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**The Impact of GOTV Depends Upon Campaign Context:
A Field Experiment in the 2014 California Primary**

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Abstract

Millions of California voters regularly turn out in November but abstain from primary elections. A randomized Get Out the Vote experiment conducted in the state's 2014 primary contest shows that this dormant electorate can be mobilized if campaigns target these unlikely voters. Here, we extend these findings to examine whether the electoral context of the district shapes the effectiveness of a primary mobilization effort. To do so, we develop two conceptualizations of campaign context. The first is based on a district's typical level of competitiveness. The second looks at total spending levels in the current campaign. Theories of voter information processing predict differential responsiveness by voters to mobilization efforts in these different contexts. To test these predictions, we analyze a field experiment that sends direct mail to 149,596 registered low-propensity California voters. Consistent with theory, we find that voter mobilization mailings have different effects in these two distinct contexts. Although mobilization efforts always increase turnout, in districts that are typically competitive we find that mobilization efforts are more effective. In contrast, in districts that saw large amounts of spending in the 2014 race, the same treatments are less effective. This suggests that a campaign looking for the largest marginal return should target races that have been competitive in prior races but that are receiving little attention in the present contest.

Introduction

Turnout in California's primary elections are much lower than in general elections. This is surprising because the nominating contests held during primaries determine the candidates who contest the general, making this selection stage very important for who is ultimately elected. Especially in districts with heavy registration advantages for one of the two parties, voters in a primary election can near determine who represents the district. Why more voters do not turn out in the primary election despite their importance remains an important academic and policy question.

Recent changes in the structure of California's primary elections afford a unique opportunity to evaluate how voters make the decision to turn out in nominating contests. Proposition 14 created a single primary election open to all voters without regard for party identification. Under this system, the top two vote getters—regardless of their party—advance to the general election. Proposition 14 may have increased the options for primary voters, but it also increased the information costs to voters who needed to understand the system and the larger set of candidates for whom they could vote. During the 2014 top two primary, we fielded a large randomized ex-

periment to induce variation in voters' information environments. We sent 149,596 letters that contained information about the top-two reform along with a more general mobilization message.

Overall, across all contexts, our mailers increased turnout by 0.5 percent, from 9.3 to 9.8 percent, a proportional increase among low-propensity voters that is on par with the changes in mobilization among voters who are typically targeted by campaigns (Green, Aronow, and McGrath 2013). We describe this experiment in greater detail in Hill and Kousser (2016). In this essay, we extend the analysis to ask whether voter contact was differentially effective depending on district context. We find that our mailers were more effective at mobilizing voters in congressional districts where elections are frequently close. In these districts, a single piece of voter contact increased the turnout of previous primary nonvoters by 0.65 points. In districts where campaigns spent large amounts of money in the 2014 campaign, by contrast, we find that our mailers were relatively less effective at mobilizing voters. In high-spending contests, while there is a positive effect of receiving a single piece of voter contact, the effect is only 0.34 percent, less than half the boost observed in the districts where GOTV was most effective. These differences are well explained by a simple theory of voter information processing. Those voters who live in districts that are frequently competitive develop the infrastructure to readily receive voter contact (Zaller and Feldman 1992). However, there is a limit to how much information voters can process (e.g., Simon 1955), and so there are decreasing marginal returns to the amount of contact sent to voters.

Top-Two Primary System

In 2010, California citizens approved Proposition 14, the *Top Two Primaries Act*, by an eight-point margin. The proposition, referred to voters by large margins in both the state Assembly (54–20 in favor) and state Senate (27–12 in favor), eliminated separate partisan primary elections in favor of a primary election open to all candidates and voters. This meant that the top-two vote getters for each office in each district, regardless of party, would advance to the general election.

Proponents of the rule change argued that moving to a top-two primary system enhanced opportunities for individuals frequently left out of the political process to voice their preferences. Because most California districts are dominated by a single party, many voters were left with effectively no choice in the general election. Under the top-two primary, two candidates from the same party might vie for votes in the general election, giving voters in safe districts a more competitive choice. The expectation was that this might create opportunities for more moderate candidates to survive the primary. Opponents of the proposition, including former Green Party presidential candidate Ralph Nader, argued that instituting the top-two system would effectively preclude viable third-party candidates from participating in the general election.

Although it was devised and presented to voters as a law change that would moderate the increasing partisan divide in the electoral system, research published in this journal suggested that Proposition 14 provided the opportunity for voters to cast ballots for moderate candidates, but that this opportunity came with increasing information costs. These increased costs, coupled with campaign organizations that were unprepared to convey the ideological information that would be necessary for voters to cast discriminating votes, meant not only that the moderating effects of the top-two system were less pronounced than proponents had hoped, but also that increased costs may have lowered rates of participation (Kousser 2015).

