evidence that campaign intensity affects accountability, a point I return to in the conclusion.

One final note about the data remains. In order to more easily interpret the substantive effect of these state-level variables, I center all numerical measures around their mean. Doing so does not, of course, affect the statistical relationships between variables but makes the varying-intercept and varying-slope coefficients

more easily interpretable as the estimated effect for a state with average values on the state-level measures (Gelman and Hill 2007).

Are Voters in Competitive States More Interested in Politics?

I begin by assessing the general claim made by social arena studies, that the exciting public conflict in competitive states increases residents' interest in politics. Demonstrating that political competition drives citizen interest does not, of course, by itself prove increased accountability, but it provides a first test of the excitement mechanism that links competition and accountability.

The structure of the data requires a particular set of model specifications. The dependent variable, the respondent's level of interest in politics, is an ordered categorical measure ("Not much interested", "Somewhat interested", and "Very much interested"), so I use an ordinal logit regression model. The independent variables are structured at two levels—some measuring features of the individual voter, others features of the state they live in—so I estimate multi-level models to account for variance at both levels (see Bauer and Sterba 2011 for more details). At the level of the individual constituent, I include the independent variables described in "Measuring Accountability: Individual-Level Survey Data". The intercept of this model—which can be thought of as the level of interest in politics expressed by the average voter—is allowed to vary across states (to allow for estimation of the intercept, the first threshold is constrained to be zero). Variance in the state intercepts is modeled as a function of statelevel competition and the other control variables outlined in "Measuring Political Competition: State-Level Aggregate Data" (full model specifications are shown in the Appendix).

Table 1 presents the coefficients from several specifications of these models. The intercept of the individual-level model predicting political interest is predicted by each measure of political competition (in models 1(a), 2(a), and 3(a)) and also by measures of the 2006 campaign (in models 1(b), 2(b), and 3(b)). A positive coefficient for the competition variables would indicate that voters in competitive states are more interested in politics than voters in uncompetitive states, controlling for the individual characteristics that previous scholars have found predict general political attention. Conversely, a negative coefficient would indicate that voters in states with high levels of competition are *less* interested in politics, all else equal.

The individual-level results in Table 1 show that political interest varies systematically with demographic features of the respondent, in ways that are consistent with previous research (Verba et al. 1995, Ch. 12). Older, wealthier, and more educated respondents express greater interest in politics; men express more interest than women; and whites more than minorities. Over and above these individual-level factors, however, the state-level coefficients in Table 1 show that interest in politics is greater among voters living in more competitive states. In states with greater ideological distance between partisan groups (Model 2(a): .32 (.08), $p = .03$), and with greater demographic diversity (Model 3(a): 2.59 (1.03), $p = .01$), voters express greater interest in politics. The exception to this pattern is Model 1, and the coefficient for electoral competition, which is also positive but

Table 1 Multi-level ordinal logistic regression models predicting interest in politics

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Intercept (β_{0j})	Intercept (γ_{00})	−2.81 (0.10)***	−2.80 (0.10)***	−2.78 (0.09)***	−2.80 (0.10)***	−2.81 (0.10)***	−2.82 (0.10)***
	Turnout 2004 (γ_{01})	0.01 (0.01)	0.02 (0.02)	0.02 (0.01)	0.03 (0.01)**	0.03 (0.01)*	0.03 (0.01)**
	High school grads (γ_{02})	−0.02 (0.02)	−0.04 (0.02)^	−0.03 (0.01)*	−0.05 (0.01)***	−0.01 (0.02)	−0.02 (0.02)
	Electoral competition (γ_{03})	0.01 (0.00)	0.00 (0.01)				
	Ideol. disagreement (γ_{04})			0.32 (0.08)***	0.32 (0.06)***		
	Prop. same party (γ_{05})			0.01 (0.01)	0.02 (0.01)		
	Demographic diversity (γ_{06})					2.59 (1.03)*	2.72 (0.98)**
	Quality challenger (γ_{07})		−0.04 (0.09)		−0.10 (0.07)		−0.07 (0.08)
	Challenger fundraising (γ_{08})		0.01 (0.01)		0.01 (0.01)*		0.01 (0.01)
	Incumbent fundraising (γ_{09})		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Female (β_{1j})	Intercept (γ_{10})	−0.83 (0.04)***	−0.83 (0.04)***	−0.83 (0.04)***	−0.83 (0.04)***	−0.83 (0.04)***	−0.83 (0.04)***
Age (β_{2j})	Intercept (γ_{20})	0.03 (0.00)***	0.03 (0.00)***	0.03 (0.00)***	0.03 (0.00)***	0.03 (0.00)***	0.03 (0.00)***
Income (β_{3j})	Intercept (γ_{30})	0.17 (0.01)***	0.17 (0.01)***	0.17 (0.01)***	0.17 (0.01)***	0.17 (0.01)***	0.17 (0.01)***
Race[a]							
Black (β_{4j})	Intercept (γ_{40})	−0.66 (0.06)***	−0.66 (0.06)***	−0.66 (0.06)***	−0.66 (0.06)***	−0.66 (0.06)***	−0.66 (0.06)***
Hispanic (β_{5j})	Intercept (γ_{50})	−0.55 (0.06)***	−0.55 (0.06)***	−0.56 (0.06)***	−0.56 (0.06)***	−0.56 (0.06)***	−0.56 (0.06)***
Other race (β_{6j})	Intercept (γ_{60})	0.10 (0.08)	0.10 (0.08)	0.09 (0.09)	0.10 (0.08)	0.10 (0.09)	0.10 (0.09)
Highest level of education[b]							
High school (β_{7j})	Intercept (γ_{70})	−0.06 (0.08)	−0.06 (0.09)	−0.06 (0.08)	−0.06 (0.09)	−0.06 (0.09)	−0.06 (0.09)
Some college (β_{8j})	Intercept (γ_{80})	0.87 (0.09)***	0.87 (0.09)***	0.87 (0.09)***	0.87 (0.09)***	0.87 (0.09)***	0.87 (0.09)***

Table 1 continued

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
College (β_{9j})	Intercept (γ_{90})	1.03 (0.09)***	1.04 (0.09)***	1.04 (0.09)***	1.04 (0.09)***	1.03 (0.09)***	1.04 (0.09)***
Post-college (β_{10j})	Intercept (γ_{100})	1.48 (0.11)***	1.48 (0.11)***	1.48 (0.11)***	1.48 (0.11)***	1.47 (0.11)***	1.47 (0.11)***
Threshold 2		−0.57 (0.09)***	−0.56 (0.10)***	−0.54 (0.09)***	−0.55 (0.09)***	−0.57 (0.09)***	−0.58 (0.10)***
Log-likelihood		−12252 (df = 16)	−12251 (df = 19)	−12245 (df = 17)	−12242 (df = 20)	−12250 (df = 16)	−12248 (df = 19)
N voters		16,790	16,790	16,790	16,790	16,790	16,790
N states		27	27	27	27	27	27

[a] Reference category: White, [b] Reference category: No high school degree. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

Dependent variable is coded 1(Not very interested), 2(Somewhat interested), 3(Very much interested). First threshold constrained to zero to allow for estimation of overall model intercept

falls short of statistical significance (Model 1(a): .007 (.004), $p = .17$). These results are robust to the inclusion of the 2006 campaign measures. The estimated effects of competition in Models 2(a) and (b), and in Models 3(a) and (b) are statistically indistinguishable. And across all three models, only one of the campaign measures is associated with political interest (the results from Model 2(b) suggest that the more money a challenger spent, the more interested constituents were in politics). Consistent with the predictions from social arena theories, and the empirical findings of previous work (e.g. Oliver and Ha 2007), general political competition in a state increases citizen interest in politics. Short-term campaign factors, in contrast, have little effect. I turn now to how competition affects citizens' awareness of the incumbent's record.

