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Lost in Space? Information Shortcuts, Spatial Voting, and Local Government Representation

Cheryl Boudreau[1], Christopher S. Elmendorf[1], and Scott A. MacKenzie[1]

Abstract

Voters face difficult choices in local elections, where information about candidates is scarce and party labels often do not distinguish candidates' ideological positions. Can voters choose candidates who represent them ideologically in these contexts? To address this question, we conduct original surveys that ask candidates in the 2011 mayoral election in San Francisco to take positions on local policy issues. We ask voters their positions on these same policy issues on a written exit poll. We use these policy positions to construct comparable measures of candidate and voter ideology (i.e., ideal points). Within the exit poll, we experimentally manipulate cues to examine their effects on voters' candidate preferences. We observe a strong, positive relationship between voter ideology and the ideology of the candidates they choose in the election. However, our experiments show that endorsements from political parties and newspapers with ideological reputations weaken this relationship. These findings challenge the view of local elections as nonideological and demonstrate that spatial voting theory can be usefully applied to local settings. They also indicate that voters may not treat political party and newspaper endorsements as signals of candidates' ideological positions, but rather as nonideological signals of partisan affinity or candidate quality/viability.

Keywords

experiments, ideal point analysis, ideology, local elections, party cues

Citizens in representative democracies take on vital responsibilities, the most important of which is to select public officials who make decisions on their behalf. However, if citizens are unable to identify political candidates who share their policy views, it is unlikely that the policies public officials adopt will reflect citizens' preferences. Previous research raises two concerns in this regard. First, ordinary citizens have little information about politics (Campbell et al. 1960; Delli Carpini and Keeter 1996). Second, the information shortcuts, or cues, that citizens use as substitutes for detailed political information may lead them astray (Boudreau 2013; Dancey and Sheagley 2013; Kuklinski and Quirk 2000).

Such concerns loom large in local elections, where voters select candidates for prominent offices (e.g., mayor) with the power to shape policy outcomes in their community. However, because many local elections are nonpartisan, voters are often deprived of party labels that distinguish candidates' policy positions. Even partisan local elections may make choosing like-minded candidates difficult, as national party labels often fail to signal candidates' local policy views. Further complicating matters are the greater number of candidates who often enter local elections, the relative lack of media coverage of local campaigns (Kam and Zechmeister 2013), and the more complex voting rules (e.g., rank choice voting [RCV]) these elections sometimes use (Burnett and Kogan 2015).

Our study assesses whether voters choose candidates who share their policy views (i.e., vote spatially) in a nonpartisan local election as well as how cues affect their ability to do so. To this end, we conduct original surveys that ask candidates in the 2011 mayoral election in San Francisco to take positions on prominent local policy issues during the campaign. We ask voters to report their positions on these same policy issues, as well as which candidates they voted for, on a written exit poll. We use these policy positions to construct comparable measures of candidate and voter ideology (ideal points) and examine how ideology affects voters' choices. In doing so, we create the first objective measures of candidate and voter ideology in a local election. We also experimentally manipulate two cues that might affect voters' choices in

[1]University of California, Davis, USA

Corresponding Author:
Cheryl Boudreau, Department of Political Science, University of California, Davis, One Shields Avenue, Davis, CA 95616, USA.
Email: clboudreau@ucdavis.edu

local elections—endorsements from political parties and newspapers with local ideological reputations—and examine their effects on voters' propensity to choose ideologically-similar candidates.

By creating objective, comparable measures of candidate and voter ideology in a nonpartisan local election and by embedding experiments, we make three important contributions to previous research. First, previous research typically examines spatial voting in partisan elections at the presidential or congressional level (Jessee 2009, 2010; Joesten and Stone 2014; Shor and Rogowski 2010; Stone and Simas 2010) or in primary elections (Ahler, Citrin, and Lenz 2015; Hirano et al. 2015; Sides and Vavreck 2014). In contrast, we examine whether this prominent theory of voting behavior applies in local elections. Second, similar to studies of primary elections, we examine spatial voting in a context where party labels are not available to guide voters' decisions and where ideology and partisanship are not "sorted" (i.e., the partisanship of candidates/voters is not necessarily predictive of their policy views; see Levendusky 2009). Third, by experimentally manipulating cues, we extend the experimental literature that investigates how cues affect citizens' decisions (Boudreau 2009; Kuklinski et al. 2001; Lupia and McCubbins 1998), but that typically does not examine spatial voting as the outcome of interest (for an exception, see Sniderman and Stiglitz 2012).

Our findings show a strong relationship between voters' ideology and the ideology of the candidates they choose. However, our experiments reveal that political party and newspaper endorsements weaken this relationship. This suggests that such information may not improve voters' ability to identify candidates who share their policy views. Rather, it may prompt voters to choose candidates for nonideological reasons, such as partisan affinity or candidate quality/viability.

These results offer important lessons for scholars and practitioners. For scholars, our findings convey that representation at the local level may be healthier than previous research suggests. In the local context we examine, elites take different positions on important local policy issues, and voters respond to these differences by choosing candidates whose policy views are similar to their own. This relationship between voters' policy views and those of the candidates they choose offers reason to hope that the policies public officials adopt will reflect citizens' preferences. It also indicates that a prominent theory of voting behavior, spatial voting theory, can be usefully applied to local elections. Scholars can adapt the methodological approach that we use here to measure ideological differences among elites in other local settings and assess the effects of these differences on voters' decisions.

For practitioners, our results show how information may affect voters' decisions in local elections. Instead of using political party and newspaper endorsements as signals of candidates' relative ideological positions, voters in our study appear to treat them as nonideological signals. This weakens the link between voters' and candidates' policy views. This is not to say that these or other types of information will always do so or that they cannot have other salutary effects. Rather, future research is needed to identify how different types of information affect the weight that voters give to policy and other considerations in local elections.

Spatial Voting, Cue-Taking, and Local Elections

Two theoretical models of how voters make decisions have guided empirical research on voting behavior. The theory of spatial, or proximity, voting posits that candidates in an election take positions in an ideological space and that voters choose the candidate who is closest to their own ideological position (Black 1948; Downs 1957; Enelow and Hinich 1984). Thus, spatial voting implies a close alignment between voters' policy views and those of the candidates they choose. Alternatively, the Michigan model views partisanship as the "unmoved mover" that shapes voters' political decisions (Campbell et al. 1960). Individuals are socialized into a political party as children or young adults, and this psychological attachment induces voters to choose the candidates their party puts forward, even if these candidates have policy views somewhat at odds with their own.

