# Does the Ideological Proximity Between Congressional Candidates and Voters Affect Voting Decisions in Recent U.S. House Elections?* 

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#### Abstract

Do citizens hold congressional candidates accountable for their policy positions? Recent studies reach different conclusions on this important question. In line with the predictions of spatial voting theory, a number of recent survey-based studies have found reassuring evidence that voters choose the candidate with the most spatially proximate policy positions. In contrast, most electoral studies find that candidates' ideological moderation has only a small association with vote margins, especially in the modern, polarized Congress. We bring clarity to these discordant findings using the largest dataset to date of voting behavior in congressional elections. We find that the ideological positions of congressional candidates have only a small association with citizens' voting behavior. Instead, citizens cast their votes "as if" based on proximity to parties rather than individual candidates. The modest degree of spatial voting in recent Congressional elections may help explain the polarization and lack of responsiveness in the contemporary Congress.


[^0]Do citizens hold their congressional candidates accountable for their policy positions? Recent studies reach extremely different conclusions on this important question. The bulk of the electoral studies on the effect of candidates' ideological positions on their vote shares find that ideological moderation has only a small influence on candidates' vote margins, especially in the modern, polarized Congress. Examining elections between 1956-1996, Canes-Wrone, Brady, and Cogan (2002) find that shifting from the middle of their party to the extremes lowers an incumbent's vote share by " 1 to 3 percentage points." Wilkins (2012) extends their analysis to the present and finds that the electoral reward for moderation in Congress has shrunk even further in recent years, and is close to zero in the last decade. ${ }^{1}$ Based on data from over 400 US House elections from 1996 to 2006 where successive challengers competed against a common incumbent, Montagnes and Rogowski (2015) "uncover no evidence that challengers increase their vote shares by adopting more moderate platform positions." Hall and Snyder Jr (2013) find that "a one standard deviation move to the right" only increases the Democratic candidate's vote share by "1.3 to 2 percentage points." Finally, Hall (2015, 24-25) finds that ideological extremity harms candidates in open-seat races, but has little or no effect in races with incumbents.

This macro-level evidence that candidates, and especially incumbents, only pay a modest electoral penalty for ideological extremity should not be surprising in light of the increasing levels of polarization in the modern Congress. If citizens are holding legislators accountable for extreme policy positions, then legislators should have a strong incentive to cast votes that represent the median voter in their districts (Black, 1948; Downs, 1957). Thus, legislators should converge on the median voter and there should be a very tight association between the views of constituents in each district and the roll call voting behavior of their representative. But a large body of work shows that legislators do not converge on the position of the median voter (Ansolabehere, Snyder Jr, and Stewart III, 2001; Levitt, 1996). In addition, there is only a modest relationship between district preferences and legislators' roll call voting

[^1]behavior (Clinton, 2006; Lee, Moretti, and Butler, 2004; Tausanovitch and Warshaw, 2013).
In light of these studies, it is somewhat surprising that a number of recent survey-based studies appear to find normatively reassuring evidence that candidate positioning has a large effect on citizens' voting choices. These survey-based studies examine whether voters are more likely to support candidates with similar positions either on individual issues or on an ideological scale. Ansolabehere and Jones (2010) find that "the public collectively hold[s] politicians accountable" and Jones (2011) finds that "the buck stops with members of Congress for the positions they take." Similarly, Nyhan et al. (2012) finds that "members who are out of step, even on a single salient vote, really can end up out of office." Shor and Rogowski (2016) find "robust evidence that vote choice in congressional elections is strongly associated with [the] spatial proximity" between voters and candidates. As a result, "candidates... have ... incentives to advocate policies that reflect district preferences."

Both of these sets of findings cannot simultaneously be true. If ideological moderation only leads to a small gain in incumbent vote share, it is unlikely that "vote choice in congressional elections is strongly associated with [the] spatial proximity" between voters and candidates. ${ }^{2}$ Given the findings in the classic literature on congressional elections, it is far more likely that candidate positioning has only marginal effects on the vote choices of citizens.

In this study, we bring clarity to the discordant findings in previous studies. We use new statistical tests and the largest dataset to date of citizens' policy positions and voting decisions in congressional elections. Our dataset includes the policy positions, ideal points, and voting decisions of over 75,000 voters in 1,100 electoral contests between 2006 and 2012. We show that the results in previous survey-based studies are conflated by the association between voters' ideology and their ideological distance from candidates. By failing to separate

[^2]voters' and candidates' positions, these studies find artificially high levels of spatial voting. ${ }^{3}$ We find that citizen policy positions are directly associated with their voting probabilities, with more liberal citizens being more loyal Democratic voters and conservatives being more loyal Republican voters. However, we find that the ideological positions of congressional candidates have only a modest effect on citizens' voting decisions.

Our model also enables us to examine the relationship between legislator vote shares and legislator positions (cf. Canes-Wrone, Brady, and Cogan, 2002; Wilkins, 2012). For each district, we can calculate the change in vote share that would result from a one standard deviation move toward the center by the legislator. Consistent with previous electoral studies, but unlike most recent survey-based studies, we find that ideological moderation has a relatively small effect on the vote share of incumbents. Similarly to most aggregate electoral studies, but unlike previous survey-based studies, we find that incumbents in recent congressional elections are unlikely to increase their vote share more than $1-2 \%$ by taking more moderate positions.

Our results have broad implications for representation and democratic accountability in the United States. Most importantly, our results show that incumbent legislators face few electoral consequences for unrepresentative positions in recent congresses (cf. Wilkins, 2012). Legislators do not appear to be bound by the policy views of their particular constituents, as long as they can claim to belong to the political party their constituents prefer. ${ }^{4}$ This helps explain the broad patterns of divergence between the parties (Poole and Rosenthal, 2000; Lee, Moretti, and Butler, 2004), and very weak responsiveness to the preferences of constituents (e.g., Clinton, 2006), that we observe in the contemporary Congress.

[^3]
## Theories of Proximity and Party Voting

In An Economic Theory of Democracy, Downs (1957) argues that vote choices are a function of the spatial proximity between the ideal points of voters and parties. This spatial voting model was easily extended to the proposition that citizens should be more likely to vote for legislators and other elected officials that share their ideological preferences, spawning a long literature in spatial voting theory (e.g., Enelow and Hinich, 1984). In a related line of research, called directional voting theory, scholars argue that voters support candidates whose spatial positions are on the same side of the political spectrum as their own positions (Rabinowitz and Macdonald, 1989). ${ }^{5}$ The common element of both of these theories is that they imply that individual candidates' positions should influence citizens' voting decisions.

For many years, there was "surprisingly little direct evidence supporting [the spatial voting model's] main assumptions" (Ansolabehere and Jones, 2010, 583). However, the explosion of large-sample surveys in recent years has facilitated a renaissance in scholarship on voter behavior in congressional elections. Over the past few years, a number of prominent studies have found support for the spatial voting model in congressional elections. Shor and Rogowski (2016) find that vote choice in congressional elections is associated with the voters' spatial proximity with congressional candidates. ${ }^{6}$ In two similar studies, Ansolabehere and Jones (2010) and Jones (2011) evaluate the impact of incumbents' issue positions on citizens' voting behavior. They find that respondents are more likely to vote for incumbents that share their issue positions. Simas (2013) finds evidence that voters consider their ideological proximity to congressional candidates and "punish candidates who take positions that are too far out of line." Joesten and Stone (2014) use district experts to place candidates and survey respondents onto the same ideological scale. They conclude that "proximity voting is common" among voters in congressional elections. Finally, Nyhan et al. (2012) find that legislators' positions on health care reform and other salient votes affected voters' decisions

[^4]in the 2010 congressional elections.
Another theoretical perspective is that congressional voters are primarily casting their ballots on the basis of their partisan alignment with candidates rather than their spatial proximity. Indeed, political scientists often forget that early spatial voting theorists such as Downs (1957) and Hotelling (1929) focused on parties rather than individual candidates and legislators. In these theories, voters take proximity into account, but only of the national political parties. The party-focused perspective is not unique to spatial voting theory either. The traditional theory of partisan identification holds that party is an enduring attachment, much like religion, with primarily affective roots (Campbell et al., 1960; Lewis-Beck et al., 2008). Party attachments are formed early in life and are very stable thereafter. Policy views and vote choices are both determined by party identification, which is the dominant force in voters' political lives. Policy determinations are more or less epiphenomena of party, and voters are relatively ignorant about policy and legislative activities. Green, Palmquist, and Schickler (2004) ground the importance of party identification in a concept of social identification. People identify with parties because they think of themselves as being similar to other people in their party.

One element of early theories of party identification that has earned more emphasis over time is the notion of party as a cue or heuristic. More recent work argues that party labels help voters figure out the policy positions of elected officials (Conover and Feldman, 1989; Popkin, 1991; Snyder and Ting, 2002). This enables voters to make a Downsian calculation about which candidate is better from a policy perspective. They can cast their ballots rationally without knowing much about the positions of individual candidates by simply voting for the candidate whose party reflects their general policy views, rather than making detailed evaluations of particular candidates (Sniderman and Stiglitz, 2012).

An important limitation of previous survey-based studies is that they fail to distinguish candidate-centered versus party-centered accounts of spatial voting. Most importantly, most of the recent survey-based studies use the spatial proximity between voters and candidates
as their key independent variable without accounting for the direct effect of voters' issue preferences or ideology (e.g., Joesten and Stone, 2014; Shor and Rogowski, 2016; Simas, 2013). ${ }^{7}$ As a result, they cannot determine whether voter ideology or candidate ideology is determining citizens' vote choices.