The surprisingly low turnout in the 2012 primary election cycle has not appreciably improved since. Turnout in the June 2014 primary was even lower than in 2012. Only 25.2 percent of registered voters turned out to the primary in June 2014, the lowest ever primary turnout rate

in California (Kousser 2015). This was followed in the 2014 November general election with the lowest general election numbers on record: just 42.2 percent of registered voters turned out to cast ballots. Turnout in the 2016 primary election was up strongly: 49 percent of registered voters participated (Noon 2016), but this result is still lower than the 58 percent turnout in the 2008 primary election before the adoption of Proposition 14. If, in effect, California voters were undergoing “an enormous democratic experiment, radically altering” the primary landscape (p. 1, B. Sinclair 2015), then the results of the experiment have had a remarkably subdued effect on participation levels.

Preliminary research suggests that the top-two primary system was likely successful at presenting voters with more moderate candidates (Sinclair 2015), but at some cost (Sinclair and Wray 2015). In particular, at the time of the implementation of the new system, voters needed to invest more effort into gathering information about candidates. Campaigns, the organization most capable of providing this information at low costs, were poorly adapted to make this type of information available, and as a result, voters who were the most able to benefit from the newly implemented system were instead more likely to sit out the election altogether (Nagler 2015).

Information Processing and Voting

Why haven’t candidates and campaigns tried to reach out to a wider range of voters who may have shaped outcomes under the top-two system? To answer this question, we start by detailing the traditional way campaigns have contacted voters. In order to use their limited resources efficiently, campaigns have developed data-driven means of assessing the likelihood that any particular voter goes to the ballot booth on a given election day. In some cases this voter targeting is relatively sophisticated (e.g., Organizing for America in 2012 Obama re-election), but in most cases, when campaigns do not have access to specific polling data for an individual, voter screens are little more than filtering individual records based on past voting history available from the state voter roll. As Hill and Kousser (2016) report:

In a telephone interview [. . .] in June 2014, one candidate for Secretary of State explained that his mailers “were not going to people who don’t vote in primaries.”

This is typical of campaigns, which often target relatively high propensity voters, with left-over voter contact spending trickling down to increasingly lower-propensity voters. Targeting contact to high-propensity voters leads voters who have not previously turned out in past contests to be *doubly* unlikely to vote. First, because the voter screens are, in fact, predictive, those who have not turned out in the past are unlikely to vote in the future. Second, because previous non-voters do not receive campaign contact, there is no mobilization to move them out of this stasis.

Despite this belief held by some campaign operatives, recent research by Hill and Kousser (2016) finds that a single piece of voter contact sent to very low-propensity voters increases propensity of turnout by about five percent over baseline, remarkably similar to the average effect in a meta-analysis of single-contact, direct-mail voter turnout experiments (Green, Aronow, and McGrath 2013). This finding highlights the importance of the marginal returns to voter contact. If the marginal returns to voter contact are similar for all voters, no matter their past voting history, then campaigns might do well to contact more registrants.

Two Types of District Context

Voters reside in electoral districts with different information contexts, both over the long term and in the run-up to a specific election. To develop hypotheses about how the impact of a mobilization message should vary with district context, we first define the two aspects of district context that we measure. We then theorize about how this context shapes the political information voters possess, how this information makes voters more or less receptive to mobilization efforts, and then present our measures of each.

Structural Competitiveness

Structural competitiveness measures the long-term competitiveness of an electoral (e.g., congressional) district. Simply stated, some districts are frequently “in play.” Although it may be the case that one party maintains control of the seat for several elections, in structurally competitive districts there is at least the possibility that the district could change representatives or change parties. Any of a large number of considerations might lead to structurally competitive districts: salient demographic fissures within a district, economic or industry considerations, or simply partisan balance.

When a voter lives in a structurally competitive district, the voter has experienced previous election cycles that have been competitive and therefore may reason that future election cycles are also likely to be competitive. In this setting, voters (and elites) develop heuristics to readily incorporate new campaign contact (Chen and Chaiken 1999; Chong and Druckman 2007; Hill et al. 2013; Hafner-Burton, Hughes, and Victor 2013). Not only are voters in these districts often exposed to political information in election cycles, but they are also likely to experience political discussion even in off-election years (Walsh 2004). In this way, voters in these kinds of districts might experience a political season that is analogous to sports fans in a competitive sports market: even when politics are not being actively contested, they feature prominently in daily life. The combination of exposure to political discussion and the high likelihood of future exposure gives citizens—even those who are unlikely to vote—the motivation to develop heuristics to incorporate mobilization signals.

