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Do Voters Know Enough to Punish Out-of-Step Congressional Candidates?

Traditional democratic norms suggest that accountability requires voters to be able to accurately perceive the positions of candidates for office. When asked to place congressional candidates on an ideological spectrum, voters show a surprisingly high level of both inaccuracy and variation in the policy positions of candidates. In this article, we investigate three theories of candidate placement to determine the possible sources for voter inaccuracy of candidate positions: the assimilation and contrast theory, the partisan cheerleading theory, and the information theory. We develop an instrumental variables approach for distinguishing between the competing theories. We find some evidence for assimilation and contrast among low knowledge voters and little support for cheerleading. We also find evidence that the actual position of the candidate has a detectable but small effect on voters' perceptions of that candidate, limiting the extent to which House candidates are held individually accountable for the positions they take. Instead, we find evidence that voters cue off of the positions of the party's other candidates, suggesting that candidates for a political party are held collectively accountable.

1. Introduction

Traditional democratic norms suggest that in order to hold members of Congress accountable, voters should have an awareness of the positions and beliefs of their representatives. Translating this to spatial models of vote choice, such as the Downsian model (Downs 1957), holding representatives responsible requires voters to be able to place candidates accurately along an ideological dimension and then reward the candidate closest to themselves on that spectrum. At the same time, voters are often found to be rather

ignorant of issue positions and many have difficulty conceptualizing politics in ideological terms (Converse 1964). Voters are not completely ignorant (Brady and Sniderman 1985; Ansolabehere and Jones 2010; Tausanovitch and Warshaw 2018), but the disconnect between voter preferences and voter choice is also reflected within the larger literature on accountability and representation. Political elites are found to be more extreme than their constituents (Bafumi and Herron 2010), responsiveness to district level preferences has been decreasing in recent years (Ansolabehere, Snyder, and Stewart 2001), and candidate positions have been found to have only a moderate impact on vote margins (Brandice, Brady, and Cogan 2002; Erikson and Wright 1964).

If voters routinely show difficulty in connecting their vote preferences to candidate positions, one possibility for the disconnect between moderate constituents and extreme candidates is that voters are routinely misperceiving the actual positions of candidates. In this article, we investigate the ways in which voters misperceive the positions of candidates for office. We study the connection between voter perceptions of candidate ideology and vote choice by testing three theories of voter perceptions of candidates: the assimilation and contrast theory, the partisan cheerleading theory, and the information theory.

The assimilation and contrast theory postulates that voters will presume that the candidates and parties they support have positions similar to their own (assimilation) and will push opposing candidates and parties away from themselves (contrast) (King 1977; Adams, Merrill, and Grofman 2005). Partisan cheerleading, meanwhile, suggests that respondents may be motivated to answer survey questions in a manner that puts their preferred party in the best light. While normally argued as a reason partisans differ on economic facts (Duch, Palmer, and Anderson 2000; Palmer and Duch 2001; Gerber and Huber 2010; Prior, Sood, and Khanna 2015), we theorize a similar motivation may encourage partisans to present their preferred candidate as more moderate by placing that candidate as closer to the median voter while placing the opposing candidate as further. Finally, informational theories suggest that more informed voters, using various heuristics such as the party cue as a source of information (Brady and Sniderman 1985; Conover and Feldman 1989; Snyder and Ting 2002; Sniderman and Stiglitz 2012), will be more accurate in their perceptions than less informed voters.

One of the difficulties in testing theories of how voters perceive candidates is that generally it is difficult to place the actual positions of voters and candidates and the voters' perceptions of the candidates all on the same scale. In this article, we take advantage of vote bridging procedures and ideal point estimation using a combination of the 2012 Cooperative Congressional Election Study (CCES), recorded voting in the US Congress, the National Political Awareness Test, and Bonica's ideal point estimates (Bonica 2013, 2014). By placing House candidates, voters, and the voters' perceptions of the House candidates on a common scale, we improve the ability to discern between the three theories discussed above.

A second difficulty in testing theories of candidate placements is that a number of theories postulate simultaneous causality. Take, for instance, the assimilation and contrast theory. A pure version of this theory postulates that placements are not based on the actual positions of the candidates and are random apart from a tendency of voters to perceive candidates who they like as closer to themselves ideologically. In this version of the theory, the causality flows in one direction—the voter's preference among the candidates causes perceived position, but perceived position does not cause the voter's preference. This version of the theory is likely an oversimplification—if perceptions of candidate placements are based on actual information and voters condition their votes on perceived proximity to the candidates, then the causality flows in both directions. Comparative testing of these three theories similarly has to deal directly with simultaneous causality. We thus develop an instrumental variables approach for distinguishing between the competing theories.

We apply our approach to study placements of House candidates in the 2012 election. Our results suggest that the average voter is closer to the Democratic candidate than the Republican candidate. We also find that the candidates are more polarized than the voters. Contrarily, the average voter sees himself as closer to the Republican candidate than the Democratic candidate. Moreover, voters perceive the candidates as less polarized than they actually are.

We find some evidence for assimilation and contrast among low knowledge voters and little support for the partisan cheerleading theory. We also find evidence that the actual position of the candidate has a detectable but small effect on voter's perceptions of that candidate—when a candidate moves one unit to the right, the average

placement of that candidate moves less than 0.1 unit to the right. This translates into a relatively small effect of candidate positions on voter behavior—the expected difference in vote share between an extreme candidate and a moderate candidate is less than 1 percentage point. In this sense, House candidates are held *individually accountable* for the positions they take to a limited extent. However, we also find that voters cue off of the positions of statewide candidates. Collectively, the effect of the candidate’s own position and the cue from higher office candidates amounts to an effect that ranges between 3 and 3.5 percentage points. This opens up an alternative avenue for accountability in House elections—parties are held *collectively accountable* for the positions that their candidates take.

2. Theories of Voter Perceptions of House Candidates

Under a Downsian model of vote choice, vote choice is a function of the spatial proximity between the ideal points of voters and their parties (Downs 1957), a proposition that has expanded into a general argument that voters should be more likely to vote for candidates whose ideology is closer to their ideal points. Going back to Converse’s (1964) work on ideology among the masses, research on the public’s understanding of political issues has held that the public is generally uninformed about politics, with many voters having difficulty associating even the political parties with ideological meaning. The tension between these two positions is rather clear: voters should vote on the basis of spatial proximity to representatives, but voters often lack the ability to accurately judge the ideology of candidates. One possible result of this has been that a large segment of voters routinely engage in “incorrect voting.” Lau, Andersen, and Redlawsk (2008) estimate that one-quarter of the electorate votes *incorrectly*, casting a vote that is not aligned with the direction of their ideological preferences. At the very least, there is a particularly significant difference in the values of constituents and their representatives. Bafumi and Herron (2010) argue that responsiveness is weak because legislators are more extreme than their constituents. Further supporting the idea that voters lack an ability to discern the position of candidates is evidence that the actual positions of candidates have a relatively small effect on electoral results (Brandice, Brady, and Cogan 2002; Erikson and Wright 1964).

One argument in response to this is that voters need not be perfectly informed to enforce some level of accountability. If voters are ignorant of individual candidate positions, they may rely on the party label to provide some of the information needed (Snyder

and Ting 2002; Sniderman and Stiglitz 2012). Tausanovitch and Warshaw (2018) argue that candidates need only match their party to their district's preferences to succeed electorally. Missing from much of this research, however, is a robust investigation of how voters perceive candidates. We home in on three theories in particular for investigation, offering a mixture of valence, strategic, and informational reasons why voters' perceptions of candidates may be distorted and therefore lead to a weakened ability to keep members of Congress individually accountable.

2.1. Assimilation and Contrast

According to the assimilation and contrast theory, placement of candidates by voters occurs in part as a result of subjective processes in which how favorable the voter finds the candidate influences their perception of the candidate's position (King 1977; Granberg and Robertson 1982; Adams, Merrill, and Grofman 2005). Specifically, *assimilation* occurs when a voter shortens the perceived ideological distance between themselves and their preferred candidates. *Contrast* occurs when a voter exaggerates the distance between themselves and a candidate they don't support. In the extreme, a voter may choose who they support purely based on valence and may project their own positions onto the favored candidate and positions they oppose onto the disfavored candidate, regardless of the candidates' actual positions. The theory thus posits that causability flows from evaluations of candidates to perception of their ideology, rather than the reverse direction. From the assimilation and contrast theory, we obtain our first two hypotheses.