Are Voters in Competitive States More Aware of the Incumbent's Record?

The previous section established that voters in competitive states are more interested in politics in general. How does this translate into specific knowledge of the incumbent's policy record? Since the dependent variable here is a count of the number of correctly identified positions, I model the variance with a Poisson distribution. The data show modest signs of overdispersion, a problem for a model that assumes equal mean and variance.[8] To deal with this in the multi-level context, I take what Browne et al. (2005) refer to as an "additive" approach and add a random error term at the level of each respondent to account for the overdispersion (see Elston et al. (2001) for more details). As in the models predicting political interest, the intercept of the individual-level model predicting knowledge of the incumbent's record is allowed to vary across states. Also as before, models are estimated for each measure of political competition, and separately with measures of the 2006 campaign. If H1 is correct, then the coefficients for state competition should be positive, indicating that competition increases knowledge.

Table 2 shows the coefficients for these six regressions. I focus first on the "basic" models that do not control for campaign intensity. In each case, the coefficient for state competition is positive, indicating that voters in more competitive states are more knowledgeable about their senator's policy positions. In states with greater levels of electoral competition (.001 (.000), $p = .08$), with greater ideological distance between partisan groups (.18 (.06), $p = .01$), and with greater demographic diversity (2.53 (1.04), $p = .02$), voters correctly identify more of the incumbent's votes.

To better interpret the substantive conclusions to be drawn from the statistical models in Table 2, I simulate the number of positions correctly identified by an average constituent in a state with a level of political competition one standard deviation below the mean of the states in this study, and the number correctly identified by an average constituent in a state with a level of political competition one standard deviation *above* the mean. All other independent variables are set to

[8] Specifically, comparing the sum of squared residuals from a multi-level Poisson model to the residual degrees of freedom results in a ratio of 1.1, with a p-value of .001 based on the χ^2 distribution.

Table 2 Multi-level Poisson regression models predicting number of senator's policy positions constituents correctly identified

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Intercept (β_{0j})	Intercept (γ_{00})	1.41 (0.05)***	1.39 (0.06)***	1.39 (0.05)***	1.38 (0.05)***	1.38 (0.05)***	1.36 (0.05)***
	Turnout 2004 (γ_{01})	−0.03 (0.01)^	−0.02 (0.01)	−0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
	High school grads (γ_{02})	0.03 (0.02)^	0.02 (0.02)	0.01 (0.01)	0.00 (0.01)	0.04 (0.02)*	0.03 (0.02)^
	GOP senator (γ_{03})	0.03 (0.07)	0.06 (0.07)	0.05 (0.07)	0.08 (0.06)	0.10 (0.07)	0.14 (0.07)*
	Years in office (γ_{04})	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.01 (0.00)^	0.01 (0.00)**
	Committee chair (γ_{05})	−0.19 (0.11)^	−0.21 (0.11)^	−0.21 (0.10)*	−0.23 (0.10)*	−0.21 (0.11)*	−0.24 (0.10)*
	Electoral competition (γ_{06})	0.01 (0.00)^	0.00 (0.00)				
	Ideol. disagreement (γ_{07})			0.18 (0.06)**	0.16 (0.06)**		
	Prop. same party (γ_{08})			0.01 (0.01)	0.01 (0.01)		
	Demographic diversity (γ_{09})					2.53 (1.04)*	2.71 (1.01)**
	Quality challenger (γ_{010})		−0.02 (0.07)		−0.02 (0.07)		−0.02 (0.07)
	Challenger fundraising (γ_{011})		0.00 (0.01)		0.01 (0.01)		0.01 (0.01)
	Incumbent fundraising (γ_{012})		0.01 (0.00)		0.00 (0.00)		0.00 (0.00)
Perceived party congruence[a]							
Co-partisan (β_{1j})	Intercept (γ_{10})	−0.16 (0.01)***	−0.16 (0.01)***	−0.16 (0.01)***	−0.16 (0.01)***	−0.16 (0.01)***	−0.16 (0.01)***
Independent (β_{2j})	Intercept (γ_{20})	−0.10 (0.01)***	−0.10 (0.01)***	−0.10 (0.01)***	−0.10 (0.01)***	−0.10 (0.01)***	−0.10 (0.01)***
Don't know (β_{3j})	Intercept (γ_{30})	−1.29 (0.02)***	−1.29 (0.02)***	−1.29 (0.02)***	−1.29 (0.02)***	−1.29 (0.02)***	−1.29 (0.02)***
Female (β_{4j})	Intercept (γ_{40})	−0.17 (0.01)***	−0.17 (0.01)***	−0.17 (0.01)***	−0.17 (0.01)***	−0.17 (0.01)***	−0.17 (0.01)***
Age (β_{5j})	Intercept (γ_{50})	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***	0.00 (0.00)***
Income (β_{6j})	Intercept (γ_{60})	0.02 (0.00)***	0.02 (0.00)***	0.02 (0.00)***	0.02 (0.00)***	0.02 (0.00)***	0.02 (0.00)***

Table 2 continued

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Race[b]							
Black (β_{7j})	Intercept (γ_{70})	−0.08 (0.01)***	−0.08 (0.01)***	−0.08 (0.01)***	−0.08 (0.01)***	−0.08 (0.01)***	−0.08 (0.01)***
Hispanic (β_{8j})	Intercept (γ_{80})	−0.03 (0.01)**	−0.03 (0.01)**	−0.03 (0.01)**	−0.03 (0.01)**	−0.03 (0.01)**	−0.03 (0.01)**
Other race (β_{9j})	Intercept (γ_{90})	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)
Highest level of education[c]							
High school (β_{10j})	Intercept (γ_{100})	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Some college (β_{11j})	Intercept (γ_{110})	0.11 (0.02)***	0.11 (0.02)***	0.11 (0.02)***	0.11 (0.02)***	0.11 (0.02)***	0.11 (0.02)***
College (β_{12j})	Intercept (γ_{120})	0.14 (0.02)***	0.14 (0.02)***	0.14 (0.02)***	0.14 (0.02)***	0.14 (0.02)***	0.14 (0.02)***
Post-college (β_{13j})	Intercept (γ_{130})	0.17 (0.02)***	0.17 (0.02)***	0.17 (0.02)***	0.17 (0.02)***	0.17 (0.02)***	0.17 (0.02)***
Log-likelihood		−16422 (df = 22)	−16420 (df = 25)	−16419 (df = 23)	−16417 (df = 26)	−16420 (df = 22)	−16417 (df = 25)
N voters		24,118	24,118	24,118	24,118	24,118	24,118
N states		27	27	27	27	27	27

[a] Reference category: Other party, [b] Reference category: White, [c]Reference category: No high school degree. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

either the mode or mean. Figure 1 presents the estimated number of policy positions identified by a constituent in a state with a low level of competition as a dark gray bar, and the estimate for a constituent in a state with a high level of competition as a light gray bar. For each measure, the difference between voters in competitive and uncompetitive states is around one fourth of an extra position correctly identified (from 1.33 to 1.50 for electoral competition; from 1.30 to 1.49 for ideological disagreement; and from 1.23 to 1.53 for demographic diversity). Voters in competitive states, in short, are more likely to know about the positions their senators take than voters in uncompetitive states.[9]

Although these first differences may initially seem small, they are on a par with many of the usual political knowledge differences between voters. For example, the first differences shown in Fig. 1 are comparable to the difference between constituents with no high school degree and those with a post-college degree (.17 [.12, .21]), the difference between women and men (.17 [.16, .19]), or the difference between whites and blacks (.08 [.05, .10]).