Distinguishing spatial and partisan voting in real-world elections poses two challenges. One challenge is developing comparable measures of voter and candidate ideology. Although it is easy to ask voters about their policy views or ideological positions on surveys, candidates often take ambiguous positions (Tomz and Van Houweling 2009). A second challenge is the observational equivalence of partisan and spatial voting in presidential and congressional general elections. That is, partisanship and ideology are often strongly "sorted" in that Democratic voters and candidates tend to be liberal and Republican voters and candidates conservative. Thus, voting based on partisan considerations (i.e., choosing a candidate because he or she is a member of a voter's own political party) and voting based on ideological considerations (i.e., choosing a candidate because he or she is more/less liberal and, therefore, similar ideologically) lead to the same observable choice.

Recently, scholars have developed new methods for measuring candidates' and voters' ideological positions on the same scale, which has facilitated empirical tests of spatial voting theory (Adams et al. 2011; Bafumi and

Herron 2010; Jessee 2009, 2010; Joesten and Stone 2014; Shor and Rogowski 2010; Stone and Simas 2010).[1] One method combines candidates' known policy views with surveys that ask voters whether they support those policies. Using scaling techniques developed to study voting in democratic legislatures (Clinton, Jackman, and Rivers 2004; Poole 2005; Poole and Rosenthal 1997), these scholars estimate ideal points for candidates and voters from their views on the same or overlapping sets of policy issues. They observe a strong, positive relationship between voters' own ideological positions and those of the candidates they choose in presidential and congressional elections. Based on this evidence, they conclude that although American voters are biased toward candidates from their own party, they nonetheless behave like spatial voters.

What is less clear is whether citizens vote spatially in local elections. Compared to presidential and congressional general elections, local elections often feature more candidates, smaller ideological differences, less media attention, and/or the absence of party labels that distinguish candidates' policy views. Given these characteristics, it is perhaps not surprising that scholars debate whether voter decision making in local elections more closely resembles the partisan voting described by the Michigan model or the ideological voting predicted by spatial voting theory. On the one hand, some scholars argue that voters' choices in local elections appear to be based on nonideological, team-based considerations such as race/ethnicity, partisanship, and mobilization by machine-like organizations (Banfield and Wilson 1963; Kaufmann 2004; Trounstine 2008). In a similar vein, others suggest that local elections are nonideological because capital and labor mobility prevents cities from engaging in redistribution (Peterson 1981). On the other hand, recent studies challenge the view of local elections as nonideological and suggest that ideology may play an important role. For example, Oliver (2012) and Oliver and Ha (2007) argue that voters tend to choose candidates who agree with them on the issues in local elections. Tausanovitch and Warshaw (2014) and Einstein and Kogan (2015) demonstrate that local governments respond to citizens' policy views, as evidenced by a strong connection between local government policy outputs and citizens' aggregate policy preferences. However, none of these studies objectively measure candidates' and voters' local ideological positions,[2] making it difficult to ascertain whether voters choose candidates whose policy views are similar to their own in local elections.

Local elections are also an important new context in which to examine the Michigan and spatial models of voting behavior. This is because many cities lack strong sorting between partisanship and ideology, often because the overwhelming majority of voters (and candidates) identify with one political party. In such contexts (as is the case in primary elections), the salient local policy conflicts are intra-party conflicts. Moreover, if voters and candidates are sorted into parties on the basis of their national policy preferences, there may be considerable overlap in self-identified Democrats' and Republicans' positions on local policy issues (e.g., land use, education, policing). If voters in an unsorted local context vote based on partisanship, then this should produce a weak relationship between voters' own ideological positions and those of the candidates they choose. This is because partisan, team-based voting should induce partisans to support their party's preferred candidates irrespective of ideological differences between themselves and the candidates. However, if voters choose candidates based on ideology in this context, then the relationship between voters' and candidates' ideological positions should be strong.

Also unclear from existing research is how cues affect citizens' propensity to engage in spatial versus partisan voting. This is because most studies on this topic are observational and, therefore, do not manipulate cues. Although many experimental studies manipulate cues, they typically use criteria other than spatial voting when evaluating voters' decisions (e.g., Boudreau 2009; Kousser et al. 2015; Kuklinski et al. 2001; Lau and Redlawsk 2001). An important exception is Sniderman and Stiglitz (2012), who demonstrate that voters can recognize the policy reputations of the two major parties, but they examine spatial voting in the context of national politics, where partisanship and ideology are sorted.[3]

Our study contributes to existing research on spatial voting, cue-taking, and local elections in three important ways. First, we develop objective, comparable measures of candidates' and voters' ideological positions in a local election. Second, we assess the effects of ideology in a local context where elite ideological divisions exist but where partisanship and ideology are not sorted. Third, we embed experiments to assess how cues (political party and newspaper endorsements) affect spatial voting. In doing so, we are able to test hypotheses about whether and when voters choose candidates who share their policy views in local elections.

Hypotheses

The foregoing discussion suggests a number of predictions about the extent to which voters should vote spatially in local elections and how voters will respond to certain types of information, such as political party and newspaper endorsements. With respect to the extent to which voters should vote spatially in local elections, existing research makes competing predictions. On the one hand, some scholars find little evidence that ideology shapes voters' choices in local elections and, instead,

emphasize nonideological considerations. This suggests that we should observe little, if any, spatial voting. On the other hand, recent studies find that ideology plays an important role in local contexts and that we, therefore, may observe spatial voting at the local level (e.g., Einstein and Kogan 2015; Tausanovitch and Warshaw 2014).

Moreover, research suggesting that local elections are nonideological often examines contexts that lack a necessary condition for spatial voting: the existence of elite ideological divisions. That is, if candidates for local offices do not vary meaningfully in their policy views, there is little reason to expect voters' own policy views to influence their candidate choices. In many local contexts (including America's largest cities), the elite ideological divisions necessary for spatial voting are present (e.g., Erie, Kogan, and MacKenzie 2011; Simpson 2001; Sonenshein 1993). In these contexts, candidates' efforts to appeal to voters based on their policy views reflect the expectation that position taking matters in local elections. If voters perceive and care about these ideological differences, then we may observe spatial voting at the local level.