H 1. (Assimilation) Respondents will perceive the position of their chosen candidate as being closer to their own position than the candidate's actual position.

H 2. (Contrast) Respondents will perceive the position of the non-chosen candidate as being farther from their own position than that candidate's actual position.

2.2. Cheerleading

Assessments of individual level knowledge of economic indicators finds widespread, systematic variance, leading to highly subjective and heterogeneous perceptions of the economy

(Duch, Palmer, and Anderson, 2000; Gerber and Huber 2010; Jerit and Barabas 2012). One theory for why such heterogeneity in perceptions exists is that when asked questions on economic indicators in a survey context, respondents may be tempted to engage in partisan cheerleading, where they answer questions in a manner that attempts to make their party look better and the other party look worse. Reasons for this can include question placement in which economic questions follow politicized questions, which induces political motives for responses (Sears and Lau 1983; Palmer and Duch 2001) or simply a lack of accuracy motivation such that offering financial awards for correct answers encourages better responses or greater willingness to say “don’t know” (Bullock et al. 2015; Prior, Sood, and Khanna 2015).

While the concept of partisan cheerleading has been applied primarily to economic questions, we theorize that the same motivation may encourage individuals to engage in cheerleading on questions of candidate and party ideological placement. Voters, wanting to present their candidate in the best possible light, may choose to place their candidate as more moderate. Voters may be encouraged to engage in partisan cheerleading due to political norms—extreme partisans and activists are viewed negatively (Bashir et al. 2013; Klar et al. 2016). When asked to rate candidates, voters may respond by strategically placing their preferred candidate as more moderate than the opponent. Like the assimilation and contrast theory, cheerleading presumes that causality flows from evaluations to placements of the candidates. The partisan cheerleading theory and the assimilation and contrast theory differ however in the underlying motivation of the voters. While the assimilation and contrast theory treats the placements as reflective of what the voters believe, the partisan cheerleading theory treats the placements as insincere responses which would not be reflected in political behavior. While the assimilation and contrast theory suggests that voters project their personal beliefs onto the candidate due to their nonideological attraction to the candidate, the partisan cheerleading theory suggests that voters (insincerely) place their preferred candidate in the position they believe maximizes the candidate’s appeal to the broader electorate. This leads to the development of Hypotheses 3 and 4.

H 3. (Cheerleading) Respondents will report the position of their chosen candidate as being closer to the median voter’s position than the candidate’s actual position.

H 4. (Anti-cheerleading) Respondents will report the position of the non-chosen candidate as being farther away from the median voter's position than that candidate's actual position.

2.3. *The Information Theory*

The simplest form of an informational theory is that through an electoral campaign individuals gain information about the position of each candidate and, accordingly, adjust their understanding of the candidates' positions based off their actual positions.

H 5. (Real Informatio) The respondent's perception of the candidate's position will be positively related with the candidate's actual position.

This, of course, is a simplified model that does not accurately reflect our understanding of public knowledge or learning. Individuals rarely know exact information about a candidate. Instead, voters will use a variety of heuristics and information cues that allow them to approximate the candidate's position without having full information about the candidate (Conover and Feldman 1989; Lupia 1994; Lau and Redlawsk 2001; Halberstam and Montagnes 2015; Peskowitz 2019). The most commonly used information cues tend to be those based on social groups (Converse 1964; Brady and Sniderman 1985; Conover 1988) and group endorsements (Arceneaux and Kolodny 2009), with the most important of these being the party cue. Political parties, by packaging policy preferences together in a form of partisan "branding," can provide a lot of information for voters on the likely policies that a candidate will pursue once in office (Snyder and Ting 2002; Sniderman and Stiglitz 2012).

We develop the information theory by focusing on the cue voters may obtain from candidates for higher office. Hopkins (2018) argues that voters are increasingly voting for the same parties in state and national elections. He argues that a key factor driving this is that voters use similar criteria in state and national races, and that voters increasingly view their state parties as having platforms similar to the national parties. Beyond partisanship, various national forces have been shown to effect state level elections and various state level forces have been shown to effect local elections. Rogers (2015) finds that the entry of quality challengers in state legislative elections is

affected by state income. Rogers (2016) shows the entry of quality challengers is affected by the approval of the president.

Individuals who are aware of the party reputation at other levels that receive more attention (e.g., the statewide level, the presidential level) may use the position of higher-level candidates to make assumptions about the ideology of lower-office candidates, such as House candidates. This is reflected in Hypothesis 6.

H 6. (Cuing off of Other Candidates) The respondent's perception of the candidate's position will be positively related with the positions of the party's candidates for higher offices.

This hypothesis separates our work from many existing tests of the information theory. While existing work (reflected in Hypothesis 5) tests whether candidates for office are held individually accountable, we are also able to investigate whether candidates are held collectively accountable. If substantiated, collective accountability could help explain some of the patterns Rogers (2016) and Hopkins (2018) document as well as suggesting that accountability for issue positions is more robust than is sometimes presumed.

2.4. Existing Tests

The existing literature provides tests of the assimilation and contrast and information theories, generating support for both theories. King (1977) and Adams, Merrill, and Grofman (2005) each find that placements of a voter's more preferred (less preferred) candidate are positively (negatively) correlated with the respondent's position, consistent with the predictions of the assimilation and contrast theory. Various authors have shown that, in contexts where respondents place a cross-section of candidates, candidate placements are correlated with objective measures of the candidates positions (Franklin 1991; Powell 1989; Koch 2000; Ansolabehere and Jones 2010). Moreover, more politically sophisticated individuals (measured various ways) exhibit less variance (Franklin 1991) and more accuracy (Powell 1989) in their placements.

Finding support for each one of these theories potentially undermines support for the other. Accordingly to the information theory, respondents react to real information about the candidates position's, but are imperfectly informed. Thus, the information theory also predicts that placements of a voter's more preferred (less preferred) candidate are positively (negatively) correlated

with the respondent's position. Similarly, the information theory encompasses part of a mechanism whereby voters hold candidates accountable for the positions they take. According to the assimilation and contrast theory, this accountability is broken because, rather than reward proximate candidates with their preferences, voters reward preferred candidates with proximate placements. The partisan cheerleading theory has not been tested in the context of candidate placements, but support for this theory would similarly undermine the accountability mechanism.

Most of the existing evidence in favor of the assimilation and contrast and information theories rests on excluding the possibility of the competing theory. By finding evidence in favor of both theories, the existing literature suggests that simultaneity may be present. Our goal in this article is to get a full (and internally consistent) understanding of accountability mechanisms in light of the complexity that has been identified in the literature. Of the existing work, Ansolabehere and Jones (2010) come closest to achieving this—in estimating the effect of positions on candidate choice, they instrument for perceptions of candidate positions using the actual positions of the candidates. This allows them to account for endogeneity in measuring the effect of perceptions on candidate choice, but they do not account for endogeneity in measuring the effect of choice on perceptions. The approach we develop below is able to fully address the simultaneity by instrumenting for both perceptions of positions and candidate choice in their respective equations. It also allows us to speak to existing work on the assimilation and contrast theory and address the possibility of insincere survey responses (as described by the partisan cheerleading theory).