## Distinguishing Alternative Theories of Voting

In order to examine the empirical implications of the spatial voting models, we use the following theoretical framework. Consider a voter whose ideal policy in some policy space occurs at $v$, and an election where the Democratic candidate has ideal point $d$ and the Republican has ideal point $r$. According to the candidate-centered notion of spatial voting, voters should vote, with error, for the candidate who has an ideal point in some sense "closer" to their own. Votes are cast with error, but voters are more likely to vote for their favored candidate as the spatial advantage of their favored candidate grows. Simply put:

$$
\begin{equation*}
P(y=R)=f(\delta(d, v)-\delta(r, v)) \tag{1}
\end{equation*}
$$

where $\delta$ is a distance function, $f$ is some well-behaved increasing function on $[0,1]^{8}$, and $y$ is the vote cast, with $y=R$ indicating a vote for the Republican candidate. The most common distance functions used in the spatial voting literature are quadratic utility (i.e. Jessee, 2009) and linear or absolute value utility (i.e. Adams et al., 2016). Alternatively, Rabinowitz and Macdonald (1989) propose that distance be measured by the product of the absolute value of the distances of the voter and the candidate from some neutral point, calling this "directional voting." In order to avoid conflating the effect of voters' ideology and their ideological distance from candidates, we separate the positions of voters and candidates in each of the equations below.

[^5]
## Quadratic Utility Model vs. Party-Centered Voting

The quadratic spatial utility model of voting behavior can be operationalized as follows:

$$
\begin{align*}
\delta(d, v)-\delta(r, v) & =(d-v)^{2}-(r-v)^{2}  \tag{2}\\
& =d^{2}-2 d v+v^{2}-r^{2}+2 r v-v^{2}  \tag{3}\\
& =d^{2}-2 d v-r^{2}+2 r v \tag{4}
\end{align*}
$$

The key testable implication that flows from Equation 4 is that there should be a negative interaction between $d$ and $v$ and a positive interaction of $r$ and $v$. This is what allows the effect of $r$ and $d$ to depend on the distance to the voter. This formulation can be contrasted with the theory that more conservative voters are more likely to vote for Republican candidates. Indeed, we hypothesize that the probability of voting for a Republican candidate does not depend on the distance between candidates and voters, but rather the distance between voters and their respective parties. Since the positions of the parties are constant across contests in any given year, the party-centered theory predicts that more conservative voters should be more likely to vote for the Republican candidate and more liberal voters should be more likely to vote for the Democratic candidate. In other words, a party-based theory simply predicts that the coefficient on $v$ should be positive.

The prediction of Equation 4 that spatial voting implies interactions between $d$ and $v$ and $r$ and $v$ is also subtly different from the simpler theory that more moderate candidates should get higher vote shares. Indeed, the empirical regularity of higher vote shares for moderate candidates could be partially explained by the fact that more extreme candidates tend to have lower valence, which could cause lower voter share. Empirically, Stone and Simas $(2010,378)$ show that lower quality, or valence, candidates tend to take ideologically extreme positions. ${ }^{9}$ In contrast, candidates with greater knowledge, skills, and resources tend to take positions that are closer to the middle of the ideological spectrum. They also

[^6]tend to win elections at higher rates. If it's true that more extreme candidates have lower valence, then more liberal Democrats should improve the chances of the Republican (and so the coefficient on $d$ should be negative) and more conservative Republicans should have lower chances (the coefficient on $r$ should be negative as well). Combining this hypothesized valence effect and party-centered voting, we predict a positive effect of $v$ and a negative effect of $d$ and $r$ on the likelihood of voting for Republican candidates.

## Linear Utility Model

The linear spatial utility model of voting behavior has the subtlest predictions of the various manifestations of spatial voting. Under this model, the effect of $v, d$, and $r$ all depend on the relative positions of the candidate and voter.

For voters who are between the two candidates, linear spatial voting looks quite similar to our theory, which predicts a positive effect of $v$ and a negative effect of $d$ and $r$. Assume $d<v<r$. Then

$$
\begin{align*}
\delta(d, v)-\delta(r, v) & =|d-v|-|r-v|  \tag{5}\\
& =(v-d)-(r-v)  \tag{6}\\
& =2 v-d-r \tag{7}
\end{align*}
$$

Just as in our party-centered theory, the predictions are a positive coefficient on $v$ and a negative coefficient on $d$ and $r$ (e.g., voters are less likely to support the Republican when the candidates move to the right, since this implies that the left-of-center Democrat is more ideologically moderate and the right-of-center Republican is more ideologically extreme). However, consider the case where the voter is to the left of both candidates, $v<d<r$ :

$$
\begin{align*}
\delta(d, v)-\delta(r, v) & =|d-v|-|r-v|  \tag{8}\\
& =(d-v)-(r-v)  \tag{9}\\
& =d-r \tag{10}
\end{align*}
$$

In this case the ideological position of the voter should have no effect on their voting behavior, and the effect of the Democratic candidate's position is reversed. Likewise, if the voter is more conservative than either candidate, $d<r<v$ :

$$
\begin{align*}
\delta(d, v)-\delta(r, v) & =|d-v|-|r-v|  \tag{11}\\
& =(v-d)-(v-r)  \tag{12}\\
& =r-d \tag{13}
\end{align*}
$$

For voters who are more conservative than either candidate, $v$ has no further effect on the likelihood of supporting the Republican, and the likelihood of supporting the Republican is increasing in their conservatism. So for all voters who are either more liberal or more conservative than the candidates in their election, the effect of $v$ should be 0 . This is the sense in which the effect of $v$ depends on the positions of the candidates for linear utility.

Figure 1 demonstrates the predictions of linear utility in graph form. The first column examines the effects of changes in voters' ideological positions $(v)$ for voters in between the two candidates, and voters to the right of both candidates. The top two rows show that for voters in between the two candidates, more conservative voters are more likely to vote for the Republican. The bottom two rows show that the position of the voter ceases to matter once the voter is to the right of both candidates. The likelihood of supporting the Republican is not higher for more conservative voters because the difference in utility between the two candidates is the same.

The second column of Figure 1 shows the effect of changes in the position of the Republican candidate ( $r$ ). The first two columns show that for a voter between the two candidates, when the Republican candidate moves to the right the voter's preference for the Democrat increases. However, the bottom two rows show that for a voter to the right of both candidates this move has the opposite effect: the voter's preference for the Republican increases. The effects in Figure 1 are analogous when we examine voters to the left of both candidates and changes in the positions of voters and Democratic candidates.

Figure 1: Effects on Utility for Linear Utility Functions


Note: In each panel, $\Delta$ represents the utility difference for the voter (v or $v^{\prime}$ ) of the two candidates, $d$ (the Democrat) and $r$ or $r^{\prime}$ (the Republican). This diagram demonstrates some of the consequences of assuming linear utility.

## Data

We use two sources of data to evaluate the association between candidate positions and voter decision-making in congressional elections. First, following classic studies, we evaluate the predictions of the quadratic and directional voting models using the relationship between incumbent positions and citizens' voting behavior from 2006-2012. For this analysis, we pool together the 2006-2012 Cooperative Congressional Election Surveys. In all, we have information on 178,742 survey respondents. We have information on self-reported vote choices in congressional elections for approximately 80,000 of these respondents in contested races
with incumbents running for re-election. ${ }^{10}$ Data on legislators' party and estimates of legislators' roll call positions come from Poole and Rosenthal's DW-NOMINATE scores (Poole and Rosenthal, 2000). Data on legislators' incumbency status are derived from Gary Jacobson's data on congressional elections and research by the authors. Finally, we classify "leaners" (those who identify themselves as Independents but say they lean towards one party or the other) as partisans for all of the substantive analyses that follow. ${ }^{11}$

For our measure of respondents' ideology, we use ideal point estimates made available by Tausanovitch and Warshaw (2013) based on policy responses from all CCES surveys during this period. ${ }^{12}$ However, we only use the respondents from even-year surveys for this study. We use the pre-election survey for respondents' policy questions, and the post-election panel for their vote choice. Each of these surveys asked between 14 and 32 policy questions to 30,000-55,000 Americans. ${ }^{13}$ To validate the ideal point estimates for voters, Table 1 shows the strong relationship between symbolic ideology and our scaled measure of citizens' ideal points.

Table 1: Symbolic Ideology and Citizen Ideal Points

| Symbolic Ideology | Mean Ideal Point |
| :---: | :---: |
| Very Liberal | -1.30 |
| Liberal | -1.03 |
| Moderate | -0.31 |
| Conserative | .83 |
| Very Conservative | 1.34 |

Unlike some other recent studies (e.g., Joesten and Stone, 2014; Shor and Rogowski, 2016), in the first portion of our analysis we focus explicitly on incumbent positions and eschew any attempt to estimate the positions of challengers (i.e., we focus on $r$ and $v$ for Republican incumbents and $d$ and $v$ for Democrats.) We rely on the assumption that the

[^7]positions taken by challengers and incumbents are uncorrelated. This appears to be very close to the truth in 2010, where there is a correlation of only 0.05 between Democratic and Republican candidates' positions in the data provided by Adams et al. (2016). This design has the merit of enabling us to pool across multiple election cycles. It mirrors the strategic situation faced by incumbents, for whom the position of potential challengers is typically unknown.

Focusing on incumbents simplifies the analysis by allowing us to focus on the effects of one candidate's position. ${ }^{14}$ However, to account for the fact that these theories all depend on both incumbent and challenger positions, we also use data from Adams et al. (2016) that include the latent, ideological positions of voters, challengers, and incumbents in the 2010 election on a common scale. The ideal points of voters are based on their responses to policy questions on the Cooperative Congressional Election Study (CCES). The ideological positions of candidates are based on their responses to the National Political Awareness Test (NPAT) survey. The positions of voters and candidates are bridged onto a common scale using common questions on the CCES and National Political Awareness Test survey.