The models that include controls for the state's current campaign context suggest that the intensity of the campaign being fought by the incumbent and his/her challenger has little impact on voters' knowledge about the incumbent's record. First, in none of the models do the current campaign variables have a significant impact on individuals' levels of knowledge. Second, with the exception of the coefficient for electoral competition—which in Model 1(b) is .005 (.004), $p = .24$ and falls short of statistical significance—adding the campaign variables to the models does not significantly affect the estimated impact of state heterogeneity.

This knowledge of the incumbent's record is, of course, only one element of democratic accountability. How are perceptions of policy congruence—not just correct identifications of the senator's positions—affected by political competition? Table 3 presents the results from six multi-level least squares regressions which predict the degree of policy congruence constituents perceived. At the individual-level, I include two independent variables: the actual degree of policy congruence between voter and senator (to assess how well perceptions track reality), and perceptions of party congruence (to assess how perceptions are shaped by the party affiliations of legislators).

At the level of the individual voter, the senator's actual policy record is the strongest predictor of constituents' perceptions: moving from 0 to 100 % actual congruence results in a shift in constituents' perceptions of around 75 percentage points. Partisan affiliations also play a role, with co-partisans perceiving almost 30 percentage points greater congruence with their senator than those from the opposing party do.

Over and above these individual level factors, there is some limited evidence that electoral competition can affect the degree to which voters believe their senator has

[9] As a robustness check to assess whether one item among the seven roll call votes may be influencing the results unduly, Table A3 in the Online Appendix presents the results from a series of regression models that replicate the analysis in Table 2, dropping one of the roll call votes from the scale each time. The estimated effects of state competition on knowledge of the incumbent's record are consistent across all of these specifications, offering little evidence that individual items in the aggregate scale are skewing the results.

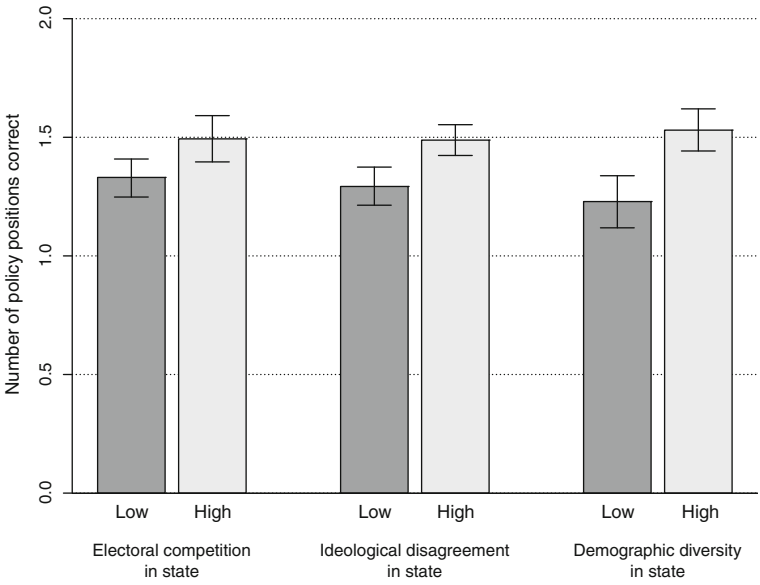

Fig. 1 Simulated number of incumbent senator's policy positions that constituents in uncompetitive and competitive states correctly identified. Each measure of state-level competition is set to one standard deviation below the mean value for states (*dark gray bars*) and to one standard deviation above the mean (*light gray bars*). For electoral competition, these values are 68.46 and 91.03; for ideological disagreement they are 1.10 and 2.19; and for demographic diversity they are .34 and .46. All other variables are held at their mean or mode. *Brackets* represent 90 % confidence intervals. Estimates are simulated from models 1(a), 2(a), and 3(a) shown in Table 2

represented them. In states that tend to have extremely close elections, voters perceive less policy congruence with their senator than voters in states that are uncompetitive, given the incumbent's actual record of policy representation (Model 1(a): −.003 (.001), $p = .03$). This is not an insignificant finding. Moving from a state with a low level of electoral competition to one with a high level, using the same values as in Fig. 1, results in a shift in perceptions of congruence of −7.1 [1.7, 12.2] percentage points. Incumbents in electorally competitive states face a constituency that perceives greater distance between their positions and the senator's, even controlling for the incumbent's actual record. The models using other measures of political competition, however, do not reveal any significant effects. Whether this is a result that holds solely for electoral competition—and if so, why—is a question beyond the scope of this paper that awaits further research.

More consistently across the models, there is evidence that short-term campaign factors can influence perceptions of congruence. In particular, the models indicate that the more financial resources challengers have to campaign, the less congruence with the incumbent voters perceive. The challenger's elective experience and the incumbent's campaign spending, on the other hand, have no discernible effect on perceptions. This accords with previous research indicating that the amount of money spent by challengers—but not the amount spent by incumbents—can affect the level of support for the incumbent (Jacobson 2004). Overall, however, the fact

that perceptions of congruence largely track reality—and the general lack of significant effects of heterogeneity on perceptions—suggest that state competition does little to consistently affect how well represented constituents consider themselves. Constituents' views of policy congruence are driven primarily by the actual record of the incumbent (a reassuring thought for democratic theories of accountability) and are mostly uninfluenced by the heterogeneity of a state. I turn now to whether the weight that constituents place on those perceptions in evaluating the incumbent varies with competition in a state.

Are Voters in Competitive States More Responsive to the Incumbent's Record?

Since the dependent variable in this analysis, voting for or against the incumbent senator, is dichotomous, I use a series of multi-level probit regression models. As a key predictor—and a test of how strongly voters weigh the incumbent's policy record when evaluating them—I include the measure of **perceived policy congruence** used as the dependent variable in Table 3.[10]

The intercept of the individual-level model and the coefficient for policy congruence are both allowed to vary across states, and variance in these parameters is modeled as a function of the state-level independent variables. This research design allows us to assess whether baseline levels of electoral support for incumbents (represented by the intercept of the individual-level model) and the impact of policy congruence upon vote decisions (represented by the policy congruence coefficient) vary across states in ways systematically related to levels of competition. Details of the model specifications can be found in the Appendix. Positive coefficients for the impact of state competitiveness on an individual's weighting of policy congruence in their vote choice would indicate a stronger relationship between congruence and incumbent support in competitive states, consistent with H2. A negative coefficient would, of course, indicate that voters placed *less* weight on the incumbent's record in their judgments than voters in uncompetitive states.