3. Data

3.1. *Ideal Point Estimates*

We first describe how we generate our ideological scale. Our goal is to estimate the position of candidates in House elections, the electorate, and the electorate's perceptions of the candidates' positions. To generate comparable estimates of House members and the electorate, we rely on bridge items available in the 2012 CCES. The 2012 CCES is a survey of American adults. The respondents were asked their opinion on 10 roll calls voted on during the 111th and 112th congresses in the House, the Senate, or both. We additionally include several non-roll call vote issue position questions

to supplement these roll call votes, giving us a total of 32 votes for CCES respondents. While our main goal is to estimate the positions of respondents and the positions of House members in the 112th Congress (the session prior to the 2012 election), so as not to lose any of the bridge items, we first bridge together the 111th and 112th House and Senate. To bridge the 111th and 112th sessions, we assume that members of the House and Senate do not change their positions over this period of time. To bridge the House and Senate to each other, we rely on identical votes between the House and Senate. In order for a bill to become law, it must pass both chambers in the same form. To accomplish this, the chambers may shuttle a bill back and forth or use a conference committee. In both cases, the need for bills to pass both chambers in the same form means we observe a number of identical votes between the chambers.

Our final vote matrix includes roll call votes taken by members of the 111th and 112th House and Senate as well as ideological items for respondents to the 2012 CCES, including 58 bridge items between the House and Senate and 10 bridge items between the legislative chambers and the CCES respondents. These are assembled into a single vote matrix.

The ideal points are estimated using the quadratic-normal item response model (Jackman 2001; Martin and Quinn 2002). Consider the data matrix y with elements y_{nt} , where n indexes individuals, t indexes responses, $y_{nt} = 2$ denotes a positive response (e.g., a yea on a roll call vote) and $y_{nt} = 1$ denotes a negative response (e.g., a nay on a roll call vote). Each individual (survey respondent or candidate for office) is characterized by a one-dimensional ideal point x_n and each response (survey item or roll call vote) is characterized by two cutting line parameters, a_t and b_t . The quadratic-normal model assumes we observe a positive response with probability $\Pr(y_{nt} = 2) = \Phi(a_t + b_t x_n)$.

The parameters are estimated using penalized maximum likelihood estimation (Peress and Spirling 2010; Battista, Peress, and Richman 2013). We can form the log-likelihood function as,

$$l(x, a, b) = \sum_{n=1}^N \sum_{t=1}^T \{1\{y_{nt} = 2\} \log \Phi(a_t + b_t x_n) + 1\{y_{nt} = 1\} \log [1 - \Phi(a_t + b_t x_n)]\} \quad (1)$$

as the penalized log-likelihood as,

$$Q(x, a, b) = l(x, a, b) + \psi_x \sum_{n=1}^N x_n^2 + \psi_{ab} \sum_{t=1}^T (a_t, b_t)' (a_t, b_t) \quad (2)$$

with penalty parameters $\psi_x > 0$ and $\psi_{ab} > 0$. The parameters x_n , a_i , and b_i are chosen to maximize the penalized log-likelihood. The penalty terms are included as the ideal points are only identified up to a linear transformation and the objective function would otherwise lack a strict maximum. Optimizing this penalized objective function is equivalent to optimizing a Bayesian posterior for the quadratic normal model, with normal mean-zero independent priors for all parameters.

Using the approach we outlined, we have ideal point estimates for individuals who served in the 111th and 112th Congress. This means we have estimates for essentially all incumbents in the 2012 elections, but very few challengers. We fill in the missing data for the challengers using the National Political Awareness Test (NPAT) and Bonica's ideal point estimates (Bonica 2013, 2014), using the National Political Awareness test preferentially. Project Vote Smart mails NPAT surveys to candidates. In recent years, in the event that Congressional or Presidential candidates refuse to participate in the NPAT, Project Vote Smart will impute their positions using their public statements. We use both sources of data to construct an NPAT "vote matrix" and apply ideal point estimation techniques to this vote matrix.¹

We use linear mapping (Poole 2005; Shor and McCarty 2011) to put the NPAT and Bonica estimates on the same scale as our other estimates.² Our estimates were very similar to DW-Nominate

¹We use the NPAT scores preferentially over the Bonica estimates because the NPAT scores are measures of the ideological structure of issue positions for congressional candidates, while the Bonica estimates are proxies. As a robustness check, we replicated Table 5 using the NPAT estimates only in Table 12 in the online supporting information appendix.

²Linear mapping is used to adjust the scale when one has two measures of the same concept on different scales. Denote the first measure as A_n and the second measure as B_n for a sample of individuals indexed by n . To adjust the scale of measure B to be on the same scale as measure A, a linear regression is used where measure A is the dependent variable and measure B is the independent variable. This regression presumes that there are some individuals for which both measures are available. It also presumes that there are some individuals for which only A is available and some individuals for which only B is available (absent this, there would be no reason to adjust the scale because we could use the measure which is universally available). As a result of the linear regression, we obtain the intercept $\hat{\beta}_0$ and the slope coefficient $\hat{\beta}_1$. The scaled estimates for which measure B is available, but measure A is not, are computed as $A_n = \hat{\beta}_0 + \hat{\beta}_1 B_n$.

Common Space scores, when they were available—the correlation was 97.5%.³ In addition, we would like to put respondent perceptions on the same scale. Respondent perceptions take the form of placements on a 1–7 liberal-conservative scale. Respondents also place themselves on the same 1–7 liberal-conservative scale. To convert the placements to our common scale, we use the linear mapping between the issue-based respondent scale and the respondent self-placements. We normalize the scale such that the average House Democrat is located at -1 and the average House Republican is located at 1 .

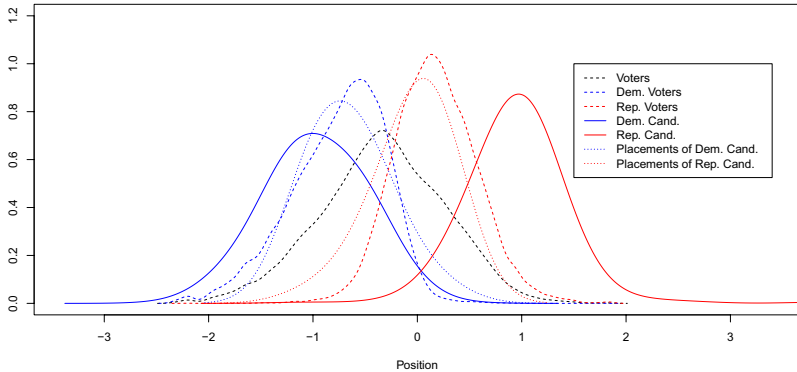
We form the voter cue from higher level offices based on candidates in Senate and gubernatorial elections. In each state, we determined the most recent Democratic and Republican candidate for each of these offices. Some Senate candidates (those who served in the 111th or 112th Congress) were already in our data set. We obtained ideal points for the additional Senate candidates and gubernatorial candidates from the NPAT and Bonica's data. As before, we mapped the NPAT and Bonica ideal point estimates on to our common space using linear mapping. Our final estimate of the cue from higher office candidates for each party was formed as the average of the positions of the most recent Senate and gubernatorial candidate.

Figure 1 presents density estimates for CCES respondents, Democratic and Republican identifiers in the CCES, Democratic and Republican House candidates, and the respondents' perceptions of the Democratic and Republican House candidates. Table 1 presents some summary statistics for the ideal point estimates.

Our results suggest that the average respondent is closer to the Democrat candidate than the Republican candidate. However, the average respondent places themselves somewhat closer to the Republican candidate. The Democratic and Republican candidates are further apart than the Democratic and Republican identifiers, but respondents perceive the Democratic and Republican candidates as being somewhat closer together than the average Democratic and Republican identifier. High knowledge voters see the parties as somewhat further apart, though even high knowledge

³The correlation was 98.2% for incumbents and 94.5% for challengers (whose DW-Nominate Common Space scores would be observed if they were previously or subsequently elected).

FIGURE 1
Summary of Ideal Point Estimates



respondents report the parties as being much closer together than they actually are.

Overall, we found that estimates from the joint scaling were very similar to results we found when applying a separate scaling to Senators, House members, and CCES respondents—the individual and joint scalings produced ideal points that were correlated at 97% for Senators, 99% for House members, and 98% for CCES respondents. Within party, these correlations were similarly high—for CCES respondents, the correlations were 97% for Democratic identifiers, 98% for independents, and 98% for Republican identifiers. For Senators, the correlations were 85% for Democrats and 72% for Republicans. For House members, the correlations were 91% for Democrats and 85% for Republicans. The fits of the models (measured in terms of the percent of votes or responses correctly predicted) were also similar between the individual and joint scalings for Senators, House members, and CCES respondents. The relative placements of the parties from the joint scaling were very similar to results we obtained using a simple additive left-right scale applied to only the bridge votes, where we found that members of the House and Senate were more polarized than the voters and that the average voter was closer to the average Democrat. Further results are given in the online supporting information appendix.