With respect to how political party endorsements should affect voters' candidate preferences, we test the predictions that existing theories suggest. On the one hand, the Michigan model portrays partisanship as an affective, team-based relationship between voters and their party (Campbell et al. 1960). If this is the case, then political party endorsements should induce a team-based response, increasing partisan voters' support for their party's endorsed candidates, relative to partisan voters who do not receive these endorsements. Importantly, if the endorsements elicit a team-based response, we should observe this favorable response irrespective of partisan voters' local ideological positions. As such, it could weaken the relationship between voters' own ideological positions and those of the candidates they choose.

On the other hand, research suggests that political parties also send ideological signals. Because the Democratic and Republican parties have well-known ideological reputations, they can help voters determine which candidate is to the left/right of the other and vote spatially (Sniderman and Stiglitz 2012).[4] If voters use party endorsements as ideological signals at the local level, and if these endorsements send ideologically "correct" signals (i.e., the Democratic [Republican] Party supports local candidates who are more liberal [conservative] on local issues), then voters who receive these endorsements should be more likely to prefer ideologically-similar candidates, relative to voters who do not receive these endorsements. As such, we should observe a stronger relationship between voters' own ideological positions and those of the candidates they choose.

Similarly, newspaper endorsements can convey whether candidates are liberal or conservative. If one newspaper has a reputation for supporting more liberal local policies/candidates, whereas another typically supports more conservative local policies/candidates, these newspapers' endorsements can signal candidates' local ideological positions.[5] If voters use these endorsements as ideological signals, then the relationship between voters' and candidates' ideological positions should strengthen. Whether these endorsements will increase voters' support for the endorsed candidates (irrespective of voters' local ideological positions) is unclear. Because voters are unlikely to have team-based ties to newspapers, they may not increase their support for the endorsed candidates. However, voters could treat newspaper endorsements as nonideological signals of candidate quality/viability, which may increase their support for the endorsed candidates.

Testing Spatial Voting: The 2011 Mayoral Election in San Francisco

We test our hypotheses in the context of the 2011 mayoral election in San Francisco. We selected this setting for several reasons. First, ideology and partisanship are not sorted in this context. Similar to many large American cities, San Francisco is overwhelmingly Democratic in terms of party registration and voting patterns. As a result, its elections for local offices typically feature candidates who are all Democrats. In the 2011 mayoral election, fifteen of the sixteen official candidates were Democrats. Nonetheless, seasoned observers portray the city's political elite as divided along ideological lines between so-called "progressives" (the local left) and "moderates" (the local right). Recently, progressives have advocated cash grants to the homeless and opposed tax breaks for local businesses, while moderates have taken the opposite positions on these local policies. Such policy-based differences, in the absence of partisan differences, help us to disentangle the effects of partisanship and ideology on voters' decisions.

We also chose this context because it features the elite ideological differences that we suspect are a necessary condition for spatial voting in local elections. Indeed, the mayoral candidates in this election took different positions on important local policies. These different positions reflect the aforementioned ideological division between progressives and moderates. This ideological division explains a large share of the policy positions that the mayoral candidates took, as well as the votes that individual members of the city's legislative body cast in recent years (see the online appendix at http://prq.sagepub.com/supplemental/). Whether these elite ideological differences are apparent to voters and relevant to their choices are empirical questions we examine.

We also chose this election because it provides a difficult test of whether voters actually use elite ideological differences to inform their decisions. First, this election used RCV, which allows voters to rank up to three candidates in order of preference. This voting system makes spatial voting difficult by encouraging many viable candidates to run. Indeed, there were eleven "serious" candidates in this election.[6] RCV also makes spatial voting difficult because it is thought to discourage candidates from taking concrete issue positions (for fear of losing second- and third-place votes). Second, San Francisco is racially and culturally diverse, with three main ethnic groups (whites, Chinese-Americans, and Latinos) and a large lesbian, gay, bisexual, and transgender (LGBT) community. Appropriately, this election included four Chinese American candidates, two Latinos, and one gay man, all with different ideological positions. Insofar as partisan homogeneity coupled with ethnic heterogeneity reduces city politics to a politics of racial spoils, this election should be a case in point.

Finally, San Francisco features a unique convention that enables us to overcome the difficulty of measuring candidates' policy positions. Specifically, political party organizations, newspapers, and interest groups in San Francisco distribute questionnaires to candidates for local offices. It is considered bad form for a candidate not to answer a group's questionnaire, even if the candidate knows he or she has no chance of winning its endorsement. Answers to questionnaires are often made public and scrutinized for inconsistencies. Thus, candidates who refuse to answer or who dissemble do so at their peril. However, these questionnaires often use open-ended questions that allow candidates to obfuscate their views. In this election, we collaborated with two groups, which agreed to ask candidates the yes/no policy questions we developed to measure candidates' local ideological positions.

External Validity: The Broader Relevance of Our Study

Although we examine spatial voting in one election in one city, important similarities between this context and elections in other large American cities suggest the broader relevance of our study. Similar to San Francisco, many of these cities (e.g., Chicago, Seattle, Boston) are overwhelmingly Democratic and liberal when it comes to national politics. These cities also tend to be ethnically/racially heterogeneous. To the extent that partisan homogeneity coupled with ethnic heterogeneity weakens spatial voting, it should do so in these other settings, too. Similar to San Francisco, these other cities feature relatively high income and education levels (see the online appendix). To the extent that high income and education levels make spatial voting more likely in our context, they are likely to do so in these other local settings. Furthermore, elite ideological divisions like those we observe surface in other cities, and many of the issues at stake in this election (e.g., housing, growth, taxes) are issues commonly at stake in other cities. Residents of other cities are also ideological when it comes to local policies (Tausanovitch and Warshaw 2014). Given that residents of other cities also exhibit local ideological preferences, it is important to examine whether ideology actually influences voters' choices in local elections.