The results from these multi-level probit regression models are shown in Table 4. I again estimate models for each measure of political competition, with and without controls for the 2006 campaign. Across the various models, we reach largely the same substantive conclusions: the more competitive a state is, the greater the influence that policy congruence has on constituents' decisions to vote for or against the incumbent senator. The increase in the weight placed on policy congruence is statistically significant at conventional levels for the measures of electoral competition (Model 1(a): .05, $SE = .02$, $p = .02$) and ideological disagreement (Model 2(a): .97, $SE = .32$, $p = .002$). The positive coefficient for demographic diversity suggests a similar relationship—as diversity increases, so too does the weight constituents place on policy congruence—but does not reach standard levels of statistical significance (Model 3(a): 7.20, $SE = 4.84$, $p = .14$). Importantly, these conclusions remain the

[10] The substantive results obtained from models that use *actual* levels of congruence rather than perceptions are near-identical to those presented here, as we might expect given the strong correlation between them shown in Table 3.

Table 3 Multi-level least squares regression models predicting perceptions of policy congruence with senator

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Intercept (β_{0j})	Intercept (γ_{00})	0.39 (0.01)***	0.40 (0.01)***	0.39 (0.02)***	0.40 (0.02)***	0.38 (0.02)***	0.40 (0.01)***
	Turnout 2004 (γ_{01})	0.01 (0.00)*	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	High school grads (γ_{02})	−0.01 (0.01)^	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)
	GOP senator (γ_{03})	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.02)	0.02 (0.02)
	Years in office (γ_{04})	0.00 (0.00)	0.00 (0.00)**	0.00 (0.00)	0.00 (0.00)*	0.00 (0.00)	0.00 (0.00)^
	Committee chair (γ_{05})	0.01 (0.03)	0.03 (0.03)	0.03 (0.04)	0.05 (0.03)*	0.03 (0.04)	0.04 (0.03)^
	Electoral competition (γ_{06})	−0.003 (0.001)**	−0.002 (0.001)*				
	Ideol. disagreement (γ_{07})			0.01 (0.02)	0.01 (0.02)		
	Prop. same party (γ_{08})			0.00 (0.00)	0.00 (0.00)		
	Demographic diversity (γ_{09})					0.38 (0.35)	0.22 (0.30)
	Quality challengery (γ_{010})		−0.01 (0.02)		−0.01 (0.02)		−0.02 (0.02)
	Challenger fundraising (γ_{011})		−0.01 (0.00)***		−0.01 (0.00)***		−0.01 (0.00)**
	Incumbent fundraising (γ_{012})		0.00 (0.00)		0.00 (0.00)		0.00 (0.00)
Actual congruence (β_{1j})	Intercept (γ_{10})	0.75 (0.01)***	0.75 (0.01)***	0.75 (0.01)***	0.75 (0.01)***	0.75 (0.01)***	0.75 (0.01)***
Perceived party congruence[a]							
Co-partisan (β_{2j})	Intercept (γ_{20})	0.29 (0.01)***	0.29 (0.01)***	0.29 (0.01)***	0.29 (0.01)***	0.29 (0.01)***	0.29 (0.01)***
Independent (β_{3j})	Intercept (γ_{30})	0.13 (0.00)***	0.13 (0.00)***	0.13 (0.00)***	0.13 (0.00)***	0.13 (0.00)***	0.13 (0.00)***
Don't know (β_{4j})	Intercept (γ_{40})	0.18 (0.01)***	0.18 (0.01)***	0.18 (0.01)***	0.18 (0.01)***	0.18 (0.01)***	0.18 (0.01)***
Log-likelihood		−1624 (df = 13)	−1634 (df = 16)	−1629 (df = 14)	−1637 (df = 17)	−1620 (df = 13)	−1630 (df = 16)
N voters		21,020	21,020	21,020	21,020	21,020	21,020
N states		27	27	27	27	27	27

[a] Reference category: Other party. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

same once we control for the current level of campaign intensity, and there is only minimal evidence that the intensity of an election campaign alters the weight voters place on policy congruence when making their decisions. Model 1(b) suggests that increased spending by the challenger leads to a decrease in the importance of policy congruence (-0.06, $SE = .03$, $p = .07$) while Model 2(b) suggests that increased spending by the incumbent may increase the weight placed on their policy record by voters ($.03, SE = .02, p = .08$). These estimates are, however, only weakly significant and are not consistent across the model specifications. Long term political competition in a state, not the short term campaign of a single election year, primes voters to weigh their interests more when voting for senators.[11]

I simulate the first difference in the probability of voting for the incumbent between a constituent who perceives they have been represented on 25 % of the policy positions and a constituent who perceives representation on 75 % of the policy positions. These differences in probabilities of support represent the impact of the incumbent's policy record on voters' choices, all else equal. Figure 2 presents these first differences for voters in competitive and uncompetitive states. Dark gray bars show the impact of policy congruence on vote choice for constituents in uncompetitive states (again defined as a state at one standard deviation below the state mean); light gray bars show the impact for constituents in competitive states (one standard deviation above the state means).

In states with high and low levels of competition alike, voters who have been represented on most of the policies are more likely to vote for the incumbent than voters who have been represented on few of them (i.e. all of the first differences in Fig. 2 are statistically distinguishable from zero). In competitive states, however, policy congruence has a *greater* impact on vote choice than in non-competitive states. In less electorally competitive states, those who have been represented on three-fourths of the policies are .44 [.36, .51] more likely to vote for the incumbent than those who have been represented one-fourth of the time. In more electorally competitive states, however, that difference grows substantially to .65 [.58, .70].

We see the same pattern of results for the measures of ideological disagreement in the state. In states with little disagreement between Republicans and Democrats, policy congruence plays a smaller role in constituents' vote choice (the first difference there is .42 [.35, .49]) than it does in states with high levels of disagreement (.61 [.55, .65]). The first differences for the Sullivan measure indicate that voters in diverse

[11] Additionally, estimating models that include the campaign intensity variables but exclude the state competition variables does not suggest any significant relationship between the two. Incumbent fundraising is very weakly but positively related to the weight constituents place on policy congruence (.08, $SE = .04$, $p = .08$) but overall there is little suggestion that campaign factors alter the structure of vote choice (see Table A6 in the Online Appendix). As a final robustness check, I estimated models that allowed *all* of the individual-level coefficients to vary by state. If the interest-priming hypothesis is correct, then political competition should prime citizens to weigh their policy interests more heavily, but should *not* alter the weights they place on other elements (party congruence and retrospective evaluations of the economy and of Iraq). The results from these models, available in Table A4 in the Online Appendix, show no significant effect of political competition on the other individual-level covariates. The fact that political competition affects the importance of policy congruence, but not party or retrospective evaluations, is more evidence for H2. I am grateful to one of the anonymous reviewers for suggesting this additional test of the theory.