## Visualizing Legislators' Positions \& Constituent Voting

Do candidate positions affect voting behavior in Congressional elections? As a first cut, we examine how often voters break ranks with their party to vote for candidates whose positions are more similar to their own. One simple way to analyze this is to separate our data into voter-legislator pairs, one for each combination of voter and legislator partisanship (Democratic-Democratic, Independent-Democratic, Republican-Democratic and so

[^8]on). ${ }^{15}$ For each pair, we separate voters into three groups based on their ideology, depending on whether they are in the liberal, moderate, or conservative tercile of the entire population. In each of these categories, we graph a loess curve of the percent voting for the incumbent across the range of incumbents' ideal points (DW-Nominate scores). ${ }^{16}$ This is similar to simply graphing a point for each category of voter ideology and each category of legislator ideology. Each of the panels in Figure 2 subset our data based on respondent and legislator party identification. The first row shows Democratic voters, the second row shows Independent voters, and the third row shows Republican voters.

The theory of proximity voting has a simple prediction: liberals should be more likely to vote for more liberal legislators and conservatives should be more likely to vote for more conservative legislators. Moderates should be more likely to vote for more moderate legislators. In other words, each of our lines should have a slope representing the sensitivity of the vote choice to legislator positions. If the slope is flat, then either citizens are not voting spatially or the role that these considerations play in their decision is small. ${ }^{17}$ In the case of directional voting, the slope should be even steeper: as legislators go from the "wrong" side of the "neutral point" to the "right" one, the voters should switch en masse from voting against them to for them. If the neutral point is between the two parties, then voters should always vote for the party on their side of the neutral point (all lines should be at $100 \%$ or $0 \%$ ), and voting should be completely determined by ideology, not party.

Looking first at the graphs for Democratic voters (top row), the most salient pattern is that all of the curves are generally flat. Indeed, over $98 \%$ of liberal Democratic voters support Democratic incumbents, and upwards of $90 \%$ oppose Republican incumbents, virtually regardless of the legislators' positions. $67 \%$ of Democrats are in the liberal tercile.

[^9]

Figure 2: Spatial Voting in the U.S. House: 2006-2012 - This graph shows non-parametric loess curves of the relationship between legislators' DW-Nominate scores and the probability that respondents at various ideological levels support them on election-day. The y-axis is the probability of voting for the incumbent and the x-axis is the incumbent's DW-NOMINATE score. Each line is a loess plot for a set of voters within a given tercile of ideology, where these terciles are defined by the entire population, rather than the terciles within a particular cell. The line made up of long dashes represents the liberal tercile, the long made up of short dashed represents the moderate tercile, and the line made up of dots and dashes represents the conservative tercile. The solid line is the mean for the entire population in each cell. The top row of the graph shows loess fits for Democratic respondents, the second row is for Independent respondents, and the last row is for Republican respondents. The first column is for Democratic legislators and the second column is for Republican legislators.

Next, we examine the graphs for Independent voters (2nd row). Several recent, prominent papers suggest that Independents are highly responsive to legislators' roll call positions (Jessee, 2009, 2012; Shor and Rogowski, 2016). However, Figure 2 indicates there are only very modest associations between the vote choices of Independents and legislators' roll call positions in our data (see also Adams et al., 2016).

Finally, the bottom row of Figure 2 shows the association between legislators' positions and constituents' decisions on election day for Republican voters. The plot shows that Republican voters are slightly more likely to support moderate Democratic incumbents. However, there is no consistent association between the probability that Republican voters support Republican incumbents and the incumbents' ideology. Overall, over $97 \%$ of Republicans support Republican incumbents, and over $90 \%$ oppose Democratic incumbents, virtually regardless of the legislators' positions. $78 \%$ of Republican voters are in the conservative tercile, while only $3 \%$ are liberal. For this $3 \%$, there is a relatively strong association between the positions of Democratic incumbents and vote choice. This is the only instance in which we see a substantively large relationship between candidate ideology and citizens' voting decisions. Due to the small size of this group, however, the aggregate effect is small.

Looking across the plots, a remarkable feature of these results is the strength of both respondents' party and ideology as a predictor of vote choice. The effect of ideology is captured by the differences in the levels of the lines within each panel, and the effect of party is captured by the differences in the lines going down the plots in each column of graphs. A cursory glance shows that these effects are substantial. Even moderate Democrats overwhelmingly support Democratic incumbents, and moderate Republicans overwhelmingly support Republican incumbents. These individuals have the same ideology and differ only in party identification. However, individual ideology also has a substantial independent effect. For instance, Democratic voters who are conservative support Democratic incumbents about $60 \%$ of the time. Republican voters who are liberal support Republican incumbents at about the same rate. Overall, Figure 2 indicates that the direct effects of party and voter ideology
dwarf the effect of legislator position. The difference in the levels of the lines within and across panels is vastly greater than the difference between the two endpoints of the lines.

The fact that individual ideology has a strong independent effect on vote choice is not evidence for the proximity model, because it contains no notion of distance. However, it does provide evidence that party attachment may not be purely affective. If voters' policy positions drive the extent to which they reliably support their party, then the spatial distance between the voter and the party is a sensible explanation. It may be the case that voters think or act spatially with reference to parties, but not candidates.

## Parametric Results

While our non-parametric analysis suggests little reason to believe that the roll call positions of legislators influence voters' decisions on election day, the link between the graphs and the theoretical predictions are somewhat loose. To make a clearer connection between theory and evidence, we next turn to a parametric, regression-based framework that encompasses the theoretical predictions discussed earlier.

## Testing the Quadratic Voting Model

First, we evaluate the predictions of the quadratic voting model in Equation 4. This yields the regression model:

$$
\begin{equation*}
P(y=R)=v+v^{2}+d+d^{2}+d v+r+r^{2}+r v+\text { controls } \tag{14}
\end{equation*}
$$

As we discussed earlier, in the first section of our analysis we focus explicitly on incumbent positions and eschew any attempt to estimate the policy positions of challengers (i.e., we focus on $r$ and $v$ for Republican incumbents and $d$ and $v$ for Democrats.) We rely on the assumption that the positions taken by challengers and incumbents are approximately uncorrelated, and thus can be treated as orthogonal from one another.

Columns (1) and (2) of Table 2 show the results of a linear probability model using data on incumbents' spatial positioning and citizen voting behavior in the 2006-2012 congressional elections. Recall that the main prediction of the quadratic spatial voting model is that both the coefficients on candidates' ideology and the interaction between candidate and voter ideology should be large and significant. ${ }^{18}$ In contrast, the main prediction of the partycentered models is that voting behavior should be driven by voters' ideology and party identification rather than candidate positioning.

In column (1), we show the effect of candidate positioning among incumbent Democrats. The results indicate that more liberal voters are more likely to support Democrats and more conservative voters are more likely to support Republicans. Indeed, even within party, a standard deviation move to the right among citizens is associated with a $24 \%$ increase in the probability that they support the Republican candidate. However, the evidence is weaker for the idea that citizens vote spatially based on their proximity with individual legislators. Indeed, the interaction term for legislator ideology and citizen ideology, which captures spatial voting, indicates that a one standard deviation move toward the middle by Democratic legislators only makes conservative voters $1.7 \%$ more likely to support an incumbent Democrat (and vice versa for liberal voters).

Column (2) shows much the same story for incumbent Republicans. A one standard deviation move to the right among citizens is associated with a $15 \%$ increase in the probability that they support the Republican candidate. Once again, the evidence is weaker for the idea that citizens vote spatially based on their proximity with individual legislators. Indeed, the interaction term for legislator ideology and citizen ideology indicates that a one standard deviation move toward the middle by incumbent Republicans only makes conservative voters $2.2 \%$ less likely to support an incumbent Republican (and vice versa for liberal voters).

Finally, column (3) shows the results using both candidates in congressional races in

[^10]Table 2: Spatial Voting in Congressional Elecitons

|  | Dependent variable: |  |  |
| :---: | :---: | :---: | :---: |
|  | Vote for Republican Candidate |  |  |
|  | (1) | (2) | (3) |
| Citizen Ideology | $\begin{gathered} 0.201^{* * *} \\ (0.006) \end{gathered}$ | $\begin{gathered} 0.186^{* * *} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.221^{* * *} \\ (0.003) \end{gathered}$ |
| Citizen Ideology Squared | $\begin{gathered} 0.039^{* * *} \\ (0.002) \end{gathered}$ | $\begin{gathered} -0.040^{* * *} \\ (0.002) \end{gathered}$ | $\begin{gathered} -0.006^{* *} \\ (0.003) \end{gathered}$ |
| Democratic Candidate Ideology | $\begin{gathered} -0.051^{*} \\ (0.027) \end{gathered}$ |  | $\begin{aligned} & -0.003 \\ & (0.002) \end{aligned}$ |
| Dem. Candidate Ideology Squared | $\begin{aligned} & -0.008 \\ & (0.013) \end{aligned}$ |  | $\begin{aligned} & 0.0004 \\ & (0.001) \end{aligned}$ |
| Republican Candidate Ideology |  | $\begin{gathered} -0.118^{* * *} \\ (0.019) \end{gathered}$ | $\begin{gathered} -0.013^{* * *} \\ (0.002) \end{gathered}$ |
| Rep. Candidate Ideology Squared |  | $\begin{gathered} 0.044^{* * *} \\ (0.010) \end{gathered}$ | $\begin{gathered} -0.006^{* * *} \\ (0.001) \end{gathered}$ |
| Citizen Ideology: Dem. Candidate Ideology | $\begin{gathered} -0.017^{* * *} \\ (0.005) \end{gathered}$ |  | $\begin{gathered} -0.004^{* * *} \\ (0.002) \end{gathered}$ |
| Citizen Ideology: Rep. Candidate Ideology |  | $\begin{gathered} 0.022^{* * *} \\ (0.004) \end{gathered}$ | $\begin{gathered} 0.005^{* * *} \\ (0.002) \end{gathered}$ |
| Independent | $\begin{gathered} 0.245^{* * *} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.260^{* * *} \\ (0.006) \end{gathered}$ | $\begin{gathered} 0.314^{* * *} \\ (0.007) \end{gathered}$ |
| Republican | $\begin{gathered} 0.471^{* * *} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.468^{* * *} \\ (0.005) \end{gathered}$ | $\begin{gathered} 0.487^{* * *} \\ (0.006) \end{gathered}$ |
| Constant | $\begin{gathered} 0.107^{* * *} \\ (0.015) \end{gathered}$ | $\begin{gathered} 0.411^{* * *} \\ (0.009) \end{gathered}$ | $\begin{gathered} 0.278^{* * *} \\ (0.005) \end{gathered}$ |
| Observations | 36,626 | 41,169 | 20,337 |
| $\mathrm{R}^{2}$ | 0.725 | 0.678 | 0.774 |
| Adjusted R ${ }^{2}$ | 0.725 | 0.678 | 0.773 |