Current Campaign Spending

Current campaign spending delivers television, radio, and direct mail advertisements from the campaigns themselves, but it also brings a general level of discussion and excitement throughout the district. High-spending contests see a large amount of interest, not only from local actors, but also state and national actors. In these races, even those citizens who are not likely to vote are exposed to convergent signals that politics is important in that cycle. They are likely to hear from others on the street that “the race is hot,” or to be exposed to higher than normal political advertising. In these high-spending districts, in the weeks leading up to election day, a considerable proportion of the news cycle is likely to cover political news. Whether or not talk in the political “off-season” concerns politics, around election time it certainly does. Thus, even voters who have not developed a structure for incorporating mobilization signals are likely to receive so many signals that they may be convinced to turn out to vote.

Structural competitiveness and current spending are often correlated. Campaigns choose to spend in districts that have a history of being competitive, and districts that have a history of being competitive are often actively contested. However, when the two concepts do not converge,

the breakdown may allow for campaigns to realize especially effective mobilization efforts. Voters who live in structurally competitive, but low-spending districts are likely to have developed heuristic methods to more effectively incorporate political signals. Because they have not received any such signals in the current campaign, a single campaign mailer may yield a uniquely strong response. In contrast, consider voters who live in structurally uncompetitive, but high-spending districts. These voters are receiving many contacts by campaigns, but because they have not previously experienced close political races, are unlikely to have a clear sense for how to incorporate this deluge information. In such districts, a single mailing is likely to affect less change in who participates.

Measuring Structural Competitiveness

Structurally competitive districts are those districts where residents of the district expect some possibility of turnover in who holds the seat, even before the campaign. In electoral competitions with only two candidates, a competitive race might well be described by Mayhew's 40-60 percent *marginal* range (Mayhew 1974). In standard, two-party dominated primary systems, many studies use the approach of using only the leading candidate's percentage to determine competitiveness (Hirano et al. 2010). Indeed, in general elections, where institutional considerations provide a strong push toward two-party races, this conceptualization works quite well.

Less clear, however, is how to conceptualize a competitive race with more than two candidates. Many primary elections present a large slate of candidates, particularly top-two primaries such as in California. In the 2014 California primary race, 45 percent of congressional districts presented voters with two or three candidates. Fifty-five percent of districts presented voters with more than three candidates, and the modal number of candidates on the primary ballot was four. Does the mere presence of a large number of candidates, regardless of each polling share, indicate a competitive race? We argue no.

For example, in a four-candidate race, there may be one clear front-runner and three also-rans. In this election, no voter in the district feels as though there are consequences to the election. Indeed, of the 14 districts with four candidates on the ballot, in only four was the margin between the first and second place finisher fewer than 20 points. Should, instead, a multicandidate election require that the top vote-getter poll in the Mayhew marginal range? Again, we think not, because a very competitive four-candidate race might have each candidate polling at 25 percent. In the 2014 primary, the sole Democratic contender in District 52, Scott Peters, received just 42 percent of the vote; the top two Republican contenders received a combined 53 percent of the vote. Despite this being a highly competitive race, an off-the-shelf operationalization of competitiveness would not classify it as such.

We classify as structurally competitive any district that meets one of the two following sufficient conditions in the election directly preceding the focal election (2012 in our case):

1. Sliding Mayhew: The difference between the first and second place finishers is within 10 percentage points of each other;
2. Two-or-More Mayhew: The difference between the second and third place finishers is within 10 percentage points of each other, and the third place finisher receives at least 20 percent of the cast votes.

Under these criteria, the 2014 California primary election featured 14 of 53 Congressional Districts classified as structurally competitive. A full listing of these districts is presented in the Supplemental Information in Table S8. The third-place finisher in the *Two-or-More Mayhew* operationalization excludes districts where there was no effective opposition. For example, California's 23rd district in the 2012 election where less than one percentage point separated the second and third place finisher in this race, but the first place finisher was 98 percentage points ahead of the second place vote candidate.

Measuring Current Campaign Spending

While structural competitiveness may be useful to predict where campaigns will deploy resources before a race begins, for analysis of voter choice in the campaign as realized it is also important to measure whether a race actually does produce a large amount of campaign activity. To capture the latter concept, we gather data on total expenditures in a district during the 2014 primary. We measure spending using Federal Election Commission (FEC) records. These records, which are reported at the candidate level, are reports of disbursements spent by a candidate or on behalf of a candidate. We combine spending for all candidates in each congressional district, providing a single amount of spending at the congressional district level. To capture only spending that occurs in the primary campaign, we begin counting spending on October 10, 2013. We end the window for spending two weeks after the primary election, as federal reporting requirements require that all disbursements be filed with the FEC within two weeks of spending the monies. We present the distribution of this campaign spending in Figure 1, and note that the distribution of spending is highly skewed by a small number of districts spending a large amount in the primary. The highest spending district spent more than 22 times the amount of the median district, and 122 times the lowest spending district.