Table 4 Multi-level probit models predicting vote choice for or against incumbent senator with perceptions of policy congruence

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Intercept (β_{0j})	Intercept (γ_{00})	−0.48 (0.09)***	−0.40 (0.09)***	−0.46 (0.10)***	−0.37 (0.09)***	−0.46 (0.10)***	−0.37 (0.09)***
	Turnout 2004 (γ_{01})	0.06 (0.02)**	0.05 (0.02)*	0.04 (0.02)^	0.04 (0.02)*	0.02 (0.02)	0.03 (0.01)^
	High school grads (γ_{02})	−0.08 (0.03)**	−0.06 (0.03)*	−0.05 (0.03)*	−0.05 (0.02)*	−0.04 (0.03)	−0.03 (0.03)
	GOP senator (γ_{03})	−0.08 (0.11)	−0.06 (0.09)	−0.07 (0.12)	−0.05 (0.10)	−0.06 (0.12)	−0.02 (0.10)
	Electoral competition (γ_{04})	−0.02 (0.01)*	−0.01 (0.01)				
	Ideol. disagreement (γ_{05})			−0.16 (0.12)	−0.12 (0.10)		
	Prop. same party (γ_{06})			0.01 (0.01)	0.01 (0.01)		
	Demographic diversity (γ_{07})					0.12 (1.55)	1.34 (1.37)
	Quality challenger (γ_{08})		−0.18 (0.11)^		−0.22 (0.11)*		−0.23 (0.11)*
	Challenger fundraising (γ_{09})		−0.02 (0.01)^		−0.02 (0.01)^		−0.02 (0.01)^
	Incumbent fundraising (γ_{010})		0.00 (0.01)		0.00 (0.01)		0.00 (0.01)
Policy congruence (β_{1j})	Intercept (γ_{10})	3.13 (0.25)***	3.11 (0.27)***	2.95 (0.22)***	2.92 (0.23)***	3.01 (0.27)***	2.96 (0.28)***
	Turnout 2004 (γ_{11})	−0.16 (0.07)*	−0.15 (0.07)*	−0.04 (0.05)	−0.02 (0.05)	−0.04 (0.05)	−0.03 (0.05)
	High school grads (γ_{12})	0.18 (0.09)^	0.18 (0.09)*	0.04 (0.07)	0.03 (0.07)	0.13 (0.09)	0.09 (0.09)
	GOP senator (γ_{13})	0.43 (0.36)	0.55 (0.34)	0.55 (0.32)^	0.65 (0.30)*	0.55 (0.39)	0.60 (0.38)
	Electoral competition (γ_{14})	0.05 (0.02)*	0.05 (0.02)*				
	Ideol. disagreement (γ_{15})			0.97 (0.32)**	0.88 (0.31)**		
	Prop. same party (γ_{16})			0.08 (0.04)^	0.07 (0.04)^		
	Demographic diversity (γ_{17})					7.20 (4.84)	4.34 (5.08)
	Quality challenger (γ_{18})		−0.11 (0.37)		−0.16 (0.33)		−0.02 (0.41)
	Challenger fundraising (γ_{19})		−0.06 (0.03)^		−0.03 (0.03)		−0.04 (0.04)
	Incumbent fundraising (γ_{110})		0.03 (0.02)		0.03 (0.02)^		0.03 (0.02)

Table 4 continued

		Model 1: Electoral competition		Model 2: Ideological disagreement		Model 3: Demographic diversity	
		(a)	(b)	(a)	(b)	(a)	(b)
Perceived party congruence[a]							
Co-partisan (β_{2j})	Intercept (γ_{20})	1.70 (0.05)***	1.70 (0.05)***	1.70 (0.05)***	1.70 (0.05)***	1.70 (0.05)***	1.70 (0.05)***
Independent (β_{3j})	Intercept (γ_{30})	0.85 (0.04)***	0.85 (0.04)***	0.86 (0.04)***	0.85 (0.04)***	0.86 (0.04)***	0.85 (0.04)***
Don't know (β_{4j})	Intercept (γ_{40})	0.70 (0.07)***	0.70 (0.07)***	0.70 (0.07)***	0.70 (0.07)***	0.70 (0.07)***	0.70 (0.07)***
Evaluation of economy[b]							
Worse (β_{5j})	Intercept (γ_{50})	0.01 (0.05)	0.00 (0.05)	0.01 (0.05)	0.01 (0.05)	0.01 (0.05)	0.00 (0.05)
Stayed same (β_{6j})	Intercept (γ_{60})	−0.05 (0.06)	−0.05 (0.06)	−0.05 (0.06)	−0.05 (0.06)	−0.05 (0.06)	−0.05 (0.06)
Better (β_{7j})	Intercept (γ_{70})	−0.04 (0.06)	−0.04 (0.06)	−0.03 (0.06)	−0.03 (0.06)	−0.04 (0.06)	−0.04 (0.06)
Much better (β_{8j})	Intercept (γ_{80})	−0.09 (0.07)	−0.08 (0.07)	−0.09 (0.07)	−0.08 (0.07)	−0.09 (0.07)	−0.09 (0.07)
Don't know (β_{9j})	Intercept (γ_{90})	−0.18 (0.15)	−0.18 (0.15)	−0.18 (0.15)	−0.17 (0.15)	−0.18 (0.15)	−0.17 (0.15)
Evaluation of Iraq war[c]							
Not a mistake (β_{10j})	Intercept (γ_{100})	−0.13 (0.05)**	−0.12 (0.05)**	−0.13 (0.05)**	−0.12 (0.05)**	−0.13 (0.05)**	−0.12 (0.05)**
Don't know (β_{11j})	Intercept (γ_{110})	−0.17 (0.06)*	−0.16 (0.06)*	−0.17 (0.06)*	−0.16 (0.06)*	−0.16 (0.06)*	−0.16 (0.06)*
Log-likelihood		−4090 (df = 23)	−4084 (df = 29)	−4089 (df = 25)	−4082 (df = 31)	−4093 (df = 23)	−4085 (df = 29)
N voters		17,887	17,887	17,887	17,887	17,887	17,887
N states		27	27	27	27	27	27

[a] Reference category: Other party, [b] Reference category: Much worse, [c] Reference category: A mistake. ^ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$

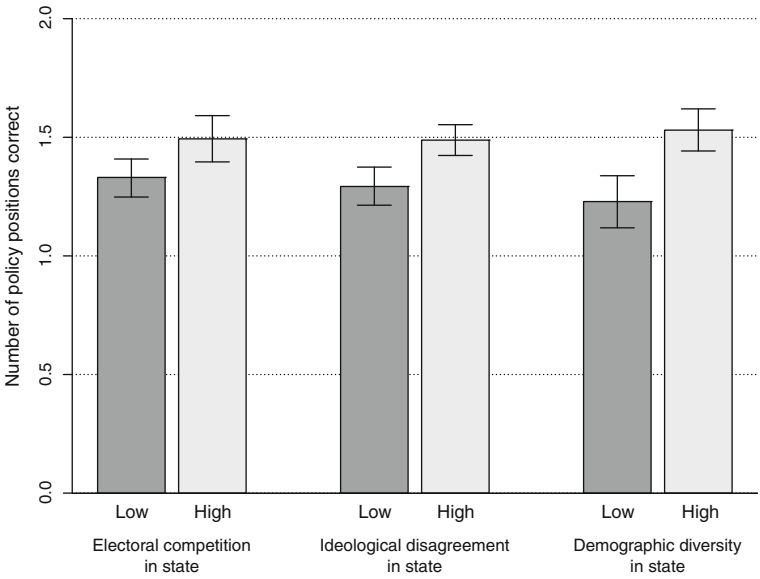

Fig. 2 Simulated first differences in probability of constituent voting for incumbent senator given shift from low to high policy congruence, in uncompetitive and competitive states. *Bars* represent difference in probability of a vote for the incumbent, given a shift from 25 to 75 % policy congruence. Each measure of state-level competition is set to one standard deviation below the mean value for states (*dark gray bars*) and to one standard deviation above the mean (*light gray bars*). For electoral competition, these values are 68.46 and 91.03; for ideological disagreement they are 1.10 and 2.19; for demographic diversity they are .34 and .46. All other variables are held at their mean or mode. *Brackets* represent 90 % confidence intervals. Estimates are simulated from models 1(a), 2(a), and 3(a) shown in Table 4

states are more likely to use policy congruence to make their decisions (the first difference is .59 [.51, .67]). However, this is not statistically distinguishable from the first difference estimated for voters in homogeneous states (.46 [.36, .56]). Since the confidence intervals on these estimates overlap, we cannot make any definitive conclusions about the differences between voters in demographically diverse and homogeneous states. However, the point estimates show a similar pattern to the other measures of conflict, suggesting a similar relationship.