2010. ${ }^{19}$ Unlike the other models, this model controls for the positions of both the Democratic and Republican candidates rather than only the position of the incumbent. However, the substantive conclusions are similar to the ones in columns (1) and (2) which only include incumbents. A one standard deviation move to the right among citizens is associated with a $22 \%$ increase in the probability that they support the Republican candidate. But there is no effect on voting behavior due to changes in the ideological position of Democratic candidates, and only small effects due to changes in the positions of Republican candidates. There are also only modest interactions between candidates' positions and the ideology of voters.

Of course, these results are based on a linear probability model, which could attenuate some of the effect of candidate positioning. They also fail to separate voters by party. Thus, we also estimate each model using a logistic regression. ${ }^{20}$ The downside of this model is that the results are less readily interpretable than the linear probability model. As a result, we graph the results to make it easier to visualize them. Figure 3 shows the results for incumbents in the 2006-2012 elections and Figure 4 shows the results for both challengers and incumbents in the 2010 election. ${ }^{21}$ The graphs mirror the descriptive patterns in Figure 2. They show evidence that citizens vote spatially, but the substantive impact of spatial voting is small.

The left panel of Figure 3 shows the effect of the ideological positions of Democratic incumbents' on the voting behavior of different groups. Democratic incumbents' positions have no effect on the behavior of Democratic voters, and only modest effects on the voting behavior of Independents and Republicans. The right panel of Figure 3 shows similar results for incumbent Republicans. Republican legislators can gain a few percentage points among moderate Independents by moderating their positions. They can also gain about 10 percentage points among Democrats. Overall, Figure 3 shows that the ideological positioning

[^11]of incumbents rarely improves their electoral performance by more than a few percentage points among any subset of voters, and the average effect is much lower than that. Figure 4 also shows similar results using the data from Adams et al. (2016). Overall, the ideological positioning of candidates has modest effects on the probability that any particular group of voters will support them. In contrast, we see massive differences in voting behavior between conservative Republican voters and liberal Democrats.


Figure 3: Effect of Incumbent Positioning (2006-2012): This graph shows the increase in the probability that voters in each party support the incumbent if the incumbent changes their position. For simplicity, voters in each party are assigned the average ideology of people in their party. The plot is based on a logistic regression of the model in Table 4, columns 1 and 2.

Overall, the results in Figures 3 and 4 are strongly consistent with our party-centered theory of spatial voting, including the notion that more extreme candidates tend to have lower valence. There is some evidence for candidate-centered spatial voting, but these effects are substantively small, consistent with the aggregate-level evidence that candidate moderation has a limited effect on vote shares.


Figure 4: Effect of Candidate Positioning (2010): This graph shows the increase in the probability that voters in each party support the candidate if the candidate changes their position, holding the other party's candidate's position fixed. For simplicity, voters in each party are assigned the average ideology of people in their party. The plot is based on a logistic regression of the model in Table 4, column 3.

## Testing the Linear Voting Model

Testing the quadratic voting model does not actually require us to place candidates and voters onto the same scale. However, it is necessary to place candidates and voters onto the same scale in order to test the predictions of the linear voting model. ${ }^{22}$ In this section, we use the replication data of Adams et al. (2016) to do this. These data include estimates of the positions for voters and both candidates that all lie on the same ideological scale. Recall that the linear voting model makes a sharp empirical prediction: the coefficient on voters' ideology should be equal to 0 for voters whose preferences lie exterior to those of the candidates. Voters' preferences should only have an effect for voters that lie between the two candidates. To examine this hypothesis, we estimate separate linear probability

[^12]regression models for voters that lie to 1) to the left of the Democratic and Republican candidates, 2 ) between the ideological positions of the two candidates, 3 ) to the right of the two candidates. ${ }^{23}$

Table 3

|  | Dependent variable: |  |  |
| :--- | :---: | :---: | :---: |
|  | Vote for Republican Candidate |  |  |
|  | Left | Middle | Right |
|  | $(1)$ | $(2)$ | $(3)$ |
| Voter Ideal Point | $0.086^{* * *}$ | $0.180^{* * *}$ | $0.031^{* * *}$ |
|  | $(0.006)$ | $(0.005)$ | $(0.008)$ |
| Republican Candidate Ideal Point | $-0.023^{* * *}$ | $-0.026^{* * *}$ | $0.055^{* * *}$ |
|  | $(0.008)$ | $(0.006)$ | $(0.010)$ |
| Democratic Candidate Ideal Point | $0.026^{* * *}$ | -0.0004 | -0.003 |
|  | $(0.007)$ | $(0.006)$ | $(0.005)$ |
| Independent | $0.194^{* * *}$ | $0.444^{* * *}$ | $0.253^{* * *}$ |
|  | $(0.011)$ | $(0.008)$ | $(0.019)$ |
| Republican | $0.611^{* * *}$ | $0.673^{* * *}$ | $0.316^{* * *}$ |
|  | $(0.011)$ | $(0.006)$ | $(0.017)$ |
| Constant | $0.185^{* * *}$ | $0.216^{* * *}$ | $0.583^{* * *}$ |
|  | $(0.019)$ | $(0.016)$ | $(0.025)$ |
| Controls | X | X | X |
| Observations | 6,875 | 15,465 | 3,482 |
| $\mathrm{R}^{2}$ | 0.473 | 0.698 | 0.233 |
| Adjusted $\mathrm{R}^{2}$ | 0.472 | 0.698 | 0.230 |
| Note: | ${ }^{*} \mathrm{p}<0.1 ;{ }^{* *} \mathrm{p}<0.05 ;$ |  |  |
|  |  |  |  |

Column (1) of Table 3 shows the results for voters whose ideological position lies to the left of the two candidates. The results show that Democratic voters to the left of both candidates are slightly more likely to vote for the Democratic candidate when they

[^13]adopt more liberal positions, and more likely to support the Republican candidate when the Democratic candidate adopts more conservative positions. In contrast, they are less likely to vote for the Republican when the Republican candidate adopts more conservative positions. Column (2) of Table 3 shows the results for voters whose ideological position lies between the two candidates. For these voters, the position of the Democratic candidate actually has no effect on their vote, while a move to the right by Republican candidates makes them slightly less likely to support the Republican. Finally, Column (3) of Table 3 shows the results for voters whose ideological position lies to the right of the two candidates. Once again, the position of the Democratic candidate has no effect on the voting behavior of these voters. But they are more likely to support conservative Republicans.

Overall, these results align with the predictions of spatial voting theory. Candidate positions do matter. But it is important to note that all of the effect sizes are substantively small. For example, a one standard deviation move to the right by Democratic candidate only leads to a $2.5 \%$ decline in the probability that liberal voters will support them. In contrast, there are massive differences in voting behavior between Democratic and Republican voters. There are also big point estimates on voter ideology in all three columns.

## Constituent Perceptions of Roll Call Positions

Spatial voting is a theoretically and intuitively appealing idea that has motivated a wide body of work in political science for decades. Why don't voters make choices on the basis of policy proximity with individual legislators? One answer comes from seminal research on representation in the 1960s, which found that citizens have only vague notions of legislators' roll call positions (Miller and Stokes, 1963). For instance, only 56 percent of American National Election Study respondents correctly identified their representative's position on the resolution in 1991 authorizing the first President Bush to conduct the Persian Gulf War (Alvarez and Gronke, 1996). Moreover, only 63 percent of ANES respondents correctly
identified their representatives' votes on the budget-balancing Budget Resolution of 1993 (Lipinski, 2001). However, more recent research suggests that many contemporary voters may have accurate perceptions of legislators' roll call positions (Ansolabehere and Jones, 2010), but they "know less about the positions taken by moderate senators and have a harder time aligning their levels of policy agreement with a senator with their evaluation of that senator if she frequently votes against her party" (Dancey and Sheagley, 2013).

We reassess citizens' knowledge levels about incumbents' spatial positions using our large survey sample of over 150,000 voters in the 2006-2012 congressional elections. We take two approaches to examining whether citizens understand legislators' roll call positions. First, we examine the relationship between constituents' perception of legislators' symbolic ideology on a 7-point scale and their actual roll call positions (top-panel of Figure 5). We find that citizens are very capable of differentiating between Democrats and Republicans. Overall, there is a correlation of .71 between the perceived ideology of legislators and their actual DW-Nominate scores. However, our findings suggest that while voters are capable of differentiating between parties, they are less capable of differentiating within parties. When we subset the data by legislators' party, there is only a correlation of .14 between the perceived ideology of Democratic legislators and their actual DW-NOMINATE scores and an even weaker correlation of .09 between the perceived ideology of Republican legislators and their actual DW-Nominate scores.