To the extent that aspects of our setting are unique, they should stack the deck *against* observing spatial voting. Although San Francisco features the elite ideological divisions necessary for spatial voting, the use of RCV, the large number of candidates with diverse ideological positions, and the absence of party labels should make it more difficult for voters to identify ideologically-similar candidates. Thus, our results may understate the extent of spatial voting in other cities that have elite ideological divisions but that lack one or more of these other features.

Study Design

To determine whether voters choose candidates who share their policy views, we must create comparable measures of candidates' and voters' ideological positions. We follow Jessee (2009, 2010), Shor and Rogowski (2010), and Bafumi and Herron (2010) by estimating ideal points for candidates and voters based on their positions on an overlapping set of policy issues. Unlike these scholars, we must estimate ideal points for many candidates with no record of previous roll call votes and, for less well-known candidates, no media coverage of their views.

To measure candidates' ideological positions, we take advantage of the unique convention in San Francisco politics described above. We developed a set of yes/no policy questions based on divided roll call votes by the Board of Supervisors (the city's legislative body) and other issues in the news. We approached several groups about including our questions on their candidate questionnaires, and two agreed to do so. One is a local club of Democratic voters; the other is the *San Francisco Public Press* (*SF Public Press*), a nonprofit news organization.[7] We estimated candidate ideal points from responses to our survey questions and yes/no policy questions found in other questionnaires in the public domain.

To measure voters' ideological positions on the same scale, we included thirteen of the questions we developed on a written exit poll conducted on Election Day and during early voting on the two previous weekends. The varied responses among both candidates and voters illustrate the different policy views expressed in this election. For

example, Ed Lee and John Avalos, the top two finishers, took opposing positions on nine of these thirteen policy questions. Voters' positions also vary dramatically, with large majorities supporting some policies and bare majorities supporting others (see the online appendix).

To conduct our exit poll, we recruited 117 student pollsters and assigned them to forty-one teams working in randomly chosen precincts across the city. We oversampled majority-minority precincts (Chinese-American and Latino) because of historically low turnout levels among these voters. We randomly assigned morning or afternoon/evening coverage to each precinct. As voters left their polling places, our pollsters asked if they would be willing to complete a survey. Voters could complete the survey in English, Spanish, or Chinese, and pollsters fluent in these languages staffed the majority-minority precincts. Pollsters escorted voters who agreed to take the survey to a nearby table with chairs so that they could take the survey comfortably. In all, 1,593 voters completed our survey, which took approximately ten minutes. These respondents' demographic characteristics resemble San Francisco's voting and general populations in many respects, including partisanship, race/ethnicity, education, and income (see the online appendix).[8]

The survey first asked voters to report their first, second, and third choices for mayor (see the online appendix). It then asked voters our yes/no policy questions, which we chose based on succinctness and utility for distinguishing the candidates' ideological positions. It also included demographic questions and items to measure voters' evaluations of local government performance and local political knowledge.

Experimental Manipulations

To examine how cues affect voters' ability to choose ideologically-similar candidates, we experimentally manipulated endorsements across the surveys. These manipulations were included in a later section of the survey that asked voters to express their preferences for five leading candidates, considered pairwise. That is, we asked voters to make ten one-on-one comparisons between these five candidates. Voters were asked to indicate which candidate in the pair they would prefer to be the mayor, *regardless of whom they had actually voted for*. In this way, we follow Alvarez and Kiewiet (2009) in using voters' pairwise comparisons to measure their sincere preferences. By manipulating cues in an exit poll, we likely understate their effects because we assess their effects *after* voters may have acquired other information. Voters may also be reluctant to reconsider their preferences for candidates for whom they just voted, although our results are similar when we analyze only candidate pairs that do *not* include candidates that voters ranked on their ballots (see the online appendix).

We randomly assigned voters to either the control group or one of two treatment groups. Voters in the control group answered the pairwise comparison questions without any additional information about the candidates. For example, when comparing candidates John Avalos and Ed Lee, voters in the control group were asked, "How about John Avalos or Edwin Lee? Do you prefer Avalos over Lee or Lee over Avalos?"

Voters in our treatment groups received actual endorsements that candidates got in this election.[9] Voters assigned to the "party endorsement" treatment group were told which candidate(s) in each pair the Democratic and/or Republican parties endorsed. In San Francisco, the local Democratic Party has endorsed progressive (i.e., left-of-center) candidates in recent years, while the Republican Party has supported moderate (i.e., right-of-center) candidates. This was also true in the election we study. Furthermore, an original survey of local experts that we conducted shows that experts place the local Democratic Party to the left of the local Republican Party, and the differences are large and statistically significant (see the online appendix). Thus, the party endorsements sent ideologically "correct" signals.[10] For example, when comparing John Avalos and Ed Lee, voters were asked, "How about John Avalos or Edwin Lee? (Avalos is endorsed by the Democratic Party; Lee is supported by the Republican Party.) Do you prefer Avalos over Lee or Lee over Avalos?"

Voters assigned to the "newspaper endorsement" treatment group were told which candidate(s) were endorsed by two prominent local newspapers. These newspapers occupy opposing sides of the local ideological spectrum: the *San Francisco Chronicle* ("moderate") and the *San Francisco Bay Guardian* ("progressive"). Our panel of local experts places the *Chronicle* well to the right of the *Bay Guardian* (see the online appendix). As with the party endorsements, these newspapers' endorsements sent ideologically "correct" signals. When comparing John Avalos and Ed Lee, voters were asked, "How about John Avalos or Edwin Lee? (Avalos is endorsed by the *San Francisco Bay Guardian*.) Do you prefer Avalos over Lee or Lee over Avalos?"[11]

Data Analysis

To estimate candidate and voter ideal points, we use the Bayesian item-response model developed by Clinton, Jackman, and Rivers (2004).[12] The model assumes a quadratic utility function with normally distributed errors. To enhance the precision of our estimates, we combined voters' and candidates' responses to our thirteen policy questions with candidates' responses to fifty-two other yes/no policy questions that we wrote or found in publicly available candidate questionnaires. In bridging candidates'

and voters' responses, we make it more likely that the ideological dimensions described by our ideal point estimates accurately reflect the salient ideological divisions in local politics (Shor and Rogowski 2010).