In uncompetitive states, the positions that incumbents take have less of an impact on the votes they receive at election time: well-represented voters are on average around 40 % more likely to vote for the incumbent than poorly-represented voters. In competitive states, however, the vote choice is dominated to a much greater extent by the incumbent's policy record. There, politicians are about 60–65 % more likely to receive the votes of those they have represented most of the time than the votes of those they have only represented a minority of the time.[12]

[12] Note that these results are independent of the *overall* level of policy congruence in the electorate. That is, the first differences show the differences between a voter who perceives 25 % congruence and a voter who perceives 75 % congruence in each of these types of states. As Table A1 in the Online Appendix shows, significant numbers of voters perceive high or low levels of policy congruence in all types of states, with high and low levels of political competition.

However, these first differences obscure important differences in how constituents perceiving different levels of congruence respond to the incumbent. Figure 3 plots the probability that a constituent perceiving 25 % policy congruence (shown with a dashed line) voted for the incumbent, and the probability that a constituent perceiving 75 % congruence (shown with a solid line) did the same. The distances between these estimates are, of course, the first differences presented in Fig. 2—displaying them separately here allows us to assess whether those who are most well represented are affected by competition in different ways than those who are least well represented. The rug plot along the *x*-axis of each plot shows the distribution of states along the competition measure (see also Table A1 in the Online Appendix for specific values).

Rather than symmetrical divergence between those perceiving high and those perceiving low levels of congruence, Fig. 3 shows that the changing importance of policy representation for vote choice is almost entirely attributable to changes in the probability that constituents who perceive *low* levels of congruence will nonetheless cast a ballot for the senator.

Incumbents are extremely likely to win the votes of constituents whose views they have represented on 75 % of the policies, no matter the type of state they represent. In the least electorally competitive states, these constituents are predicted to vote for the incumbent 87.7 % of the time [81.8, 92.8], in the most electorally competitive states this is statistically indistinguishable, 81.0 % [74.7, 86.9]; in states where partisans hold similar ideological positions they are predicted to vote for the incumbent 82.0 % of the time [74.5, 89.2], while in states where partisans are far apart ideologically, they are predicted to do so only a little more frequently at 84.9 % [81.0, 88.6] of the time. In short, incumbents are very likely to receive the votes of constituents who have been well-represented no matter how competitive the state (I leave aside the models using demographic diversity of the state due to the greater uncertainty surrounding those estimates).

In contrast, the voting behavior of those who have been represented less often varies considerably with levels of competition in a state. In the least electorally competitive states, these voters are predicted to support the incumbent more often than not, around 64.6 % [49.1, 78.5] of the time. In the most competitive states, however, that support all but vanishes. There, voters who have been represented on only one out of four roll calls support the incumbent just 12.3 % of the time [6.4, 19.3]. A similar trend emerges for ideological disagreement: in the most homogeneous states, voters represented 25 % of the time still support the incumbent at a rate of 60.1 % [45.2, 74.7]. In the most heterogeneous states, however, levels of support amongst these voters again drops significantly to 19.8 % [13.8, 26.5]. In uncompetitive states, incumbents can count on the support of constituents whose views they have largely not represented. Only in competitive environments do these unrepresented voters desert the incumbent.

The data permit only speculation about why this is the case. One possibility is that, in priming constituents' predisposition to view politics as a competitive fight to protect their interests, diversity also prompts loss-averse behavior. Prospect theory shows that people are generally more sensitive to losses than they are to gains of the same magnitude, particularly under conditions of risk (Kahneman and Tversky

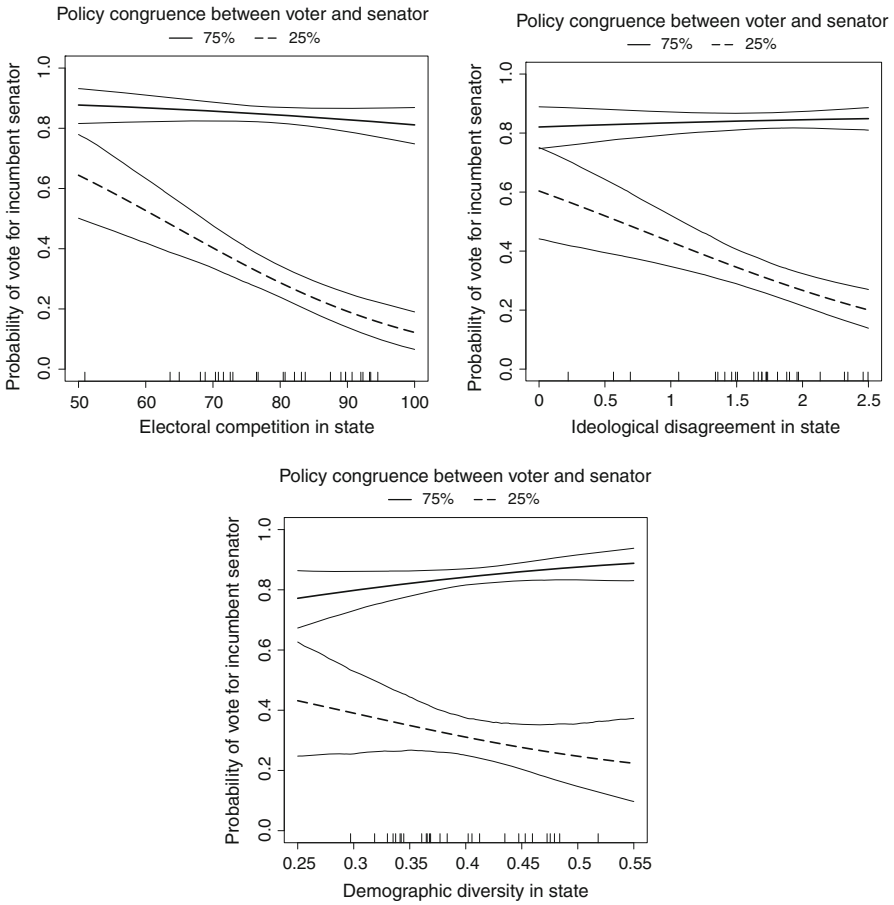

Fig. 3 State-level competition and the probability constituents will vote for the incumbent, given high and low levels of perceived policy congruence. *Solid line* represents the probability that a constituent who perceived that their policy views had been represented 75 % of the time voted for the incumbent, *dashed line* represents the probability that a constituent who perceived that their policy views were represented 25 % of the time voted for the incumbent. *Lighter lines* around the estimates indicate 90 % confidence intervals. All individual level variables are set to their mean or mode; other state-level variables are set to the average value for all states in the analysis. Estimates simulated from models 1(a), 2(a), and 3(a) shown in Table 4. Rug plot on the *x*-axis shows the distribution of states along the measure of competition

1979). As the competitive environment increases the sense that one's interests are under threat, voters may respond increasingly to the "loss" of representation they face under conditions of non-congruence. Thus, voters' sensitivity to the *lack* of policy representation that we see when they believe the incumbent has represented them just 25 % of the time increases with the competitiveness of the state. Such speculation, however, is just that—and a more definitive answer will have to await future research with different data.