TABLE 1
Summary Statistics for Ideal Point Estimates

Average Democratic candidate	-1.002
Average Democratic respondent	-0.695
Average placement of Democratic candidate	-0.659
Average respondent	-0.327
Average placement of Republican candidate	-0.046
Average Republican respondent	0.158
Average Republican candidate	0.955
Distance between average voter and Democratic candidate	0.675
Distance between average voter and Republican candidate	1.282
Distance between average voter and placement of Democratic candidate	0.323
Distance between average voter and placement of Republican candidate	0.289
Actual distance between average Democratic and Republican House candidate	1.957
Distance between average Democratic and Republican identifier	0.852
Average perceived distance between Democratic and Republican House candidate	0.613
<i>High Knowledge Respondents</i>	0.719
<i>Low Knowledge Respondents</i>	0.400

3.2. Other Data

In addition to the ideal point estimates, we collected additional data. We used various variables from the 2012 CCES. We used eight knowledge items to form a knowledge index. Respondents were asked to identify which party controls the US House, the US Senate, and each chamber of their state legislature. They were also asked to identify the political party of their member of congress, their governor, and both of their Senators. Each correct answer is awarded a point.⁴ To simplify the analysis, we used the 0–8 scale to create a binary measure based on whether the respondent was above or below the mean level of political knowledge in the sample (those above the mean were coded as high knowledge and the remaining low knowledge). We collected a number of measures of “valence.” The quality of the challenger was obtained from a data set provided by Gary Jacobson. State unemployment was obtained from the Bureau of Labor Statistics.

⁴In the results presented, we dropped respondents who had missing values. This includes respondents from Nebraska which has a unicameral state legislature. We experimented with other approaches for constructing the knowledge index including imputing the missing items and found similar results.

4. Testing the Theories Individually

4.1. Assimilation and Contrast

Recall that our main hypotheses for the assimilation and contrast theory were that the respondents would perceive themselves as being closer to their chosen candidate than they actually are and would perceive themselves as being farther from the other candidate than they actually are. In the pure version of the theory, there is no simultaneous causality—the respondents' choices among the candidates are driven by the valence of the candidates and their perceptions of the candidates are driven by this valence indirectly. One could argue that this is an oversimplification (indeed, we think that it is and we provide evidence later in the article). We consider the simpler theory here because the alternative would require directly dealing with the simultaneous causality of perceptions of candidate positions and choice between the candidates.

To formulate the assimilation and contrast theory mathematically, we let D be the position of the Democratic candidate and let X be the position of the respondent. Suppose that placements for the chosen candidate are given by,

$$\tilde{D} = \alpha_D D + (1 - \alpha_D) X \quad (3)$$

where $\alpha_D \in [0, 1)$. In this case, the placement will be closer to the respondent than the actual position. This can be seen because $\tilde{D} - X = \alpha_D D + (1 - \alpha_D) X - X = \alpha_D (D - X)$, so that $(\tilde{D} - X)^2 = \alpha_D^2 (D - X)^2$. Provided that $\alpha_D < 1$, we have $(\tilde{D} - X)^2 < \alpha_D^2 (D - X)^2$. We interpret \tilde{D} as the respondent's perception of the candidate and assume that the respondent reports this truthfully in the survey. We call this behavior "assimilation," where the respondent perceives the candidate as being closer than he actually is.

We would like to specify the placement of the non-chosen candidate. If the Democratic candidate is not chosen, we assume that the respondent places the candidate at $\tilde{D} = \gamma_D D + (1 - \gamma_D) X$. Using similar math, we have $(\tilde{D} - X)^2 = \gamma_D^2 (D - X)^2$. If $\gamma_D > 1$, the respondent is placing the opposed candidate further away than he actually is. A similar equation can be derived for the Republican candidate, with R denoting the position of the Republican candidate and \tilde{R} denoting the respondent's perception of the Republican candidate:

$$\tilde{R} = \alpha_R R + (1 - \alpha_R) X \quad (4)$$

To fully specify the model, we let $C = 1$ denote a vote for the Democratic candidate and $C = 0$ denote a vote for the Republican candidate. We allow the degree of assimilation and contrast to differ for the Democratic and Republican candidates. We write,

$$\tilde{D} = \begin{cases} \alpha_D D + (1 - \alpha_D)X, & C = 1 \\ \gamma_D D + (1 - \gamma_D)X, & C = 0 \end{cases} \quad (5)$$

Notice that,

$$\tilde{R} = \begin{cases} \alpha_R R + (1 - \alpha_R)X, & C = 0 \\ \gamma_R R + (1 - \gamma_R)X, & C = 1 \end{cases} \quad (6)$$

$$\tilde{D} - X = \begin{cases} \alpha_D(D - X), & C = 1 \\ \gamma_D(D - X), & C = 0 \end{cases} \quad (7)$$

$$\tilde{R} - X = \begin{cases} \alpha_R(R - X), & C = 0 \\ \gamma_R(R - X), & C = 1 \end{cases} \quad (8)$$

A simple test of the assimilation and contrast theory involves regressing $\tilde{D} - X$ on $D - X$ and $\tilde{R} - X$ and $R - X$ on the subsets $C = 1$ and $C = 0$. In running these regressions, the constant term can be omitted, or a nonzero constant term can be interpreted as being inconsistent with the assimilation and contrast theory.⁵ The mathematical analogues of Hypotheses 1 and 2 are given below:

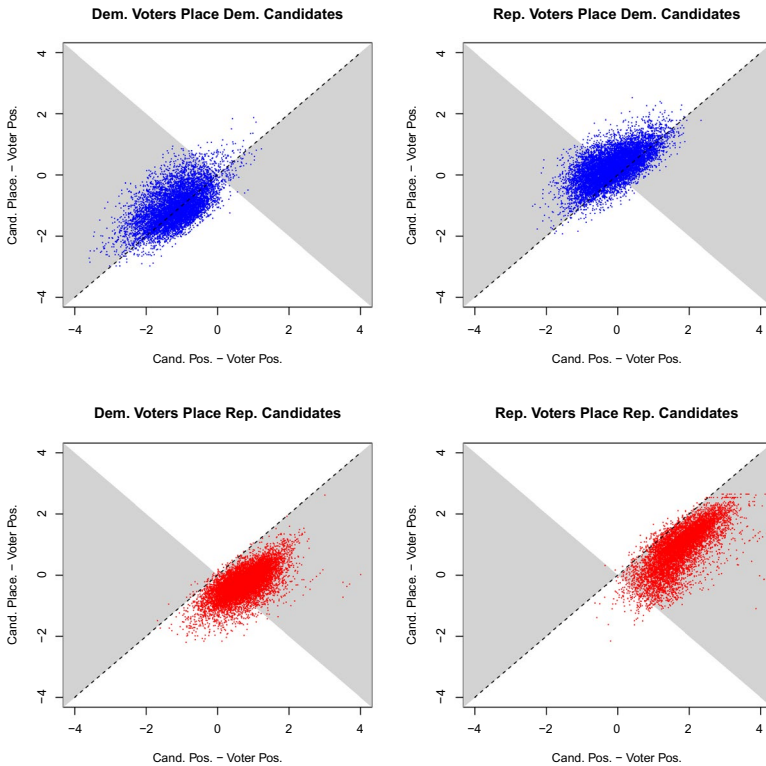
$$H1. \quad 0 \leq \alpha_D < 1 \text{ and } 0 \leq \alpha_R < 1$$

$$H2. \quad \gamma_D > 1 \text{ and } \gamma_R > 1$$

We test Hypotheses 1 and 2 in Figure 2 and Table 2. In Figure 2, we plot $\tilde{D} - X$ versus $D - X$ and $\tilde{R} - X$ versus $R - X$. The regions shaded in grey indicate that the respondent has moved the candidate closer to their ideal point and the remaining regions indicate that the respondent has moved the candidate away from

⁵For example, a nonzero constant term would imply a specification of $\tilde{D} = \beta_D + \alpha_D D + (1 - \alpha_D)X$. In this case, $(\tilde{D} - X)^2 = \beta_D^2 + \alpha_D^2(D - X)^2 + 2\beta_D(D - X)$. The condition $(\tilde{D} - X)^2 < (D - X)^2$ would imply that $(\alpha_D^2 - 1)(D - X)^2 + 2\beta_D(D - X) + \beta_D^2 < 0$ or $D - X \notin \left\{ \frac{\beta_D}{1 + \alpha_D}, \frac{\beta_D}{1 - \alpha_D} \right\}$. Hence, it would imply that the respondents who are sufficiently close contrast while the other respondents assimilate, or vice versa.