We first use the estimated ideal points of candidates and voters to examine whether and to what extent spatial voting occurred in the election. Large positive (negative) ideal points indicate candidates and voters with relatively moderate (progressive) local policy views. Our dependent variable in this analysis is the ideological position of each voter's first choice for mayor (i.e., the ideal point of the candidate ranked first).[13] Our main independent variable (*Ideology*) is the voter's ideal point, which we interact with dummy variables that indicate whether a voter is a Democrat, Republican, or Independent. We include these interactions because research on national elections indicates that the effects of ideology may vary across these different groups of voters (Jessee 2009, 2010). We also control for other factors thought to influence voting in local elections—voters' age, gender, income, ethnicity, interest in the election, local political knowledge, and evaluations of local government performance. To the extent that spatial voting occurred, there should be a strong, positive relationship between voters' ideal points and the ideal point of their first choice for mayor.[14]

We also use candidates' and voters' ideal points to test our hypotheses about the effects of political party and newspaper endorsements. In these analyses, we rely on the pairwise comparisons that voters made between the five leading candidates. Thus, our dependent variable is a dummy variable that is coded as 1 for voters who prefer the more progressive candidate in each pair and 0 otherwise. The unit of analysis is, therefore, voter-pair observations.

When analyzing the effects of party endorsements, our main independent variables are dummy variables that reflect participation in the control or party endorsement treatment group. The variable *Party* is coded as 1 for candidate pairs where voters receive party endorsements, and *Control* is coded as 1 for voters in the control group on these same candidate pairs. We omit a constant term because the control group is included as an independent variable. Because the Democratic Party always endorsed the more progressive (left) candidate in the candidate pairs in our analysis, the coefficient for *Party* should be positive for Democratic voters.[15] That is, the party endorsements should increase the probability that Democratic voters prefer the more progressive candidate. We estimate this model separately for Independent voters to examine whether party endorsements influence their candidate preferences.

We also include interactions between each of these dummy variables and a *Spatial Advantage* variable. *Spatial Advantage* measures the extent to which the progressive candidate in each pair is closer to each voter's own ideal point (Shor and Rogowski 2010). For each pair of candidates with ideal points, x_p and x_m, and each voter with ideal point, x_i, this variable is calculated as follows:

$$Spatial\ Advantage = \left|x_m - x_i\right| - \left|x_p - x_i\right|.$$

Thus, positive values of *Spatial Advantage* indicate that the more progressive candidate (with ideal point x_p) is closer to the voter's ideal point than the more moderate candidate (with ideal point x_m). Conversely, negative values of *Spatial Advantage* indicate that the more moderate candidate in the pair is closer to the voter's ideal point than the more progressive candidate. Therefore, if voters in the control group prefer candidates who are closer to them ideologically, the coefficient for the interaction between *Control* and *Spatial Advantage* should be positive and significant.[16] Comparing this coefficient to the coefficient for the interaction between *Party* and *Spatial Advantage* enables us to examine whether party endorsements enhance or reduce voters' propensity to choose candidates who share their policy views.

We estimate a separate model for the newspaper endorsements because voters receive these endorsements on different candidate pairs than they receive party endorsements. In doing so, we ensure that we analyze the same candidate pairs for the control and newspaper endorsement groups. Our main independent variables are the dummy variables *News*, coded as 1 for candidate pairs where voters receive newspaper endorsements, and *Control*, coded as 1 for voters in the control group on these same candidate pairs. As before, we include interactions between each of these dummy variables and *Spatial Advantage* to assess whether newspaper endorsements enhance spatial voting. We also estimate this model separately for Democrats and Independents to examine whether they respond differently to these endorsements.

Results

The ideal points estimated by our item-response model indicate that partisanship and ideology are indeed weakly sorted in this local context. Nonetheless, our analysis of voters' actual choices in this election yields strong evidence of spatial voting. This suggests that voters can perceive elite ideological differences when they exist and base their choices on them. However, our experiments show that political party and newspaper endorsements reduce voters' propensity to choose ideologically-similar candidates. Thus, voters do not appear to use these cues as ideological signals of the candidates' positions. Rather, these cues appear to prompt voters to choose candidates for nonideological reasons, such as partisan affinity or candidate quality/viability.

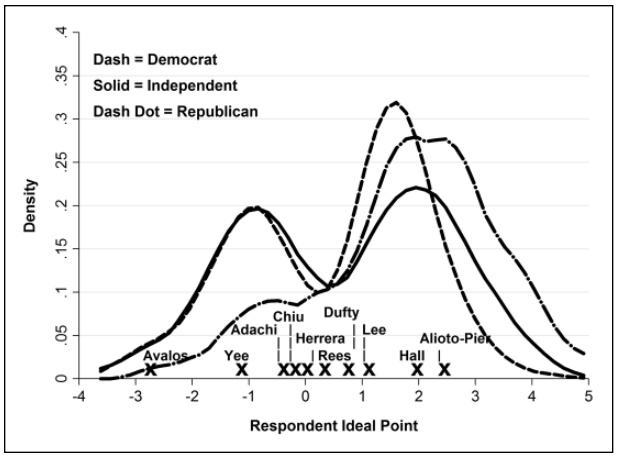

Figure 1. Ideological distribution of voters and candidates.

Spatial Voting in the Election

The distribution of ideal points shows that candidates and voters have real ideological differences that are weakly related to partisanship. Figure 1 plots the ideal points of voters and the ten leading candidates. The candidates' ideal points are dispersed across the local ideological spectrum and comport with the expectations of close observers of San Francisco politics. Candidates (all Democrats) generally described as "moderate" (e.g., Alioto-Pier, Lee) have ideal points to the right of candidates considered "progressive" (e.g., Avalos, Yee). There is also considerable overlap in Democratic, Republican, and Independent voters' ideal points, much more than is common in national elections.

The results of our analysis of voters' actual choices provide strong evidence of spatial voting in the election. The significant coefficients for ideology in Table 1 indicate a positive relationship among Democratic, Independent, and Republican voters' ideal points and the ideal point of their first choice for mayor.[17] Figure 2, which converts the coefficients in Table 1 into first differences, shows that among Democratic voters, a shift from an ideal point of -0.82 to one of 1.90 (a shift from progressive to moderate; the 25th to 75th percentile in our sample) increases the ideal point of their first choice for mayor by 1.18 ($p < .05$). Similarly, among Republican voters, the same shift increases the ideal point of their first choice for mayor by 0.79 ($p < .05$). The effect of the same shift among Independent voters is even larger, 1.40 ($p < .05$). Thus, more moderate voters (regardless of partisanship) choose more moderate candidates, even after controlling for other factors thought to influence voting in local elections.