These analyses do allow us to make more significant conclusions about how competition affects democratic accountability. Senators representing uncompetitive states face an electorate that does not weigh policy congruence particularly heavily in their vote choices. Indeed, incumbents have a high probability of winning the votes of those whose views they have represented only a minority of the time. In contrast, senators from competitive states must contend with a constituency much more responsive to their legislative record. Incumbents are still as likely to receive the votes of those they have represented well—but extremely *un*likely to receive much support from those they have not. The more competitive a state is, the more responsive the electorate, and the more an incumbent can expect to be punished for any "out of step" votes she casts.

Conclusions: Competition and Responses to Representation

Political scientists have extensively researched the effect of political competition on legislators' responsiveness to their constituents' policy preferences. This paper has focused on competition's effect on the *other* side of representation, how constituents respond to their legislators' policy record. Combining unique survey data with multiple measures of state competition, the analyses confirm the expectation from social arena studies that voters in competitive states are more interested in politics. Beyond this, the results show that competition in a state directly shapes constituents' responses to their senator's legislative record, in two ways that increase accountability.

First, voters in competitive states are more likely to know how their senators have voted on issues than voters in uncompetitive states, even controlling for a battery of individual-level characteristics that predict general political sophistication. Previous research suggests that representatives of heterogeneous constituencies try to create ambiguous policy records through strategically abstaining from roll call votes (Jones 2003). The results here suggest that those strategies are not particularly successful. Voters in heterogeneous states are in fact *more*, not less, likely to know how their senator has voted. Perceptions of congruence, however, are less consistently affected by levels of competition. There is limited evidence that electorally competitive states perceive less representation than their counterparts in uncompetitive states, but this finding is not replicated across the other measures of competition and so I do not treat it as a definitive conclusion.

Second, voters in competitive states are more likely to factor the senator's policy record into their decision at election time than voters in uncompetitive states. Senators who represent uncompetitive, homogenous states are only somewhat more likely to win the vote of someone whose views they were in step with 75 % of the time as someone whose views they represented 25 % of the time. Winning re-election in these states appears to rely less on taking the right positions than on other factors outside of the models studied here. In more competitive states, however, the policy record of the incumbent is at the forefront of the vote decision. There, incumbents are unlikely to receive the vote of anyone whose views they have

represented less than 50 % of the time. Political competition, in short, increases the extent to which voters hold incumbents accountable.

Crucially, these conclusions are consistent across the different measures of competition used in the literature, with the caveat that some of the estimates involving the Sullivan index of demographic diversity had much greater uncertainty associated with them. Too often, the estimates of the effects of political diversity depend on the measures researchers use (Aistrup 2004; Bishin et al. 2006). That is not the case here. Across each of the measures of competition, the same conclusions are reached: voters in heterogeneous states are more aware of the ways they are (or are not) represented and more likely to sanction out-of-step incumbents at election time.

The results are also robust to a series of checks that long-term heterogeneity, not short-term campaigning, is responsible for this increased accountability. State competition continues to predict interest, knowledge, and accountability even when we control for the intensity of the Senate campaign in the state. And while we might be concerned that these different types of competition are endogenous (i.e. that campaigns in heterogeneous states might be more intense than campaigns in homogeneous states), several robustness checks in the paper indicate that this is not the case here. First, the two measures are not significantly correlated at the state level. Second, including these measures in the regression analyses does not alter the coefficients for general levels of competition, suggesting that they are not measuring the same concept. As a third and final robustness check against this possibility of endogeneity, I also re-ran all of the models in this paper including the campaign intensity variables but excluding the general state competition variables. If the measures of state heterogeneity and campaign intensity are endogenous, then we would expect the campaign variables to predict accountability when we take out the state heterogeneity measures. These models are shown in Tables A5 and A6 in the Online Appendix. Across the models, campaign intensity in 2006 largely fails to predict accountability. As in Table 3, the challenger's level of campaign fundraising negatively affects perceptions of congruence. And the incumbent's level of fundraising appears to have an extremely weak impact on the weighting of policy congruence in constituents' vote choice (.08 (.04), $p = .08$). Overall, however, the key conclusion from these additional tests is that campaign intensity has little relation to accountability. Instead, political competition in a state is what drives voters' responses to their senators.

One concern with these conclusions is how far we can extrapolate from analyses of states and senators to other constituencies and their representatives. Aside from states with one at-large district, we might expect states to differ from House districts. Previous research using near-identical measures of competition to those in this paper, however, concludes this is not the case. Contrary to conventional wisdom, "states are not exceptionally heterogeneous, nor are congressional districts unusually homogeneous" (Gronke 2001, p. 59; see also Bishin et al. 2006). Given the trend toward safer, more homogeneous House districts referenced in the Introduction however, the results here suggest an associated reduction in accountability for House members may have occurred. One obvious solution beyond redistricting reforms to create more competitive districts, more vigorous

campaigning and higher quality challengers to insulated incumbents, does not hold much promise given the findings here. Even after controlling for features of the current electoral campaign, voters in homogeneous states were less likely to know how their representatives had voted and less likely to hold them accountable for those votes.

Another limitation on the findings presented here is the focus on a single election year. The availability of the unique survey items on the 2006 CCES makes this year a particularly appealing one to study. The senators up for re-election in 2006 also represented a wide range of states, offering substantial variance on all the key variables of interest in this paper. Nonetheless, one concern would be if the individual Senate contests in 2006 were nationalized in a way that was unlikely to occur in other years. The most obvious potential way this could occur would be if 2006 represented a "wave" election against the governing Republican party, such that voters discounted all other information about their own senator. The regression coefficients in Tables 2, 3, and 4 do not however suggest any consistent difference in how voters responded to senators from the governing (Republican) party. Voters were as aware of GOP senators' records, as likely to perceive congruence with them, and as likely to hold them accountable, as they were of Democratic senators. There is thus little evidence that 2006 was a purely national cycle that featured unusual voter behavior. Nonetheless, future research would do well to replicate these findings for other election years. Likewise, researchers could extend the analysis of electoral accountability conducted here to how constituents respond to senators *during* their term of office, not just at election time. Senators from competitive states may well face a more interested, aware, and responsive electorate throughout their 6-year term, not just at the end of it.

Incumbents representing homogeneous constituencies are already advantaged in several ways: their constituents send more consistent signals about what they want, and are easier to please as a result (Fiorina 1974; Bailey and Brady 1998; Gerber and Lewis 2004). The results here reveal additional benefits: their constituents are less likely to notice policy mis-steps, and are less likely to vote against the incumbent for that reason even if they do. With lower levels of diversity and competition come an increased ability to avoid accountability for one's record, giving these incumbents greater leeway to shirk from public opinion in making policy decisions. It is in the very constituencies which are already hardest to represent—those filled with competing demands and conflicting preferences—that legislators are held most accountable for any mis-steps they make. Of course, whether we *want* representatives to be constrained in their choices by the type of accountability we see in extremely competitive states remains an open question. Representatives completely bound by public opinion have less room to make unpopular decisions that are nonetheless in the best interests of their constituents. Increasing accountability is not necessarily the same thing as increasing the quality of representation.