FIGURE 2
Assimilation and Contrast Plot



their ideal point. The lower right panel seems to be consistent with assimilation—most of the placements are in the grey region. The upper left panel is not consistent with assimilation—about half of the respondents move the chosen candidate closer to their own position while the other half move the chosen candidate further away. Similarly, the upper right and lower left panels are not consistent with contrast. Looking at Table 2, we find that α_D and α_R are less than 1, consistent with Hypothesis 1. However, we also find that γ_D and γ_R are less than 1 and statistically distinguishable from 1, which is not consistent with Hypothesis 2. We could read these results as supportive of assimilation, but not contrast, but assimilation of chosen candidates and contrast of non-chosen candidates

TABLE 2
Test of the Assimilation and Contrast Theory

	Democratic Placements		Republican Placements	
	Assimilation (Dem. Voters)	Contrast (Rep. Voters)	Assimilation (Rep. Voters)	Contrast (Dem. Voters)
α	0.451 ^{***} (0.026)		-0.055 ^{***} (0.008)	
γ		0.823 ^{***} (0.017)		0.534 ^{***} (0.010)
N	10593	8725	12029	8662
Clusters	374	374	367	366
p -value for $H_0: \alpha = 1$	0.000 ^{***}		0.000 ^{***}	
p -value for $H_0: \gamma = 1$		0.000 ^{***}		0.000 ^{***}

Notes: Standard errors are clustered by congressional district.

+ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

were based on similar mechanisms, so the finding that the average respondent places the non-chosen candidate closer to their ideal point calls into question the assimilation and contrast theory.

4.2. Cheerleading

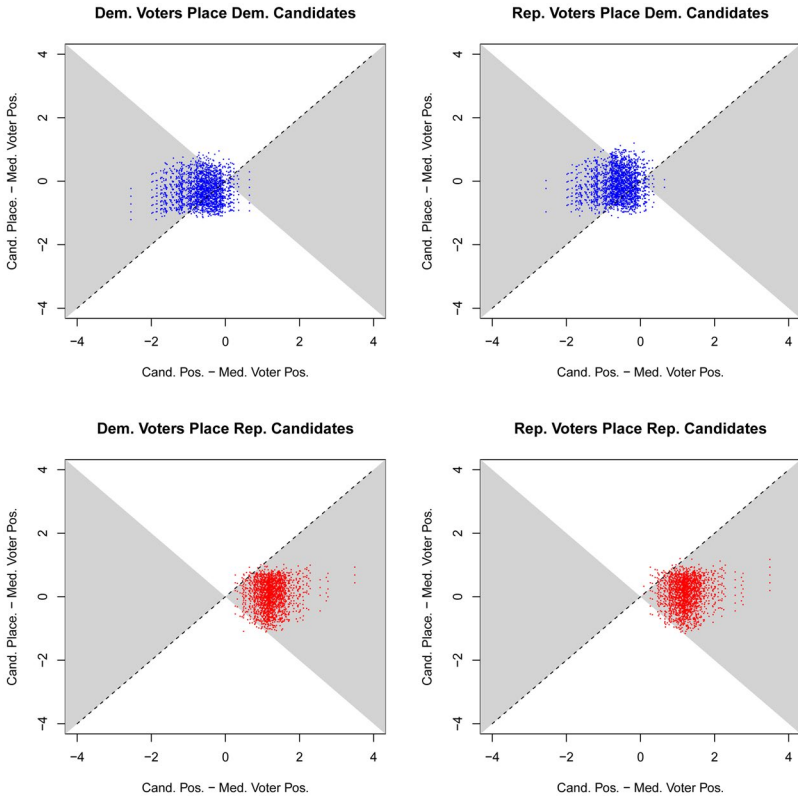
Our main hypotheses for the cheerleading theory were that respondents would place their chosen candidate closer to the median voter in the district than they actually are and would place the other candidate further from the median voter. We again consider an over-simplified version of the theory. Let M be the position of the median voter in the district. We specify,

$$\tilde{D} = \begin{cases} \delta_D D + (1 - \delta_D)M, & C = 1 \\ \tau_D D + (1 - \tau_D)M, & C = 0 \end{cases} \quad (9)$$

$$\tilde{R} = \begin{cases} \delta_R R + (1 - \delta_R)M, & C = 0 \\ \tau_R R + (1 - \tau_R)M, & C = 1 \end{cases} \quad (10)$$

Under this theory, voters report placements that are biased toward the median voter in their district for their chosen candidate and biased away from the median voter for the other candidate. Testing the theory is similar to test the assimilation and contrast theory with X replaced by M .

FIGURE 3
Cheerleading Plot



H 3. $0 \leq \delta_D < 1$ and $0 \leq \delta_R < 1$

H 4. $\tau_D > 1$ and $\tau_R > 1$

We test Hypotheses 3 and 4 in Figure 3 and Table 3. In Figure 3, we plot $\hat{D} - M$ versus $D - M$ and $\hat{R} - M$ versus $R - M$ with the regions shaded in grey indicating that the respondent has moved the candidate closer to the median voter. The lower right panel seem to be consistent with the cheerleading theory, but the other panels suggest that most respondents move the candidates toward the median voter, regardless of whether it was the candidate they chose.

TABLE 3
Test of the Cheerleading Theory

	Democratic Placements		Republican Placements	
	Cheerleading (Dem. Voters)	Anti- cheerleading (Rep. Voters)	Cheerleading (Rep. Voters)	Anti- cheerleading (Dem. Voters)
δ	0.256 ^{***} (0.009)		0.172 ^{***} (0.005)	
τ		0.538 ^{***} (0.019)		0.265 ^{***} (0.009)
N	10593	8725	12029	8662
Clusters	374	374	367	366
p -value for $H_0: \delta = 1$	0.000 ^{***}		0.000 ^{***}	
p -value for $H_0: \tau = 1$		0.000 ^{***}		0.000 ^{***}

Notes: Standard errors are clustered by congressional district.

⁺ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 3 suggest similar problems for the cheerleading theory—the estimates suggest that δ_D , δ_R , τ_D , and τ_R are all less than 1.

4.3. The Information Theory

As before, we let D be the actual position of the Democratic candidate. Let Z_D be a set of variables that are used by voters to proxy for the signal. Let S_D be the signal. We have, $S_D = \lambda'_D Z_D$. Inside of Z_D , we could include a constant term, the position of the Democratic House candidate D , the positions of other recent candidates at the statewide level O_D , and a dummy indicating the incumbency status of the House Democratic candidate I_D . In this case, we have,

$$S_D = \lambda_{D1} + \lambda_{D2}D + \lambda_{D3}O_D + \lambda_{D4}I_D \quad (11)$$

Assuming that perceptions are equal to the signal on average, we have,

$$\tilde{D} = \lambda'_D Z_D + \varepsilon_D \quad (12)$$

$$\tilde{R} = \lambda'_R Z_R + \varepsilon_R \quad (13)$$

where $E[\varepsilon_D] = E[\varepsilon_R] = 0$, $Var(\varepsilon_D) = \sigma_D$, and $Var(\varepsilon_R) = \sigma_R$. If the respondents were to perceive the positions of the candidates correctly, we would have $\lambda_D = (0, 1, 0, 0)$, $\sigma_D = 0$, $\lambda_R = (0, 1, 0, 0)$, and $\sigma_R = 0$. Respondents of course do not perfectly perceive the correct positions of the candidates. Instead, we can check if as the candidate moves to the right, he is perceived as more right-wing:

$$H 5. \lambda_{D2} > 0 \text{ and } \lambda_{R2} > 0$$

We can also check if as the statewide candidates move to the right, the House candidate is perceived as more right-wing:

$$H 6. \lambda_{D3} > 0 \text{ and } \lambda_{R3} > 0$$

We test the various hypotheses in Table 4. The position of the candidate has a positive effect on the placement of the candidate in all 6 equations, though the magnitudes are small. For example, the coefficient in equation 1 of 0.036 means that as the Democratic House candidate moves 1 unit to the right, the average placement moves 0.036 units to the right. The magnitude for the Republican candidates is larger, but still small. Examining the cue from statewide candidates, the coefficients are statistically significant for Democratic House candidates, and marginally statistically significant for Republican House candidates.