How Endorsements Affect Spatial Voting

Consistent with our observational analysis, there is a strong relationship between voters' ideological positions and their choices between pairs of leading candidates in our control group. As shown in Table 2, which contains our experimental results, there is a positive and significant relationship between *Spatial Advantage* and control group voters' propensity to choose the more progressive candidate in a pair. Figure 3B, which converts the coefficients in Table 2 into predicted probabilities, shows that when the more progressive candidate in a pair becomes closer to a voter's own ideological position than the more moderate candidate (i.e., *Spatial Advantage* shifts from −2.56 to 0.32; the 25th to 75th percentile), the probability that Democratic voters in the control group prefer the more progressive candidate increases by 0.28 ($p < .05$). The

Table 1. Ideology and Other Determinants of Voters' First Choice for Mayor.

Ideology (Democrat)	0.435* (0.030)
Independent	−0.169 (0.107)
Ideology × Independent	0.516* (0.050)
Republican	0.668* (0.263)
Ideology × Republican	−0.143 (0.111)
High knowledge	0.157 (0.083)
Female	−0.223* (0.082)
Age	0.065 (0.043)
Income	0.061* (0.024)
Chinese	0.341* (0.151)
Latino	−0.515* (0.144)
Interest	−0.062 (0.090)
Local government evaluation	0.162* (0.058)
Constant (Democrat)	−1.488* (0.193)
R^2	.311
N	1,107

Numbers are ordinary least squares coefficients with standard errors in parentheses. The dependent variable is the ideal point of the candidate ranked first.
*$p < .05$ (two-tailed).

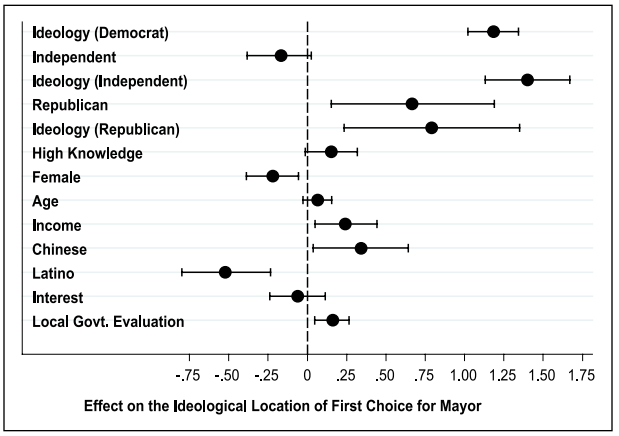

Figure 2. Ideology and other determinants of voters' first choice for mayor.

Table 2. Effect of Endorsements on Voters' Candidate Preferences.

	Democrats	Independents
Party endorsement model		
Control	0.422* (0.075)	0.430* (0.151)
Control × Spatial Advantage	0.256* (0.034)	0.425* (0.080)
Party	0.581* (0.079)	0.404* (0.166)
Party × Spatial Advantage	0.159* (0.034)	0.234* (0.088)
Log likelihood	−1,394.41	−324.27
Clusters	368	93
N	2,211	543
Newspaper endorsement model		
Control	0.314* (0.069)	0.209 (0.127)
Control × Spatial Advantage	0.222* (0.034)	0.418* (0.068)
News	0.355* (0.067)	0.502* (0.123)
News × Spatial Advantage	0.172* (0.032)	0.315* (0.057)
Log likelihood	−2,048.68	−650.39
Clusters	365	131
N	3,060	1,051

Numbers are probit coefficients with clustered standard errors in parentheses. The dependent variable is coded as 1 for voters who prefer the more progressive candidate in a pair and 0 otherwise.
*$p < .05$ (two-tailed).

same shift of *Spatial Advantage* among Independent voters in the control group increases their probability of preferring the more progressive candidate by 0.45 ($p < .05$).

How does the presence of party endorsements affect the link between voters' ideological positions and their candidate preferences? As Figure 3A shows, support for the more progressive candidate increases by 0.11 among Democratic voters, relative to the control group ($p < .05$). Given that the Democratic Party always endorsed the more progressive candidates in our analysis, this finding suggests that many Democrats followed their party's endorsements, as the Michigan model predicts. Figure 3B shows that one consequence of this increased support for endorsed candidates is a significant reduction in the effect of ideological considerations. Shifting *Spatial Advantage* from −2.56 to 0.32 (i.e., the more progressive candidate in a pair becomes relatively closer to a voter's own ideological position) results in a 0.16 increase in Democratic voters' probability of preferring the more progressive candidate. Although this is still a significant effect of ideological considerations, it is significantly smaller than the effect we observe among Democrats in the control group (0.28).

Party endorsements also weaken the relationship between Independent voters' ideological positions and their candidate preferences. As shown in Figure 3B, shifting *Spatial Advantage* from −2.56 to 0.32 increases the probability that Independent voters prefer the more progressive candidate by 0.25. This effect of *Spatial Advantage*, although large, is significantly smaller than in the control group (0.45).[18] Together, these results suggest that party endorsements influence Democrats' and Independents' preferences, but neither group of voters appears to use this information as an ideological signal for identifying candidates who share their policy views.

Contrary to expectations, voters also do not appear to use newspaper endorsements as ideological signals. As Figures 3C and 3D illustrate, Democrats in the newspaper endorsement treatment group are no more likely to prefer the more progressive candidate than Democrats in the control group, and the effects of *Spatial Advantage* are nearly indistinguishable across groups. In contrast, newspaper endorsements have powerful effects on Independents. As Figure 3C shows, the probability of supporting the more progressive candidate increases by 0.14 among Independents who receive the newspaper endorsements, relative to the control group ($p < .05$). Given that the more progressive candidate always received an endorsement in the candidate pairs in our analysis, this indicates that many Independents followed the newspapers' endorsements.