One possible explanation for the weak within-party correlations between actual and perceived legislator ideologies we observe is that the 7-point scale on the CCES is not granular enough to distinguish legislators within each party. For instance, it's possible that most Democrats are a " 2 " or a " 3 ". To examine this possibility, we re-examined data on voters' perceptions of legislators' positions on eight roll call votes from the 2006 CCES (Ansolabehere and Jones, 2010)..$^{24}$ We scaled both the perceived and actual positions of legislators on these

[^14]

Figure 5: Perceived vs. Actual Ideal Points - The top panel in this graph shows the relationship between the perceived ideology of House members on a 7 -point scale and their actual ideal points. The grey region in the middle of the top panel shows the ideological space where few legislators reside. The bottom panel shows the relationship between the perceived ideology of House members based on respondents' perceptions of their votes on eight salient roll calls and their actual ideal points based on their votes on these bills.
eight votes using an IRT model (Clinton, Jackman, and Rivers, 2004). ${ }^{25}$
The bottom panel of Figure 5 shows the results of this analysis. There is a clear relationship between the perceived and actual ideal points of legislators on these eight roll calls. However, there is a considerable degree of error in respondents' perceptions of legislator positions. The overall correlation between the perceived and actual positions of legislators on these eight roll calls is .66. When we subset the data by legislators' party, however, there

[^15]is only a correlation of .28 between the perceived positions of Democratic legislators and their actual ideal points on these roll calls and a correlation of .10 for Republican legislators. We should note that these 8 items distinguish more effectively between Democrats than Republicans, possibly explaining the difference between these two correlations.

Overall, the evidence suggests that most voters understand the party label of their representative and they can effectively differentiate between Democrats and Republicans in Congress. But voters only have a dim awareness of ideological differences between legislators within each party. Condorcet's jury theorem demonstrates that sometimes only a dim awareness is necessary for voters to make good decisions as a group under some circumstances (Condorcet, 1785). Nonetheless, voters are only slightly better than a coin flip at telling whether one Democrat is more or less liberal than another. Even if individuals are trying to make proximity-based judgements, lack of knowledge adds noise to individual spatial decision making, to the point where it may be easily swamped by other considerations.

## Extrapolating Legislator Vote Shares

Having examined what these results mean for theories of electoral accountability and spatial voting, what do they imply for representation in American politics? Our model enables us to examine the relationship between legislator vote shares and legislator positions (cf. Canes-Wrone, Brady, and Cogan, 2002; Wilkins, 2012). We simulate vote shares for each legislator in the 2006-2012 elections from the sample of their actual electorate in our dataset using a model derived from the models presented in Table $2 .{ }^{26}$ For each district, we calculate the change in vote share that would result from a one standard deviation move toward the center by the legislator. Note that due to our large sample of voters' ideal points, we have an average of roughly 350 people in every congressional district.

Figure 6 shows the predicted increase in vote shares from a one standard deviation move

[^16]

Figure 6: Relationship between Representatives' Ideal Point and Expected Vote Share in the U.S. House: 2006-2012 - This graph shows the distribution of potential vote gains from legislators that moderate their position by one standard deviation. The left panel shows the expected vote gains among Democratic incumbents, while the right panel shows the expected vote gains among Republican incumbents.
toward the center by each legislator. The left panel shows the kernel density plot of predicted changes in vote share for all districts represented by Democrats, and the right panel shows this density for all districts represented by Republicans. For Democrats, moderating their position by one standard deviation increases their vote share by an average of $1.1 \%$. In every case, Democrats are projected to change their voteshares by less than $3 \%$, and in the large plurality less than $2 \%$. For Republicans, moderating their position by one standard deviation increases their vote share by an average of $1.7 \%$. Likewise, in every case Republicans would increase their voteshares by less than $7 \%$, and most of these changes are less than $3 \%$.

Overall, legislator positions appear to have relatively small cumulative effects on their
vote shares. It is important to note that our results are distinct from those of recent surveybased studies, in large part because we disaggregate voter ideology and candidate ideology. However, they are very similar to those of aggregate-level studies such Canes-Wrone, Brady, and Cogan (2002).

## Conclusion

The Founding Fathers thought that frequent elections were the key mechanism for ensuring that the "will of the people" is carried out. This electoral connection provides the foundation for the study of congressional behavior and lawmaking and for theories of representation more broadly. A number of recent studies have provided an empirical foundation for the assumption that voters in recent congressional elections hold their representatives accountable at the ballot box for their roll call voting behavior (Ansolabehere and Jones, 2010; Jessee, 2009; Jones, 2011; Shor and Rogowski, 2016). Yet these studies are puzzling considering the modest rewards for candidate moderation in most macro-level electoral studies, as well as the polarization and lack of responsiveness in the contemporary Congress.

In this study, we provide an individual-level explanation for the lack of support for the spatial voting model's core predictions in the modern House of Representatives. Unlike most recent survey-based studies, we separate the effect of voter and candidate ideology rather than conflating them into a measure of the proximity between voters and candidates. We find that voters' policy preferences are highly predictive of which party they will support: liberal voters almost always support Democrats and conservative voters almost always support Republicans. However, we find that candidates' roll call positions have relatively small effects on citizens' voting behavior. Indeed, our results suggest that candidates only gain a percentage point or two in congressional elections from ideological moderation. Thus, our evidence suggests that there are few incentives for legislators to take ideologically moderate positions in the modern Congress. Our findings help resolve the disparity between other
survey-based studies, which have generally supported the spatial voting model, and aggregate studies of congressional elections, which show relatively small effects of candidate positioning (e.g., Canes-Wrone, Brady, and Cogan, 2002; Wilkins, 2012; Montagnes and Rogowski, 2015).

One potential explanation for the small effect of candidate ideology on voting behavior is that voters have difficulty differentiating liberal Democrats from moderate Democrats, and conservative Republicans from moderate Republicans. In contrast, voters are quite capable of distinguishing between the parties. ${ }^{27}$ They may be able to roughly observe the proximity of their own desired policies to the policies supported by each party, and vote accordingly. ${ }^{28}$ Thus, our findings are consistent with work that attempts to incorporate spatial voting in the context of party reputations (e.g., Sniderman and Stiglitz, 2012). The electoral connection in Congress may be alive and well, but at the level of parties rather than individual legislators.

[^17]
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## Online Appendix A: Ideal Point Model

For our measure of respondents' ideology, we use ideal point estimates made available by Tausanovitch and Warshaw (2013) based on policy responses from all CCES surveys during this period. To estimate voters' ideological positions, Tausanovitch and Warshaw (2013) assume that all survey respondents have a quadratic utility function with normal errors (Clinton, Jackman, and Rivers, 2004). Each item presents individual with a choice between a "Yes" position and a "No" position. They use the two-parameter IRT model introduced to political science by Clinton, Jackman, and Rivers (2004), which characterizes each response $y_{i j} \in\{0,1\}$ as a function of subject $i$ 's latent ability $\left(x_{i}\right)$, the difficulty $\left(\alpha_{j}\right)$ and discrimination $\left(\beta_{j}\right)$ of item $j$, and an error term $\left(e_{i j}\right)$, where

$$
\begin{equation*}
\operatorname{Pr}\left[y_{i j}=1\right]=\Phi\left(\beta_{j} x_{i}-\alpha_{j}\right) \tag{15}
\end{equation*}
$$

where $\Phi$ is the standard normal CDF. $\beta_{j}$ is referred to as the "discrimination" parameter because it captures the degree to which the latent trait affects the probability of a yes answer. The "cut point" is the value of $\alpha_{j} / \beta_{j}$ at which the probabilities of answering yes or no to a question are 50-50. We assume a one-dimensional policy space because a two- dimensional model shows little improvement in terms of model fit. The ideal point, $x$, for individual $i$ signifies the "liberalness" or "conservativeness" of that individual. We orient the ideal point estimates so that lower values are associated with politically left preferences and higher values with politically right preferences.

Table A1 shows our survey sample, and Table A2 shows the complete list of survey questions that we used to jointly scale respondents from the 2006-2013 Cooperative Congressional Election Studies. The questions are a mix of items from the common content and modules that we created. Note that we only used respondents from the 2006, 2008, 2010, and 2012 CCES surveys in this study because the odd numbered year respondents do not indicate congressional vote choice. All of the questions are dichotimized in the scaling model.