5. Combining the Theories

In the previous section, we found limited support for all three of the theories. For the assimilation and contrast theory, we found that while respondents assimilate the position of the chosen candidate, they also seem to assimilate the position of the other candidate. For the partisan cheerleading theory, we found that respondents move the position of both the chosen candidate and the non-chosen candidate toward the median voter. For the information theory, we found that the actual position of the candidate and cues from higher office candidates affect the perceptions of the candidates' positions. The assimilation and contrast theory and the cheerleading theory are by themselves poor explanations of voter behavior. The information theory fares better, but information has a surprisingly small effect on candidate placements. In this section, we propose a unified test of the three theories. Combining

TABLE 4
Information Theory Test

	Democratic Placements			Republican Placements		
	All	High Know.	Low Know.	All	High Know.	Low Know.
	Respondents	Respondents	Respondents	Respondents	Respondents	Respondents
Constant	-0.491 ^{***} (0.022)	-0.509 ^{***} (0.026)	-0.358 ^{***} (0.024)	-0.157 ^{***} (0.019)	-0.098 ^{***} (0.019)	-0.170 ^{***} (0.041)
Candidate Position	0.036 ^{**} (0.013)	0.040 [*] (0.016)	0.015 (0.016)	0.053 ^{**} (0.020)	0.058 ^{**} (0.022)	0.023 (0.023)
Cue from Higher Office Candidates	0.123 ^{***} (0.020)	0.151 ^{***} (0.024)	0.151 ^{***} (0.025)	0.031+ (0.016)	0.026+ (0.015)	-0.040 (0.036)
Incumbent	-0.059 ^{***} (0.010)	-0.088 ^{***} (0.012)	-0.105 ^{***} (0.014)	0.058 ^{***} (0.010)	0.046 ^{***} (0.010)	0.020 (0.020)
<i>N</i>	23906	14699	8620	26363	18025	7566
Clusters	353	346	348	368	362	362
<i>R</i> ²	0.018	0.035	0.031	0.015	0.014	0.002

Notes: Standard errors are clustered by congressional district.

+ $p < .1$, * $p < .05$, ** $p < .01$, *** $p < .001$.

these theories requires us to deal directly with the simultaneity between perceptions of the candidates' positions and the respondent's choice between the candidates. The assimilation and contrast theory and the partisan cheerleading theory suggest that one's choice of candidate affects how one places the candidate. The information theory suggests that one's perception of the candidate's position affects whether one votes for that candidate.

Beyond our findings of support for some aspects of the information theory, there is another reason to develop an approach for dealing with simultaneity. In order to present the assimilation and contrast theory and the cheerleading theory in ways that avoided simultaneity, we have simplified them. Proponents of these theories need not go so far as to argue that voter's choices between the candidates cannot be driven by actual information about the candidates positions.

We can reframe the three theories as follows. Respondents choose which candidate they prefer based on valence (affect toward the candidates and parties or other nonideological considerations) as well as their perceptions of the candidates' positions. Perceptions of the candidates' positions are formed based on information that the voters have about the candidates' positions, but may be misperceived by the respondents in ways that are correlated with their chosen candidate (as in the assimilation and contrast theory) and may be misreported by the respondents in ways that are correlated with their chosen candidate (as in the cheerleading theory).

In this framework, candidate choice is endogenous in the perception equations and perceptions are endogenous in the candidate choice equation. The same framework, however, naturally suggests instruments for the endogenous variables. Valence characteristics affect perceptions of the candidates only through choice. Signals of the candidates' positions affect choice only through perceptions of those positions. Instruments for choice in the perception equation are valence characteristics that are not proxies for position. Instruments for perceptions in the choice equation are signals of position that do not reflect the valence of the candidates.

To instrument for candidate choice in the perception equations, we use the quality of the challengers, state unemployment, and state unemployment interacted with the party of the governor. The quality of the challenger has been shown to impact candidate choice (Lublin 1994). Voters may punish either the president's

party or the governors party for high unemployment. Each of these will shift valence and arguably will shift perceptions only through valence. In the choice equation, we use the position of the candidate, the cue, and position of the respondent as instruments for perceived proximity, since these affect perceived relative proximity, but are not measures of valence. We include incumbency in both equations because while it may shift valence, through an incumbency effect, it is possible that respondents will use it as a proxy for the positions of the candidates (perhaps assuming that incumbent candidates are more moderate than challengers).

5.1. The Candidate Perception Equation

To combine the theories mathematically, we start with the structure for the signal from the information theory. We have,

$$S_D = \lambda'_D Z_D \quad (14)$$

Individuals start with this signal in forming their perceptions of the parties. According to the assimilation and contrast theory, respondents perceive their chosen candidate as closer to themselves than their signal actually indicates. The perceptions are thus given by,

$$\hat{D} = C(\alpha_D S_D + (1 - \alpha_D)X) + (1 - C)(\gamma_D S_D + (1 - \gamma_D)X) \quad (15)$$

According to the cheerleading theory, the respondents do not report their perceptions sincerely, but report placements that are biased away from their position toward the median voter in the district. We have,

$$\tilde{D} = C(\delta_D \hat{D} + (1 - \delta_D)M) + (1 - C)(\tau_D \hat{D} + (1 - \tau_D)M) \quad (16)$$

Combining equations, we obtain,

$$\tilde{D} = (1 - \gamma_D)\tau_D X + (1 - \tau_D)M + \tau_D \gamma_D \lambda'_D Z_D \quad (17)$$

We can write this model as,

$$+ [\delta_D - \tau_D - (\delta_D \alpha_D - \tau_D \gamma_D)]CX + (\tau_D - \delta_D)CM + (\alpha_D \delta_D - \gamma_D \tau_D)\lambda'_D CZ_D$$

$$\tilde{D} = a_D X + b_D M + c'_D Z_D + d_D CX + e_D CM + f'_D Z_D \quad (18)$$

with the constraint that $f_{Dk} = \frac{f_{D1}}{c_{D1}} c_{Dk}$. A similar equation can be derived for the Republican candidates.

We can test the combined theories using a linear regression with placements \hat{D} as the dependent variable and X , M , Z_D , CX , CM , and CZ_D as independent variables. Since C is endogenous, we use instrumental variables. To take into account the parameter constraint $f_{Dk} = \frac{f_{D1}}{c_{D1}} c_{Dk}$ (for efficiency purposes), we frame the IV estimator as a generalized method of moments (GMM) estimator (Hansen 1982).

Results are reported in the Table 5. Considering the assimilation and contrast theory, in the full sample, the assimilation and contrast coefficients are not statistically significantly different from 1. Once we break up the analysis between high and low knowledge voters however, we find some support for the assimilation and contrast theory. For low knowledge voters and Republican placements, the assimilation and contrast coefficients satisfy the theoretical predictions and are statistically distinguishable from 1 (at the 5% and 10% levels, respectively). We find little support for the partisan cheerleading theory—only one of the twelve coefficients across six models is statistically significantly distinguishable from 1 and satisfies the theoretical prediction.