As with the party endorsements, one consequence of the increased support for endorsed candidates is a reduction in the effects of ideological considerations. Figure 3D shows that shifting *Spatial Advantage* from -1.96 to 0.32 (i.e., the more progressive candidate in a pair becomes relatively closer to a voter's own ideological position) results in a 0.36 increase in the probability of supporting the more progressive candidate among Independent voters in the control group. The same shift results in a 0.27 increase in the probability of supporting the more progressive candidate among Independents in

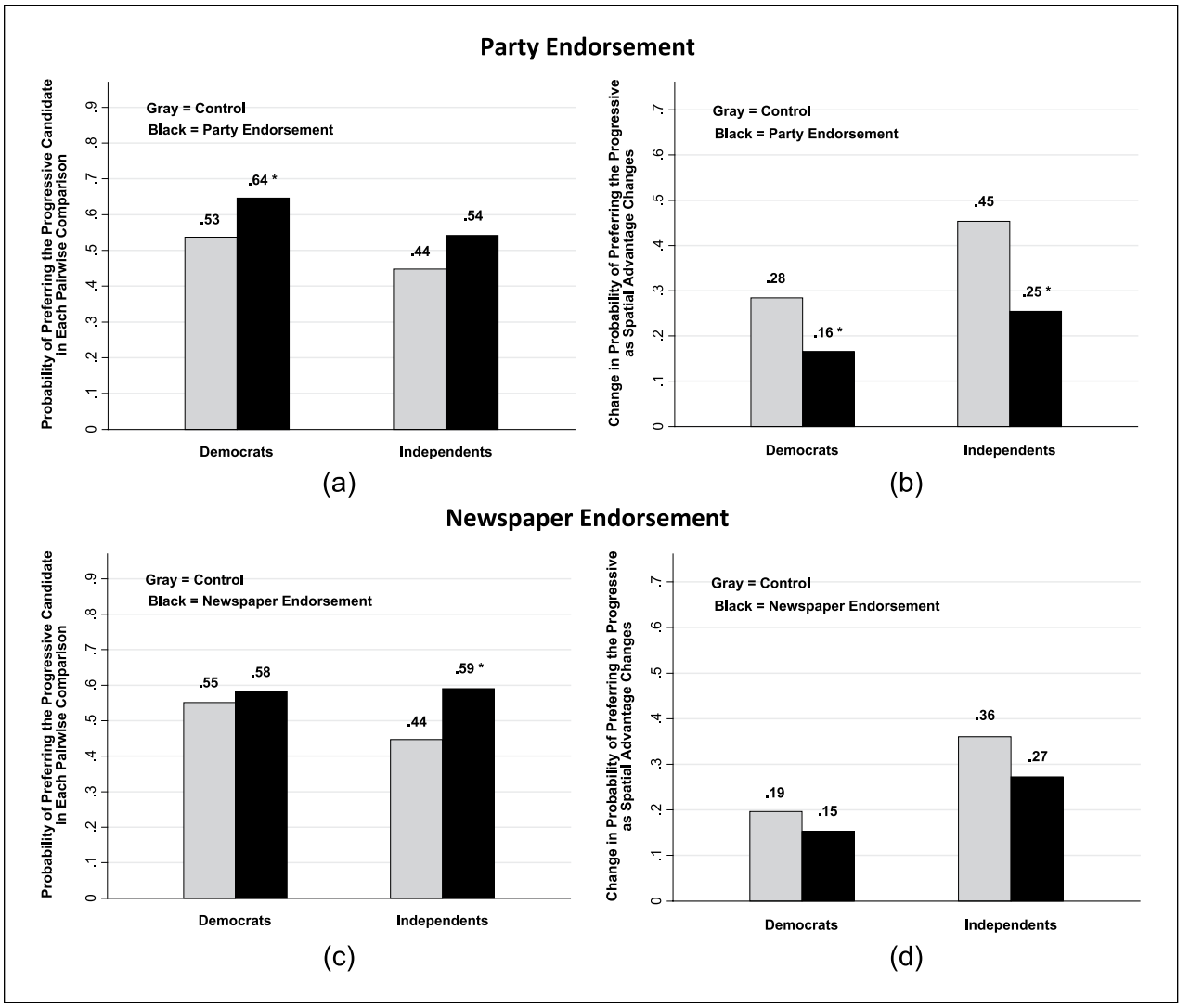

Figure 3. Effect of endorsements on voters' candidate preferences.

Bars in graphs (A) and (C) indicate predicted probabilities of preferring the more progressive candidate. Bars in graphs (B) and (D) indicate changes (first differences) in the probability of preferring the more progressive candidate as *Spatial Advantage* shifts from the 25th to 75th percentile within the control and treatment groups (i.e., the more progressive candidate becomes closer to a voter's ideal point than the more moderate candidate). Results generated from the models in Table 2.
*Difference with control is significant ($p < .05$).

the newspaper endorsement treatment group. This weaker relationship suggests that Independents may treat newspaper endorsements as signals of candidate quality or viability, rather than candidates' ideological positions.[19]

Conclusion

Our study provides strong evidence of spatial voting in a mayoral election that features elite ideological differences. Indeed, we observe a strong relationship between voters' ideology and the ideology of the candidates they choose, both in voters' actual choices in the election and in their preferences between the leading candidates. This indicates that the spatial theory of voting used to explain voters' choices in national elections can be applied to the local level.

Our experimental results show how the presence of political party and newspaper endorsements affect voters' decisions. Instead of using these endorsements as signals of the candidates' relative ideological positions, voters appear to treat them as nonideological signals of partisan affinity or candidate quality/viability. Indeed, both cues increase support for endorsed candidates while weakening the relationship between voters' and candidates' policy views. To the extent that strengthening the relationship between voters' and candidates' policy views is considered desirable, our results indicate

that political party and newspaper endorsements may not achieve this end.