Regardless, safe and homogeneous districts have increasingly become the norm for representatives in the U.S. House and state legislatures (Abramowitz et al. 2006; La Raja 2009). A long line of research shows that voters in these constituencies are better represented than their counterparts in heterogeneous constituencies (Bishin

2003; Bishin et al. 2006; Dennis 2000; Gerber and Lewis, 2004; Gulati, 2004). Increasing levels of homogeneity might well produce greater congruence between voters and representatives, but the results in this paper show that it would also dull other key aspects of democracy—the extent to which constituents are aware of what has been done in their name, and the extent to which they reward or punish incumbents accordingly. Whether that is a tradeoff worth making is a normative question and the subject for future research: the key conclusion from the empirical analyses here is that competition enhances, not weakens, democratic accountability. Increased representation might make the deliberate creation of more homogeneous districts appealing (Brunell 2008). Before looking for ways in which homogeneity in constituencies might be increased, however, analysts would do well to consider their likely impact not just on how well represented constituents are, but also on how well they hold their representatives accountable.

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Appendix: Model Specifications

Interest model

In the models predicting constituents' interest in politics (shown in Table 1), all of the coefficients except for the intercept are fixed. The individual-level model can be written as follows:

$$\begin{aligned}\text{Political interest}_{ij} =& \beta_{0j} + \beta_{1j}(\text{Female})_{ij} + \beta_{2j}(\text{Age})_{ij} + \beta_{3j}(\text{Income})_{ij} \\ &+ \beta_{4j}(\text{Black})_{ij} + \beta_{5j}(\text{Hispanic})_{ij} + \beta_{6j}(\text{Other race})_{ij} \\ &+ \beta_{7j}(\text{High school})_{ij} + \beta_{8j}(\text{Some college})_{ij} \\ &+ \beta_{9j}(\text{College})_{ij} + \beta_{10j}(\text{Post-college})_{ij} + r_{ij}\end{aligned}$$

where i indexes individuals, j indexes states, and r_{ij} represents the residual for individual i in state j. At the state level, β_{0j} is modeled as a function of several state-level variables (as an example, for Model 1(a) in Table 1):

$$\begin{aligned}\beta_{0j} =& \gamma_{00} + \gamma_{01}(\text{Turnout 2004})_j + \gamma_{02}(\text{High school graduates})_j \\ &+ \gamma_{03}(\text{Electoral competition})_j + \mu_{0j} \\ \text{and} \quad \beta_{pj} &= \gamma_{p0} \quad \text{for p} = 1 - 10\end{aligned}$$

The full model is obtained by substituting the second model into the first one. Since the dependent variable is a categorical variable, I use an ordered logistic regression model (see Bauer and Sterba 2011). The knowledge models in Table 2 and the congruence models in Table 3 take the same approach, using a Poisson and least squares estimator respectively.

Vote choice model

In the models predicting constituents' vote choice for or against the incumbent senator (shown in Table 4), all of the coefficients except for the intercept and policy congruence are fixed. The individual-level model can be written as follows:

$$\begin{aligned}\text{Vote choice}_{ij} = &\beta_{0j} + \beta_{1j}(\text{Policy congruence})_{ij} + \beta_{2j}(\text{Co-partisan})_{ij} \\ &+ \beta_{3j}(\text{Independent})_{ij} + \beta_{4j}(\text{Don't know senator's party})_{ij} \\ &+ \beta_{5j}(\text{Economy gotten worse})_{ij} + \beta_{6j}(\text{Economy stayed same})_{ij} \\ &+ \beta_{7j}(\text{Economy gotten better})_{ij} \\ &+ \beta_{8j}(\text{Economy gotten much better})_{ij} + \beta_{9j}(\text{Don't know economy})_{ij} \\ &+ \beta_{10j}(\text{Iraq war not a mistake})_{ij} \\ &+ \beta_{11j}(\text{Don't know Iraq war})_{ij} + r_{ij}\end{aligned}$$

where i indexes individuals, j indexes states, and r_{ij} represents the residual for individual i in state j. At the state level, β_{0j} and β_{1j} are modeled as a function of several state-level variables (as an example, for Model 1(a) in Table 4):

$$\begin{aligned}\beta_{0j} = &\gamma_{00} + \gamma_{01}(\text{Turnout 2004})_j + \gamma_{02}(\text{High school graduates})_j \\ &+ \gamma_{03}(\text{GOP senator})_j + \gamma_{04}(\text{Electoral competition})_j + \mu_{0j} \\ \beta_{1j} = &\gamma_{10} + \gamma_{11}(\text{Turnout 2004})_j + \gamma_{12}(\text{High school graduates})_j \\ &+ \gamma_{13}(\text{GOP senator})_j + \gamma_{14}(\text{Electoral competition})_j + \mu_{1j} \\ \text{and} \quad &\beta_{pj} = \gamma_{p0} \quad \text{for p} = 2 - 11\end{aligned}$$

The full model is obtained by substituting the second model into the first one.

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ERRATUM

Erratum to: The Effect of Political Competition on Democratic Accountability

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In the original publication of this article, Fig. 2 was incorrectly printed and is a duplicate of Fig. 1. The correct version of Fig. 2 is shown here. All of the results reported in the text remain correct.

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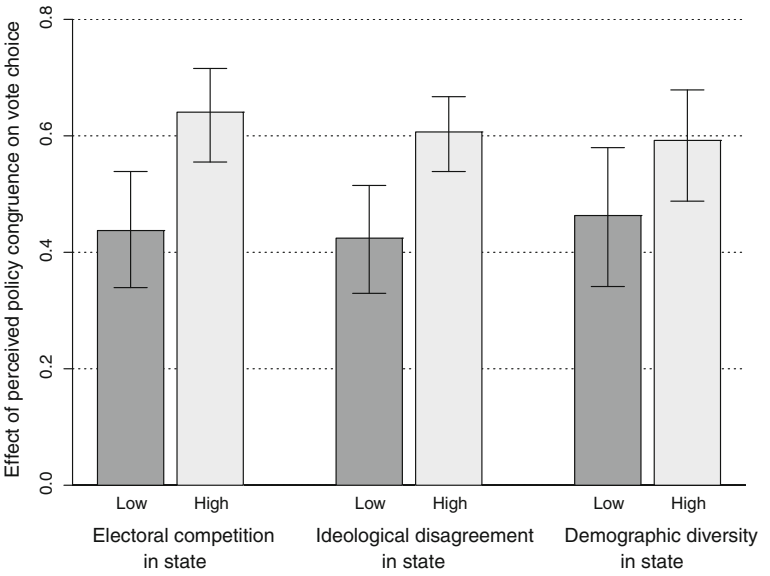

Fig. 2 Simulated first differences in probability of constituent voting for incumbent senator given shift from low to high policy congruence, in uncompetitive and competitive states. *Bars* represent difference in probability of a vote for the incumbent, given a shift from 25 to 75 % policy congruence. Each measure of state-level competition is set to one standard deviation below the mean value for states (*dark gray bars*) and to one standard deviation above the mean (*light gray bars*). For electoral competition, these values are 68.46 and 91.03; for ideological disagreement they are 1.10 and 2.19; for demographic diversity they are .34 and .46. All other variables are held at their mean or mode. *Brackets* represent 90 % confidence intervals. Estimates are simulated from models 1(a), 2(a), and 3(a) shown in Table 4