Turning to the information theory, we find that Hypothesis 5 is supported by the data—the position of the candidate is positive and statistically significant for Democratic and Republican placements, in both the full sample and among high knowledge respondents. Hypothesis 6 is supported as well, particularly for Democratic placements. Overall, it appears we have fairly strong support for the information theory (although as before, voters know little about the positions of the candidates), some support for assimilation and contrast among low knowledge voters, and little support for the partisan cheerleading theory.

5.2. *The Candidate Choice Equation*

The choice equation is simpler to estimate. We write the choice equation as,

$$C = g + h'V + \rho((\hat{D} - X)^2 - (\hat{R} - X)^2) + \eta \quad (19)$$

TABLE 5
Instrumental Variable Estimates for Candidate Placement Equation

	Democratic Placements			Republican Placements		
	All	High Know.	Low Know.	All	High Know.	Low Know.
	Respondents	Respondents	Respondents	Respondents	Respondents	Respondents
α (assimilation)	1.460 ^{***} (0.409)	1.131 ^{***} (0.189)	1.018 ^{***} (0.079)	0.957 ^{***} (0.231)	1.062 ^{***} (0.220)	0.647 ^{***} (0.169)
γ (contrast)	1.092 ^{***} (0.298)	1.155 ^{***} (0.146)	1.409 ^{***} (0.324)	1.485 ^{***} (0.491)	1.189 ^{***} (0.182)	1.350 ^{***} (0.185)
δ (cheerleading)	0.650 ^{***} (0.153)	0.832 ^{***} (0.114)	0.953 ^{***} (0.149)	0.997 ^{***} (0.147)	0.904 ^{***} (0.090)	0.749 ^{***} (0.269)
τ (anti-cheerleading)	0.726 ^{**} (0.231)	0.915 ^{***} (0.122)	0.628 [*] (0.247)	0.539 ^{**} (0.196)	0.782 ^{***} (0.141)	0.891 ^{***} (0.249)
λ_1 (Constant)	-0.640 ^{***} (0.090)	-0.528 ^{***} (0.073)	-0.372 ^{***} (0.034)	-0.165 ⁺ (0.095)	-0.089 (0.080)	-0.223 ^{***} (0.047)
λ_2 (Position)	0.040 [*] (0.016)	0.061 ^{***} (0.011)	0.015 (0.030)	0.070 ^{***} (0.017)	0.077 ^{***} (0.018)	0.028 (0.024)
λ_3 (Cue)	0.131 ^{***} (0.030)	0.110 ^{***} (0.027)	0.156 ^{***} (0.030)	0.029 ⁺ (0.017)	0.026 ⁺ (0.014)	-0.045 (0.041)
λ_4 (Incumbent)	-0.027 (0.021)	-0.101 ^{***} (0.016)	-0.103 ^{***} (0.017)	-0.025 [*] (0.012)	-0.029 [*] (0.013)	-0.040 ⁺ (0.024)
N	18359	12072	5848	20691	14952	5135
Clusters	353	346	340	368	361	357
First Stage F-Statistic	944.6	877.2	149.7	1039.8	1005.4	126.2
p -value for $H_0: \alpha_k = 1$	0.261	0.489	0.817	0.853	0.779	0.037 [*]
p -value for $H_0: \gamma_k = 1$	0.759	0.289	0.206	0.323	0.300	0.059 ⁺
p -value for $H_0: \delta_k = 1$	0.022 [*]	0.140	0.752	0.985	0.288	0.351
p -value for $H_0: \tau_k = 1$	0.235	0.484	0.132	0.019 [*]	0.121	0.661

Notes: Standard errors are clustered by congressional district.

⁺ $p < .1$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

TABLE 6
Instrumental Variable Estimates for Candidate Choice

	All	High Know.	Low Know.
	Respondents	Respondents	Respondents
Intercept	0.562 ^{***} (0.024)	0.573 ^{***} (0.027)	0.609 ^{***} (0.057)
Perceived Policy Distance	0.292 ^{***} (0.004)	0.280 ^{***} (0.003)	0.362 ^{***} (0.023)
Democratic Challenger Quality	0.006 (0.010)	0.008 (0.011)	0.002 (0.023)
Republican Challenger Quality	-0.003 (0.013)	-0.008 (0.013)	0.012 (0.025)
Unemployment	-0.004 ⁺ (0.003)	-0.008 ^{**} (0.003)	-0.001 (0.006)
Unemployment * Party of Governor	-0.001 (0.001)	-0.001 (0.001)	-0.003 ^{**} (0.001)
Democratic Incumbent	0.047 ^{***} (0.012)	0.048 ^{***} (0.012)	0.007 (0.028)
Republican Incumbent	-0.037 ^{***} (0.011)	-0.025 [*] (0.011)	-0.087 ^{**} (0.027)
<i>N</i>	13240	9392	3479
Clusters	330	323	314
First Stage F-Statistic	9863.6	8039.7	1398.5

Notes: Standard errors are clustered by congressional district.

⁺ $p < .1$, ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$.

The lone theoretical parameter ρ is the effect of relative policy distance. Since there are no parameter constraints, we frame this as a standard (over-identified) IV estimator.

The results are given in Table 6. The effect of perceived policy distance is statistically significant. We also find that the effect of perceived policy distance is greater for low knowledge voters. While this finding may initially seem surprising given findings in the literature (Jessee 2009; Kayser and Peress 2012), an important difference is that here we estimate the effect of perceived policy distance while the literature has typically focused the actual distance between the voter and the candidate. Jessee (2009) and Kayser and Peress (2012) find that high information voters are more responsive to actual policy distance. The finding in the literature is consistent with (i) high knowledge voters caring more about policy distance or (ii) high knowledge voters knowing more about the positions of candidates. Our approach suggests that the later is correct—in

TABLE 7
 Marginal Effects of Changes in House Candidate Positions and Statewide Candidate Positions on the
 Probability of Voting for the House Candidate

Democratic Placements						
	All		High Know.		Low Know.	
	Respondents		Respondents		Respondents	
	Move Left	Move Right	Move Left	Move Right	Move Left	Move Right
Change Perceptions	-0.121	0.267	-0.116	0.256	-0.150	0.331
Change Position	-0.004	0.004	-0.005	0.006	-0.002	0.002
Change Cue	-0.011	0.014	-0.009	0.011	-0.016	0.020
Change Position and Cue	-0.014	0.018	-0.015	0.020	-0.015	0.019
Republican Placements						
	All		High Know.		Low Know.	
	Respondents		Respondents		Respondents	
	<i>Move Left</i>	<i>Move Right</i>	<i>Move Left</i>	<i>Move Right</i>	<i>Move Left</i>	<i>Move Right</i>
Change Perceptions	0.462	-0.317	0.444	-0.304	0.574	-0.393
Change Position	0.006	-0.006	0.007	-0.006	0.003	-0.003
Change Cue	0.003	-0.002	0.002	-0.002	-0.005	0.005
Change Position and Cue	0.020	-0.014	0.020	-0.014	0.019	-0.014

fact, low knowledge voters care more about policy distance, but are less responsive to actual policy distance because they know less about the positions of the candidates.

Table 7 illustrates the magnitude of the effects. Consider an average Democrat or Republican. We first consider the effect of each candidate moving their average perception to the left or right by 0.5 units. 0.5 units represents one quarter of the distance between the average Democratic and Republican candidate. If the average Democrat were to change his perception to be more liberal, his vote share would fall by 12.1 percentage points. If this candidate were to move to the right, his vote share would increase by 26.7 percentage points. The effects for Republican candidates are even larger.⁶ These effects for perceived ideological distance may seem extremely large, but consider the following. An individual who is located below the 20th percentile of the ideology distribution has a 97.4% chance of voting for the Democratic House candidate. An individual who is located above the 80th percentile of the ideology distribution has a 2.5% chance of voting for the Democratic House candidate. This suggests that the effect of perceived policy distance must be very large.