Table A1: Data Sources for Voters

| Survey | Total Sample Size | Post-Election Sample <br> that Indicated a Vote Choice | Post-Election Sample in <br> Contested Race |
| :---: | :---: | :---: | :---: |
| CCES 2006 | 35,919 | 22,046 | 16,842 |
| CCES 2008 | 32,800 | 17,895 | 14,584 |
| CCES 2010 | 55,488 | 32,004 | 26,922 |
| CCES 2012 | 54,535 | 29,999 | 22,755 |
| Total | 178,742 | 101,944 | 81,104 |

Table A2: Survey Question Text

| Variable | Survey | Question Text |
| :---: | :---: | :---: |
| v2072 | CCES 2006 | Raise minimum wage to $\$ 7.25$ |
| v2092 | CCES 2006 | Should we take action on climate change? |
| v2103 | CCES 2006 | Amendment banning gay marriage |
| v3019 | CCES 2006 | When should abortions be allowed? |
| v3022 | CCES 2006 | Climate change is real |
| v3024 | CCES 2006 | Social security privatization |
| v3027 | CCES 2006 | Affirmative action for discriminatory companies |
| v3060 | CCES 2006 | Ban late-term abortion |
| v2102 | CCES 2006 | Expand funding for stem cell research |
| v3063 | CCES 2006 | Expand funding for stem cell research |
| v2101 | CCES 2006 | Path to citizenship or strict enforcement |
| v3069 | CCES 2006 | Citizenship opportunity for illegal immigrants |
| v3072 | CCES 2006 | Favor/oppose raising minimum wage |
| v3075 | CCES 2006 | Extend capital gains tax cuts |
| v3066 | CCES 2006 | Withdrawing troops from Iraq |
| v3078 | CCES 2006 | Free trade agreement with Central America |
| q34 | CCES 2006 | Support state voter ID laws |
| cc06_v2072 | CCES 2007 | Raise minimum wage to $\$ 7.25$ |
| cc06_v2092 | CCES 2007 | Should we take action on climate change? |
| cc06_v2103 | CCES 2007 | Amendment banning gay marriage |
| cc06_v3019 | CCES 2007 | When should abortions be allowed? |
| cc06_v3022 | CCES 2007 | Protect environment over jobs/economy |
| cc06_v3024 | CCES 2007 | Social security privatization |
| cc06_v3027 | CCES 2007 | Affirmative action for discriminatory companies |
| cc06_v3060 | CCES 2007 | Ban late-term abortion |
| cc06_v3063 | CCES 2007 | Expand funding for stem cell research |
| cc06_v3075 | CCES 2007 | Extend capital gains tax cuts |
| cc46 | CCES 2007 | Withdrawing troops from Iraq |
| cc06_v3078 | CCES 2007 | Free trade agreement with Central America |
| cc34 | CCES 2007 | Expand SCHIP - health care for children |
| cc38 | CCES 2007 | Surveillance of foreigners in US |
| cc12x_5 | CCES 2007 | Build a wall between US and Mexico |
| cc310 | CCES 2008 | When should abortions be allowed? |
| cc311 | CCES 2008 | Protect environment over jobs/economy |
| cc312 | CCES 2008 | Social security privatization |
| cc313 | CCES 2008 | Affirmative action for discriminatory companies |
| cc316b | CCES 2008 | Raise minimum wage to $\$ 7.25$ |
| cc316c | CCES 2008 | Expand funding for stem cell research |
| cc316e | CCES 2008 | Fund health insurance for children |
| cc316a | CCES 2008 | Withdrawing troops from Iraq |
| cc316f | CCES 2008 | Support/oppose amendment banning gay marriage |
| cc316g | CCES 2008 | Federal assistance for housing crisis |
| cc316d | CCES 2008 | Eavesdrop overseas without court order |
| cc316h | CCES 2008 | Extend NAFTA to Peru \& Columbia |
| cc316i | CCES 2008 | U.S. government bank bailout |

Survey Text A2 Continued from previous page

| Variable | Survey | Question Text |
| :---: | :---: | :---: |
| cc417 | CCES 2008 | Government guaranteed health insurance |
| cc422 | CCES 2008 | Carbon tax to reduce emissions |
| cc419_6 | CCES 2008 | Require photo ID to vote |
| cc09_51 | CCES 2009 | Take action against global warming |
| cc09_54 | CCES 2009 | Amendment banning gay marriage |
| cc09_53 | CCES 2009 | When should abortions be allowed? |
| cc09_55 | CCES 2009 | Affirmative action for discriminatory companies |
| cc09_59a | CCES 2009 | Lilly Ledbetter Fair Pay Act |
| cc09_59b | CCES 2009 | Hate Crimes Act - include LGBT |
| cc09_59c | CCES 2009 | American Recovery \& Reinvestment Act |
| cc09_59d | CCES 2009 | Expand SCHIP - health care for children |
| cc09_59e | CCES 2009 | Renewable energy funding, carbon caps |
| cc09_59f | CCES 2009 | Require health insurance |
| cc09_59g | CCES 2009 | Appoint Sotomayor to Supreme Court |
| sta302_1 | CCES 2010 Module | Increase funding for job training programs |
| sta302_2 | CCES 2010 Module | Reduce government regulation |
| sta302_3 | CCES 2010 Module | Employers should offer childcare |
| sta302_4 | CCES 2010 Module | Increase minimum wage |
| sta302_5 | CCES 2010 Module | Support workers right to unionize |
| sta302_6 | CCES 2010 Module | Eliminate federal unemployment programs |
| sta302_7 | CCES 2010 Module | Include sexual orientation in anti-discrimination laws |
| sta302_8 | CCES 2010 Module | Include gender in anti-discrimination laws |
| sta303_1 | CCES 2010 Module | Universal healthcare |
| sta303_2 | CCES 2010 Module | Expand tax-free medical savings accounts |
| sta303_3 | CCES 2010 Module | Allow importation of prescription drugs |
| sta303_4 | CCES 2010 Module | Expand Medicare prescription drug coverage |
| sta303_5 | CCES 2010 Module | Tax credits to offset insurance costs |
| sta303_6 | CCES 2010 Module | Expand child healthcare programs |
| sta303_7 | CCES 2010 Module | Providing healthcare is not responsibility of government |
| sta304a | CCES 2010 Module | Allow same-sex marriage |
| sta304c | CCES 2010 Module | Funding for stem cell research (existing) |
| sta304d | CCES 2010 Module | Funding for stem cell research (new embryos) |
| sta304e | CCES 2010 Module | Affirmative action for federal contractors |
| sta304f | CCES 2010 Module | Continue federal affirmative action programs |
| sta305_1 | CCES 2010 Module | Private social security accounts |
| sta305_2 | CCES 2010 Module | Increase payroll tax to ensure social security viability |
| sta305_3 | CCES 2010 Module | Decrease benefits to retirees to ensure social security viability |
| sta305_4 | CCES 2010 Module | Increase social security benefits with cost of living |
| sta305_5 | CCES 2010 Module | Raise the retirement age to ensure social security viability |
| sta306_1 | CCES 2010 Module | Require welfare recipients to work |
| sta306_2 | CCES 2010 Module | Federal block grants for welfare |
| sta306_3 | CCES 2010 Module | Housing assistance for welfare recipients |
| sta306_4 | CCES 2010 Module | Abolish federal welfare programs |
| 307a | CCES 2010 Module | Public health insurance option |
| 307b | CCES 2010 Module | Monetary limits in malpractice lawsuits |
| 307c | CCES 2010 Module | Require balanced federal budget |
| 307d | CCES 2010 Module | Government funds to stimulate economy |
| sta312 | CCES 2010 Module | Free trade agreement with Central America |
| sta314 | CCES 2010 Module | Expand funding for stem cell research |
| sta315 | CCES 2010 Module | Citizenship opportunity for illegal immigrants |
| sta317 | CCES 2010 Module | Affirmative action for discriminatory companies |
| sta319 | CCES 2010 Module | Path to citizenship or strict enforcement |
| sta320 | CCES 2010 Module | Increase minimum wage |
| sta321 | CCES 2010 Module | Extend capital gains tax cuts |
| sta322 | CCES 2010 Module | Amendment banning gay marriage |
| sta360a | CCES 2010 Module | Eliminate the minimum wage |
| sta360b | CCES 2010 Module | Government guarantee standard of living |
| sta360c | CCES 2010 Module | No taxes for low-income families |
| sta360d | CCES 2010 Module | Prohibit incomes above $\$ 1$ million |
| sta360e | CCES 2010 Module | Eliminate food subsidies for children |
| sta360f | CCES 2010 Module | Tax rate the same for rich and poor |
| sta360g | CCES 2010 Module | No government assistance for low-income |
| sta360h | CCES 2010 Module | Government should provide universal jobs |
| sta360i | CCES 2010 Module | Rich should pay higher tax rate than poor |
| sta360j | CCES 2010 Module | Minimum wage should be $\$ 15 /$ hour |