To our knowledge, this study provides the first objective evidence of spatial voting in a local election, as well as how endorsements affect this outcome. Although our results were recorded in a single election in one city, similarities between our setting and other large American cities suggest their broader relevance. Similar to San Francisco, many large cities are overwhelmingly Democratic and liberal, and also tend to be ethnically/racially heterogeneous. Many of the same issues that divide elites in San Francisco spark sharp debates among local officials elsewhere. Many cities also have income and education levels that resemble those in San Francisco. To the extent that these factors make spatial voting more or less likely in our context, they are likely to do so in these other local settings. To the extent that aspects of our setting are unique (e.g., RCV), they stack the deck *against* observing spatial voting. Thus, our results may understate the extent of spatial voting in more conventional local elections. Although we believe that our findings generalize to similar cities and electoral contexts, they do not establish that all local elections in all cities exhibit the same level of spatial voting. They also do not address whether spatial voting occurs in smaller cities and towns, though we suspect that when these contexts feature elite ideological differences, spatial voting will occur. Future studies can further our understanding of what factors condition spatial voting in local elections elsewhere.

Our results have methodological and normative implications. Methodologically, they show the benefits of experimentally manipulating cues in a written exit poll. In doing so, we measure the effects of endorsements that party organizations and newspapers actually attempted to disseminate on citizens who actually turned out to vote. We also measure the effects of these cues after voters may have acquired other information—a difficult, but realistic assessment of cue effects. In addition, by conducting an experiment during an actual election with real candidates, voters, and policy issues, we are able to examine the effects of cues on spatial voting—an outcome that experimental studies rarely consider.

Normatively, our results indicate that representation at the local level may be healthier than previous research has suggested. That voters in our study tend to choose ideologically-similar candidates suggests that they can and do recognize when elites take different positions on local policy issues and use this information to inform their decisions. That the relationship between voters' and candidates' policy views weakens in the presence of certain cues also need not be cause for alarm. Although there ought to be a relationship between voters' and candidates' policy views, it is neither unexpected nor "undemocratic" for other factors to compete with policy-based considerations. To that point, the cues we examine did not completely eliminate this relationship. However, if practitioners wish to facilitate spatial voting, our results indicate that the solution many reformers advocate—providing voters with information such as endorsements—may be insufficient. This is not to say that these cues or others will never facilitate spatial voting. Perhaps providing voters with information that better emphasizes candidates' views on local issues, such as a policy scorecard, would strengthen the link between voters' and candidates' ideological positions (see Boudreau, Elmendorf, and MacKenzie 2015). Suffice it to say, there is a relationship between information and spatial voting, but what types of information facilitate spatial voting, for what types of voters, and in what contexts remain unsettled questions.

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Notes

1. Similar to these scholars, we conceive of ideology as the extent to which voters and candidates take consistent positions across multiple policy issues (Converse 1964).
2. Oliver (2012) and Oliver and Ha (2007) use self-report measures that ask voters whether they chose candidates who they thought agreed with them on the issues.
3. Tomz and Van Houweling (2008) test competing theories of voting behavior, not how different cues affect voters' propensity to vote spatially.
4. In the online appendix, we show that the Democratic and Republican parties have distinct local ideological reputations at the elite level.
5. In the online appendix, we show that the local newspapers we examine have distinct local ideological reputations at the elite level.
6. All eleven were current or former elected officials. Nine accepted more than $290,000 each in public financing. A tenth, Ed Lee, did not apply for public financing, but pro-Lee groups outspent all other candidates.

7. Candidates were told that answers to the *SF Public Press* questionnaire would be used as the basis for questioning at a mayoral debate and publicized through an online "issues guide." The guide went live one day before Election Day and was visited by 414 viewers by Election Day. We suspect that it was read by few, if any, of our respondents.
8. Turnout was high (42.5%) for an off-year election with no state or federal offices on the ballot. Thus, our context is not one where only a tiny subset of wealthy, politically informed citizens voted.
9. This enhances external validity and avoids deception. A potential concern is "pretreatment" from the real-world campaign (Gaines, Kuklinski, and Quirk 2007). If anything, this should make it more difficult to observe treatment effects.
10. One consequence of providing real endorsements is that there are a couple of pairs where the party or newspaper endorsements sent incorrect signals about the candidates' relative ideological locations. Because these pairs with incorrect signals provide insufficient variation for statistical analysis, we do not make predictions about or analyze them here.
11. One consequence of providing real endorsements is that both candidates in some pairs receive endorsements, whereas only one candidate is endorsed in other pairs. We combine pairs where either both candidates or only one candidate receives an endorsement within treatment groups because analyzing them separately produced similar results.
12. We used the IDEAL program (Clinton, Jackman, and Rivers 2004) to analyze candidate and voter responses to sixty-five policy questions. We estimated a one-dimensional model with uninformative priors for all model parameters with two hundred thousand iterations after discarding the first ten thousand and thinning by one hundred. Ideal point estimates were then post-processed, fixing Leland Yee at −1 and Ed Lee at 1 in the issue space. The first dimension correctly classifies approximately 73.7 percent of candidate and voter responses and corresponds to the progressive-moderate divide in San Francisco. Adding a second dimension results in only mild improvement (78.2% correctly classified). These numbers are comparable with what scholars observe at the national level (Jessee 2009). As the first dimension explains most of the variance, we use candidates' and voters' ideal points along the first dimension in our models.
13. We also used two other dependent variables: (1) a variable coded as 1 for voters whose first choice was a moderate and (2) a variable coded as 1 for voters whose first choice was Ed Lee, the incumbent. Our results are similar using these outcomes (see the online appendix).
14. We also estimate this model separately for voters with high versus low levels of local political knowledge and do not observe large differences (see the online appendix).
15. Republicans are excluded because there are not enough in each group to analyze separately.
16. Because we include *Control* as an independent variable (and omit a constant term), we interact *Spatial Advantage* with *Control* (and omit a main effect for *Spatial Advantage*). Thus, the coefficient for the interaction between *Control* and *Spatial Advantage* measures the baseline effect of ideological considerations.
17. An alternative interpretation is that voters first choose a candidate to support on nonideological grounds and then change their own positions to match those of that candidate (Lenz 2012). As we discuss in the online appendix, we find little evidence for this interpretation.
18. These effects of party endorsements on Independents could be due to many Independents leaning Democratic or to Independents treating the Democratic Party's endorsement as a signal of candidate quality/viability.
19. Another explanation for these reductions in spatial voting is that voters attempt to use the endorsements as ideological signals, but do so incorrectly. We find little evidence for this interpretation (see the online appendix).

Supplemental Material

Replication materials for this manuscript can be viewed at http://polisci.ucdavis.edu/people/samacken.

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