Candidates, of course, cannot directly manipulate voters' perceptions of their positions. We next consider the effect of an average candidate moving their position 0.5 units to the right of left. The effect for Democratic candidates is small—moving left would lead to a 0.4 percentage point loss and moving right would lead to a 0.4 percentage point increase. For Republicans, the effects are slightly larger. We similarly analyze the effect of a left or right shift by the statewide candidates. The effects are 1.1 and 1.4 percentage points for the Democratic candidate and 0.3 and 0.2 percentage points for the Republican candidate. Adding the effects together, they suggest that the difference in vote share between having moderate party and extreme party in the district and at the statewide level is between 3 and 3.5 percentage points.⁷

⁶The asymmetry between the effects for Democratic and Republican candidates is due to the fact that the average voter is closer to the average Democratic candidate than the average Republican candidate and the quadratic distance measure amplifies the effect of large distances.

⁷Again, the lack of symmetry between the parties and the lack of additivity of these effects is due to the quadratic distance measure amplifying the effect of large distances.

5.3. *Robustness and Extensions*

In this section, we consider a number of robustness checks and extensions to the models from Section 5. We first consider an alternative variable that will determine how much information voters have about the positions of the candidates. Voters may have better knowledge of the positions of incumbent candidates because they receive more media coverage and have typically been in the public eye for a longer time than the challenger. The information theory predicts that the position of the candidate will be more predictive of placements for incumbent candidates and that voters will rely more heavily on the cue from statewide candidates for challengers. To test these hypotheses, we break up the analysis from Table 5 by incumbent and challenger. These results are given in Tables 9 and 10 in the online supporting information appendix. We continue to find similar results (though in some cases the standard errors have increased in size due to sub-setting the analysis). We find strong evidence that the effect of actual position on perceptions is larger for incumbents than challengers.

We consider an additional cue that the voters could use for the candidates' positions—voters may rely on old information. We construct a measure of the Democratic and Republican House candidates' positions in the previous election and add this to the specification from Table 5. These results are given in Table 11 in the online supporting information appendix. We find that the cue from the previous election has an effect on candidate placements. We now have stronger support for cuing for Republican candidates (through the form of the cuing seems to be cuing from previous elections rather than statewide office).

5.4. *Interpretation*

Our results suggest that House candidates are held individually accountable for the positions they take to a limited extent. Contrarily, House candidates are held collectively accountable for the positions members of their party take. The mechanism behind this is that acquiring information on House candidates may be relatively difficult for voters, leading voters to rely on their knowledge of the party's other candidates. We found direct evidence that voters cue off of statewide candidates and House candidates who previously ran for the same seat. Extrapolating beyond this, voters may further cue off of the positions of the national parties.

We can compare our results to results that have been reported in the literature. We found that a one standard deviation change in the position of a House candidate leads to a 1 percentage point change in vote share. Work that relies on individual-level data has found very large effect sizes for proximity to House candidates (Hollibaugh, Rothenberg, and Rulison 2013; Shor and Rogowski 2018), with a one-standard deviation change in candidate position leading to as much as a 20 percentage point increase in vote share. Work that relies on aggregate-level data has typically found much smaller effect sizes, with Brandice, Brady, and Cogan (2002) and Erikson and Wright (1964) finding that a similar change in position leads to a 2 to 3 percentage point change in vote share.⁸ Tausanovitch and Warshaw (2018) conducted an individual-level analysis that included proximity, but separately included a control for voter ideology. They found that a one standard deviation change in candidate position led to a 1 to 3 percentage point change in vote share.

Our results can help explain these disparate findings. Just as we found that voters cue off of the positions of House candidates from statewide candidates, voters likely cue off of the positions of national candidates. In analyses that concern a single election, these positions would be common to all individuals in the sample. Let N_D denote the position of the national Democratic party and let N_R denote the position of the national Republican party. Consider a voter with position X . Relative proximity would be given by,

$$(N_R - X)^2 - (N_D - X)^2 = N_R^2 - 2XN_R + X^2 - N_D^2 + 2XN_D - X^2 = N_R^2 - N_D^2 - 2X(N_R - N_D) \quad (20)$$

Including X as a control would be equivalent to including $(N_R - X)^2 - (N_D - X)^2$ as a control because $N_R^2 - N_D^2$ would be absorbed in the constant term. We could therefore interpret the coefficient on X divided by $-2(N_R - N_D)$ as the coefficient on relative proximity to the national parties. This provides an explanation for why Hollibaugh, Rothenberg, and Rulison (2013) and Shor and Rogowski (2018) found very large effects—if the effect of positions of state and national candidates is not accounted for, proximity to House candidates could proxy for omitted variables. It also suggests an interpretation for the disparate finding of Tausanovitch

⁸Hall (2015) reports a seemingly large estimate, though it is hard to compare his result to the literature as he uses a dichotomous measure of position.

and Warshaw (2018)—they avoided the problem by (implicitly) controlling for the effects of national level politicians. Aggregate-level results may to a degree be mis-specified in not accounting for the interaction between candidate position and voter position (as Hollibaugh, Rothenberg, and Rulison argue), but separating positions and ideology in the specification may avoid the potential that a term that seemingly represents the effect of the positions of individual House candidates may proxy for proximity to the party's other candidates. Because of this, we would argue that the smaller effect sizes that we along with Brandice, Brady, and Cogan (2002), Erikson and Wright (1964) and Tausanovitch and Warshaw found more accurately reflects the marginal effect of an individual House candidate changing their position. The larger effect sizes that we found for perceptions and that Hollibaugh, Rothenberg, and Rulison and Shor and Rogowski found for proximity could perhaps be approached in the event of a *sustained* change in a party's candidates across *all levels of office*.

6. Conclusion

In this article, we provided a unified test of competing theories of voter perceptions of candidate positions. In particular, we considered the assimilation and contrast theory, the partisan cheer-leading theory, and the information theory. Our results suggested some support for assimilation and contrast among low knowledge voters, though a pure version of the assimilation and contrast theory (where causality only flows from preferences to placements) is strongly rejected. We found little support for the partisan cheer-leading theory. In addition, our results supported many aspects of the information theory—House candidate placements respond to the position of House candidates and candidates for statewide office and high knowledge voters produce more accurate placements. Nonetheless, perceptions only weakly respond to positions. In finding limited support for the assimilation and contrast theory, however, our results suggest that causality primarily flows from candidate positions to candidate choice rather than the other way around, even if the magnitude of this effect is relatively weak.

Returning to the motivating question of our article—do voter know enough to punish out-of-step congressional candidates—Table 7 proposed a simple estimate of the effect of a candidate's position on their vote share. The difference in expected

vote share between an extreme Democratic candidate (located at -1.5 on the ideology scale) and a moderate Democratic candidate (located at -0.5 on the ideology scale) is 0.8 percentage points. For Republicans, the difference between an extreme candidate (located at 1.5) and a moderate candidate (located at 0.5) is 1.2 percentage points. These must be viewed as small effects and this suggests that out-of-step candidates are held *individually accountable* to a limited extent.

However, our results suggested that voters learn about a candidates' positions from other members of the candidates' party. If we consider the difference between an extreme Democrat running in a state with extreme statewide candidates, and a moderate Democrat running in a state with moderate statewide candidates, the effect is 3.2 percentage points. For Republicans, the analogous effect is 3.4 percentage points. Taking this logic one step further, voters may cue off the positions of the parties' national candidates, leaving room for even larger effects. Studying this directly is beyond the scope of this article because studying cueing off of national candidates would require a data set that spanned many elections. However, just as the results of this article suggest individual accountability in House elections is weak, it suggests that this may be the wrong framework for thinking about accountability in House elections. *Collective accountability* may play a larger role in House elections than individual accountability. Future work should study cueing off of the positions of national candidates and further study collective accountability in House elections.

Acknowledgements. We thank Zac Peskowitz, Matthew Pietryka, and Joseph Uscinski for helpful feedback. We thank participants of seminars at MIT, the Emory Political Economy Conference (Atlanta, 2017), and the Southern Political Science Association conference (New Orleans, 2017).

Data Availability Statement. The data that support the findings of this study are openly available at https://sites.google.com/lal.stonybrook.edu/lmperess/research/cand_place_rep.zip.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Appendix S1: Supplementary Material