Survey Text A2 Continued from previous page

| Variable | Survey | Question Text |
| :---: | :---: | :---: |
| sta361a | CCES 2010 Module | Ban some high-fat foods from restaurants |
| sta361b | CCES 2010 Module | Government standards for prescription drugs |
| sta361c | CCES 2010 Module | All public buildings accessible to handicapped |
| sta361d | CCES 2010 Module | Government-enforced nutrition standards |
| sta361e | CCES 2010 Module | No limits on pollution from businesses |
| sta361f | CCES 2010 Module | Government-enforced advertising standards |
| sta361g | CCES 2010 Module | All motorcyclists required to wear helmets |
| sta361h | CCES 2010 Module | Ban sale of energy-inefficient appliances |
| sta361j | CCES 2010 Module | Privatize the Post Office |
| sta361k | CCES 2010 Module | Military burden shifted to private contractors |
| sta3611 | CCES 2010 Module | Government takeover of bad companies |
| sta361m | CCES 2010 Module | Require power plants to reduce emissions |
| sta361n | CCES 2010 Module | Require residential carbon monoxide detectors |
| sta362a | CCES 2010 Module | Hold BP executives liable for oil spill |
| sta362b | CCES 2010 Module | Require public schools to teach creationism |
| sta362c | CCES 2010 Module | Limit ATM fees to \$1 |
| sta362d | CCES 2010 Module | Eliminate Environmental Protection Agency |
| sta362e | CCES 2010 Module | Deport all illegal immigrants |
| sta362f | CCES 2010 Module | Grant all illegal immigrants citizenship |
| sta362g | CCES 2010 Module | End subsidies for green energy |
| sta362h | CCES 2010 Module | Government-funded high-speed railroad |
| sta362i | CCES 2010 Module | Felons should have right to vote |
| sta362j | CCES 2010 Module | Prohibit construction of 9-11 site mosque |
| sta362k | CCES 2010 Module | Ban late-term abortion procedures |
| sta370a | CCES 2010 Module | Require business-provided health insurance |
| sta370b | CCES 2010 Module | Require all people buy health insurance |
| sta370c | CCES 2010 Module | Limit damages in malpractice lawsuits |
| sta370d | CCES 2010 Module | Medical experts decide which tests insured |
| sta370e | CCES 2010 Module | Patients pay more for "ineffective"" treatments |
| sta370f | CCES 2010 Module | Public insurance entity for low-cost insurance |
| sta380a | CCES 2010 Module | Government funds to insure all children |
| sta380b | CCES 2010 Module | Right of patients to sue HMO |
| sta380c | CCES 2010 Module | Make it harder to obtain abortion |
| sta380d | CCES 2010 Module | Allow the death penalty for some crimes |
| sta380e | CCES 2010 Module | Require license to purchase handgun |
| sta380f | CCES 2010 Module | Allow gays to serve in military |
| sta380g | CCES 2010 Module | Federal law to allow school prayer |
| sta380h | CCES 2010 Module | Flat tax law for all Americans |
| sta381a | CCES 2010 Module | Eliminate regulations for businesses |
| sta381b | CCES 2010 Module | Protect environment/natural resources |
| sta401a | CCES 2010 Module | Government help insure all children |
| sta401b | CCES 2010 Module | Government help employers pay for insurance |
| sta401c | CCES 2010 Module | Eliminate the estate tax |
| sta401d | CCES 2010 Module | Social Security privitization |
| sta401e | CCES 2010 Module | Easier for labor unions to organize |
| sta401f | CCES 2010 Module | Federal funding for stem cell research |
| sta401g | CCES 2010 Module | Extend federal ban on assault weapons |
| sta402 | CCES 2010 Module | Same-sex marriage in your state |
| sta403a | CCES 2010 Module | Increase the minimum wage |
| sta403b | CCES 2010 Module | Government reduce income inequality |
| sta403c | CCES 2010 Module | Government reduction of federal taxes |
| sta403d | CCES 2010 Module | Government vouchers for private school |
| sta403e | CCES 2010 Module | Amendment banning gay marriage |
| sta405a | CCES 2010 Module | Increase federal funding to public school |
| sta 405 b | CCES 2010 Module | Government-funded universal health care |
| sta406a | CCES 2010 Module | Should the government restrict immigration? |
| sta406b | CCES 2010 Module | Should the government restrict gun sales? |
| sta411c | CCES 2010 Module | Health insurance for low-income children |
| sta411d | CCES 2010 Module | Assist homeowners facing foreclosure |
| sta411e | CCES 2010 Module | Extend NAFTA to Peru \& Columbia |
| sta411f | CCES 2010 Module | U.S. government bank bailout |
| sta412 | CCES 2010 Module | Carbon tax to reduce emissions |
| sta413 | CCES 2010 Module | Guaranteed universal health insurance |
| sta430a | CCES 2010 Module | Housing vouchers for homeless |
| sta430b | CCES 2010 Module | Maintain welfare-to-work requirements |

Survey Text A2 Continued from previous page

| Variable | Survey | Question Text |
| :--- | :--- | :--- |
| sta430c | CCES 2010 Module | Provide food stamps to legal immigrants |
| sta430d | CCES 2010 Module | Continue Medicaid for welfare-to-work |
| sta430e | CCES 2010 Module | Federal poverty aid through religious orgs. |
| sta430f | CCES 2010 Module | Additional funding for state Medicaid |
| sta430g | CCES 2010 Module | Tax credits for businesses with childcare |
| sta430h | CCES 2010 Module | Federal aid for states with more immigrants |
| sta430i | CCES 2010 Module | Prohibit state laws denying immigrations services |
| sta430j | CCES 2010 Module | Increase quota for skilled immigrants |
| sta430k | CCES 2010 Module | Collect fingerprint data from visa applicants |
| sta450 | CCES 2010 Module | Federal income tax level |
| sta451 | CCES 2010 Module | Support same-sex marriage |
| sta460a | CCES 2010 Module | Path to citizenship for immigrants |
| sta460b | CCES 2010 Module | Increase border security with Mexico |
| sta460c | CCES 2010 Module | Drivers licenses for undocumented immigrants |
| cc324 | CCES 2010 | When should abortions be allowed? |
| cc325 | CCES 2010 | Protect environment over jobs/economy |
| cc326 | CCES 2010 | Amendment banning gay marriage |
| cc327 | CCES 2010 | Affirmative action for discriminatory companies |
| cc332a | CCES 2010 | Reduce tax break for homeowners |
| cc332b | CCES 2010 | Make retirees pay for Medicare |
| cc332c | CCES 2010 | Increase taxes on corporations |
| cc332d | CCES 2010 | Reduce Medicaid benefits for low-income |
| cc332e | CCES 2010 | Aliminate student loan subsidies |
| cc332f | CCES 2010 | Reduce federal worker pensions |
| cc332g | CCES 2010 2011 Module | CCES 2011 Module |

Survey Text A2 Continued from previous page

| Variable | Survey | Question Text |
| :---: | :---: | :---: |
| hsu360 | CCES 2011 Module | Fine businesses that hire illegal immigrants |
| hsu361 | CCES 2011 Module | Allow states to deport illegal immigrants |
| hsu362 | CCES 2011 Module | Allow police to ask for immigration documents |
| hsu363 | CCES 2011 Module | Deport all illegal immigrants |
| hsu364 | CCES 2011 Module | Remove fence on border with Mexico |
| hsu365 | CCES 2011 Module | Same treatment of Mexican \& Canadian immigrants |
| hsu367 | CCES 2011 Module | Allow states to admit immigrants |
| hsu370 | CCES 2011 Module | Federal government should protect environment |
| hsu371 | CCES 2011 Module | Require power plants to reduce emissions |
| hsu372 | CCES 2011 Module | Eliminate the Environmental Protection Agency |
| hsu373 | CCES 2011 Module | Require 10\% electricity renewable statewide |
| hsu374 | CCES 2011 Module | Require 25\% electricity renewable statewide |
| hsu375 | CCES 2011 Module | Government should protect endangered species |
| hsu376 | CCES 2011 Module | States should set pollution limits |
| hsu377 | CCES 2011 Module | States should keep waterways clean |
| hsu378 | CCES 2011 Module | Support coal plant within 25 miles of home |
| hsu379 | CCES 2011 Module | Support wind power plant within 25 miles of home |
| hsu380 | CCES 2011 Module | Support oil/gas drilling within 25 miles of home |
| hsu381 | CCES 2011 Module | Power plants near home should be regulated |
| cc350 | CCES 2011 | Should we take action on climate change? |
| ucm301 | CCES 2012 Module | Guaranteed universal health insurance |
| ucm302 | CCES 2012 Module | Protect worker right to unionize |
| ucm303 | CCES 2012 Module | Government reduce income inequality |
| ucm304 | CCES 2012 Module | Reduce regulation of private sector |
| ucm305 | CCES 2012 Module | Raise the minimum wage to $\$ 10$ |
| ucm306 | CCES 2012 Module | Allow corporations unlimited campaign contributions |
| ucm307 | CCES 2012 Module | Allow drilling in Alaskan Wildlife Refuge |
| ucm321 | CCES 2012 Module | City should provide health benefits to same-sex partners |
| ucm322 | CCES 2012 Module | Reduce greenhouse gas emissions in city |
| ucm323 | CCES 2012 Module | Subsidize mass transit for low-income in city |
| ucm324 | CCES 2012 Module | Subsidies for residential solar energy in city |
| ucm325 | CCES 2012 Module | Ban smoking in local bars/restaurants in city |
| ucm326 | CCES 2012 Module | Require local residents to recycle in city |
| ucm327 | CCES 2012 Module | Reduce pension for government employees in city |
| ucm328 | CCES 2012 Module | Tax breaks to incentivize businesses to move in city |
| ucm329 | CCES 2012 Module | Limit how much landlords can raise rent in city |
| ucm330 | CCES 2012 Module | Offer subsidized housing to homeless in city |
| ucm331 | CCES 2012 Module | Eliminate tenure for school teachers in city |
| ucm332 | CCES 2012 Module | Close city parks to save money |
| ucm333 | CCES 2012 Module | Close city libraries to save money |
| ucm370 | CCES 2012 Module | Require parental permission for teen abortion |
| ucm371 | CCES 2012 Module | Require 24-hour waiting period for abortion |
| ucm372 | CCES 2012 Module | Require photo ID to vote |
| ucm373 | CCES 2012 Module | Legalize casino gambling in states |
| ucm374 | CCES 2012 Module | State law capping property taxes |
| ucm375 | CCES 2012 Module | Take away union right to bargain |
| ucm376 | CCES 2012 Module | Allow LGBT to legally form civil unions |
| ucm377 | CCES 2012 Module | Allow same-sex marriage |
| ucm378 | CCES 2012 Module | In-state tuition for illegal immigrant graduates |
| ucm379 | CCES 2012 Module | If your state opted out of Medicaid expansion |
| ucm380 | CCES 2012 Module | Allow death penalty for convicted murderers |
| ucm381 | CCES 2012 Module | Require waiting period for gun purchases |
| ucm382 | CCES 2012 Module | Raise the minimum wage to $\$ 8$ |
| ucm401 | CCES 2012 Module | Set limits on CO2 emissions |
| ucm402 | CCES 2012 Module | Require 10\% electricity renewable statewide |
| ucm403 | CCES 2012 Module | Require 25\% electricity renewable statewide |
| ucm404 | CCES 2012 Module | State gasoline tax less than \$0.25/gallon |
| ucm405 | CCES 2012 Module | Renewable energy tax on electricity bill |
| ucm406 | CCES 2012 Module | Require more efficient use of electricity |
| ucm407 | CCES 2012 Module | Set limits on CO2 emissions |
| ucm408 | CCES 2012 Module | State should prepare for climate change |
| cc321 | CCES 2012 | Should we take action on climate change? |
| cc324 | CCES 2012 | When should abortions be allowed? |
| cc325 | CCES 2012 | Protect environment over jobs/economy |
| cc327 | CCES 2012 | Affirmative action for discriminatory companies |

Survey Text A2 Continued from previous page

| Variable | Survey | Question Text |
| :---: | :---: | :---: |
| cc326 | CCES 2012 | Amendment banning gay marriage |
| cc332a | CCES 2012 | House Budget plan - cut Medicare/Medicaid |
| cc332b | CCES 2012 | Simpson-Bowles plan - 15\% cuts |
| cc332c | CCES 2012 | Middle Class Tax Cut Act |
| cc332d | CCES 2012 | Tax Hike Prevent Act |
| cc332e | CCES 2012 | Religious exemption for birth control coverage |
| cc332f | CCES 2012 | Free trade agreement with Korea |
| cc332g | CCES 2012 | Repeal Affordable Care Act |
| cc332h | CCES 2012 | Approve Keystone XL pipeline |
| cc332i | CCES 2012 | Support ACA - required health insurance |
| cc332j | CCES 2012 | Allow Gays in the Military |
| cc322_1 | CCES 2012 | Citizenship opportunity for illegal immigrants |
| cc322_2 | CCES 2012 | Increase patrols of U.S.-Mexico border |
| cc322_3 | CCES 2012 | Allow police to question suspected immigrants |
| cc322_4 | CCES 2012 | Fine businesses that hire illegal immigrants |
| cc329 | CCES 2013 | Allow same-sex marriage |
| cc332a | CCES 2013 | Prohibit abortions after 22nd week |
| cc332b | CCES 2013 | Simpson-Bowles plan - 15\% cuts |
| cc332c | CCES 2013 | Repeal Affordable Care Act |
| cc332d | CCES 2013 | Approve Keystone XL pipeline |
| cc332e | CCES 2013 | Allow internet sales to be taxed |
| cc332f | CCES 2013 | Violence Against Women Act |
| cc332g | CCES 2013 | Block NSA collection of phone records |
| cc332h | CCES 2013 | Decentralize education decision-making |
| cc327 | CCES 2013 | When should abortions be allowed? |
| cc328 | CCES 2013 | Protect environment over jobs/economy |
| cc330 | CCES 2013 | Affirmative action for discriminatory companies |
| cc325 | CCES 2013 | Should we take action on climate change? |
| cc13_320a | CCES 2013 | Background check for all gun sales |
| cc13_320b | CCES 2013 | Prohibit publication of names of gun owners |
| cc13_320c | CCES 2013 | Ban high-capacity gun magazines |
| cc13_320d | CCES 2013 | Ban assault rifles |
| cc13_320e | CCES 2013 | Easier to apply for concealed-carry permit |
| cc326_1 | CCES 2013 | Citizenship opportunity for illegal immigrants |
| cc326_2 | CCES 2013 | Increase patrols of U.S.-Mexico border |
| cc326_3 | CCES 2013 | Allow police to question suspected immigrants |
| cc326_4 | CCES 2013 | Fine businesses that hire illegal immigrants |


[^0]:    *We are grateful to Devin Caughey, Robert Erikson, Anthony Fowler, Justin Grimmer, Seth Hill, Stephen Jessee, Jeffrey B. Lewis, Howard Rosenthal, and seminar participants at MIT's American Politics Conference, Princeton University, the University of California-Berkeley, UCLA, and UCSD for feedback on previous versions of this manuscript. We also thank Stephen Ansolabehere and Phil Jones for generously sharing data on constituents' perceptions of legislator positions. This paper was previously circulated under the name "Electoral Accountability and Representation in the U.S. House: 2004-2012."
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[^1]:    ${ }^{1}$ Wilkins (2012) finds that "as polarization substantially increased during the 1990s and 2000s, the penalty for extremism in the 1990s got smaller and in the 2000s, the penalty was no longer significant."

[^2]:    ${ }^{2}$ This is especially true given the fact that candidates' quality and their spatial positioning is often conflated in observational studies. For instance, Canes-Wrone, Brady, and Cogan (2002) only control for variation in the quality of incumbents via their campaign spending levels. If other, unobserved aspects of candidates' quality is correlated with their levels of ideological extremity (e.g., more moderate candidates are higher quality in other respects), this is likely to lead to upwardly biased estimates of the effect of candidate positions on voter margins.

[^3]:    $\overline{3}$ The conflation of voters' and candidates' ideology is illustrated by Adams et al. (2016). This study finds that "liberal and conservative voters are substantially more responsive to candidate ideology than more centrist voters." This finding is inconsistent with a spatial model of voting, which predicts that moderates should be most responsive to changes in candidate positions. However, it can be easily explained by the conflation of voters' ideology and their spatial distance from candidates among liberal and conservative voters.
    ${ }^{4}$ Note that our findings do not suggest that legislative candidates can take any position at all. For instance, ideologically extreme candidates that take positions far outside the bounds of their party's platform may still face electoral consequences (Hall, 2015).

[^4]:    5 Tomz and Van Houweling (2008) use survey experiments to adjudicate between theories of spatial and directional voting. They find that spatial voting is four times more common than directional voting.
    ${ }^{6}$ See also Jessee (2009) for a similar analysis at the presidential level.

[^5]:    ${ }^{7}$ In other cases, a fine-grained variable is used to measure proximity whereas a noisier measure is used to capture the direct effect of ideology. For instance, Ansolabehere and Jones (2010) measure agreement on political issues to capture proximity, but use broad self-identified ideological categories to measure ideology.
    ${ }^{8}$ In our parametric analysis we will employ both linear and logistic link functions for $f$.

[^6]:    ${ }^{9}$ By candidate quality, they mean advantages that candidates have that are not intrinsically tied to voter policy considerations, such as "qualities and skills that relate to character and job performance" and "skills and resources instrumental to waging an effective campaign."

[^7]:    ${ }^{10}$ Note that each of these surveys name both the challenger and incumbent candidates in each contest.
    ${ }^{11}$ This choice does not significantly affect the results.
    ${ }^{12}$ See the Supplementary Appendix for more details on both the survey sample and the ideal point measures.
    ${ }^{13}$ The Supplementary Appendix shows all of the questions used in the ideal point model.

[^8]:    ${ }^{14}$ A substantial benefit of excluding challengers from the analysis is that it enables us to avoid some stubborn methodological problems. We are interested in whether voters constrain the roll call voting behavior of their representatives. For challengers who fail to unseat the incumbent, roll call voting itself is a hypothetical, counterfactual. Their ideal points are not available from roll call data. There have been a variety of promising attempts to measure challengers' spatial positions from auxiliary data (e.g., Bonica, 2013). But several recent papers have shown that these existing methods are inadequate for estimating counterfactual candidate positions in Congress (Hill and Huber, 2015; Tausanovitch and Warshaw, 2016).

[^9]:    ${ }^{15}$ All of the analyses that follow focus on contested races. But the results are the same if we analyze all races.
    ${ }^{16}$ All of the curves are weighted using respondents' survey weights.
    ${ }^{17}$ Of course, it is always possible that voters are capable of using a proximity voting rule, but that the use of such voting rules is not prevalent enough to matter. It is also possible that they use a proximity voting rule, but with respect to an orthogonal space or notion of position.

[^10]:    18 The main effect of candidate positioning is not dispositive since it could be confounded by the association between candidate positioning and valence.

[^11]:    ${ }^{19}$ For this analysis, we matched the data on candidates' ideal points in the replication data of Adams et al. (2016) with our master dataset on voters' preferences and voting behavior. This enables us to utilize common measures of voter ideology across all three regression models in Table 2.
    ${ }^{20}$ These models interact all coefficients with voters' party identification.
    ${ }^{21}$ The graphs are on a logistic regression of the model in Table 4 where voters' party ID is interacted with the other terms in the model.

[^12]:    ${ }^{22}$ It is important to note, however, that the task of estimating voter positions in the space of legislators is a difficult one. It requires assuming equivalence between some set of behaviors that are driven by policy position: for instance, that casting roll call votes in a legislature can be considered equivalent to answering survey questions about roll call votes, or that campaign contributions are given to more spatially proximate candidates. Lewis and Tausanovitch (2013) and Jessee (2016) find that existing attempts to jointly scale voters and legislators in the same space mostly fall short.

[^13]:    ${ }^{23}$ We find substantively similar results with logistic regression models.

[^14]:    ${ }^{24}$ The 2006 CCES asked about voters' perceptions of legislators' roll-call votes on (1) a ban on partial-birth abortion, (2) federal funding for stem cell research, (3) extending capital gains tax cuts, (4) ratifying CAFTA, (5) immigration reform, (6) bankruptcy reform, (7) tax breaks for energy companies, and (8) reauthorizing the Patriot Act. See Ansolabehere and Jones (2010) for more details.

[^15]:    25 Note that given that we only have eight items in this scale, there is probably significant measurement error in our estimates of both perceived and actual legislator positions. However, the measures of actual positions are correlated with legislators' DW-Nominate scores at .90.

[^16]:    ${ }^{26}$ We use a logistic regression form of these models, which is more difficult to interpret but more appropriate for modeling a binary vote choice.

[^17]:    ${ }^{27}$ Of course, it is possible that spatial voting for candidates may have been more important in earlier eras when the parties were less polarized.
    28 However, it is important to note that this theory is observationally equivalent to several others. It may be the case the voters attempt to vote on the basis of candidate positions, but do so with extremely low acuity. Alternatively, the strength of affective party attachments may determine both policy positions and votes. Future work should seek to distinguish between these potential theoretical mechanisms.