Examples of District Context

Structural Competitiveness

In Figure S1 we compare our categorization of congressional districts according to structural competitiveness and current spending. In the first panel, we highlight that our measurement of structural competitiveness is relatively stringent; only about 25 percent of districts are labeled as competitive, while 75 percent are labeled uncompetitive. Competitive districts include California's 52nd district, currently held by Scott Peters (D). The district, which stretches from the coast inland, is comprised of a mix of military on Coronado island, surfers in Pacific Beach, and middle-class homes in Sorrento Valley and Mira Mesa; until 2010 the district had predominantly voted for Republican candidates. In 2012, after redistricting, Peters won a very close race against incumbent Republican Brian Bilbray, earning 51 percent of the vote compared to Bilbray's 49 percent. In contrast, California's 12th district in San Francisco has voted consistently Democratic since the early 1990s. In the 2012 presidential election, voters in the 12th cast 84 percent of their ballots for Obama. By any measure, including our structural competitive measure, this is a highly uncompetitive district.

A competitive race need not include only major-party competition. Because the top-two primary allows for a general election between two members of the same party, a race without a clear front runner, even if dominated by a single party, may be competitive. As an example, consider, Congressional District 31 in the 2012 election. In this highly competitive race, two Repub-

licans and four Democrats split the primary vote despite no candidate receiving more than 30 percent of the primary ballots.

Current Campaign Spending

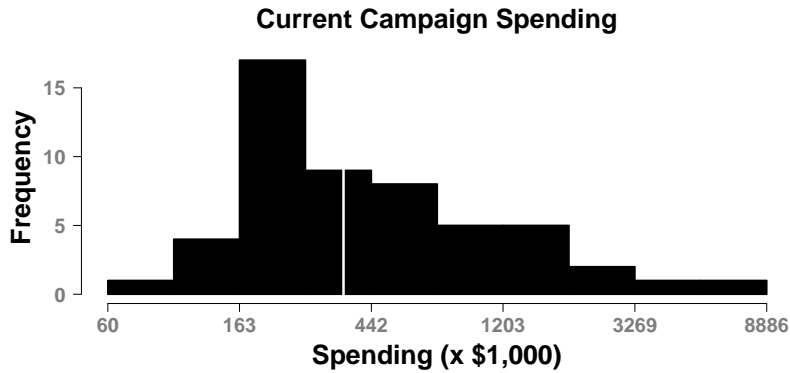
Our second measure of district context emphasizes the comparative amount of information that voters have about the race in their district. One can reasonably expect voters in high-spending districts, having been exposed to possibly dozens of mailers, television and radio commercials, newspaper and social media campaigns, to be much more aware of a congressional race and its importance than voters in low-spending districts. Consider, for example, California's 33rd Congressional District, which covers Los Angeles's Westside. The district has a substantial Democratic registration advantage, but Henry Waxman's retirement in early 2014 led to a very expensive, competitive primary to replace him between Ted Lieu and Elan Carr. Despite the history of uncompetitive races—before Waxman's eight-point margin over independent candidate Bill Bloomfield in the 2012 race, the next closest race in the past 20 years was a 63 percent margin in the 1994 election—the Democratic primary was hotly contested and was the highest spending primary race in the 2014 election. In the Appendix, we present evidence of the convergent validity of this measure.

Predictions from District Context

In Table 1 we present a concise treatment of both possible circumstances that would lead a district to be of a particular type, as well predictions about the effect of voter contact in these areas. Theories of voter information processing suggest what type of response we should expect from voter contact. In districts where voters are often exposed to political information, these voters are likely to develop methods of incorporating information about the election (Chen and Chaiken 1999). Thus, in these structurally competitive districts, voters are prepared to receive mobilization cues, and the cues should be most effective. Balancing this prediction, however, is our understanding of voter satisficing and limited information incorporation (e.g., Simon 1955). Voters who receive a large amount of contact—voters who live in high-spending districts—are unlikely to evaluate every new piece of information they receive as though it is their first; after voters have been mobilized by a particular piece of information, an additional piece of information is unlikely to have as strong an effect.

These theories also make clear predictions in some combinations of structural competitiveness and spending levels. In districts that are structurally uncompetitive—where voters are unlikely to have developed useful heuristics—but that are experiencing a high amount of spending, these two theories predict the smallest marginal effect of a piece of voting information. In contrast, in competitive districts that have not received much campaign spending, theory predicts that voters should be readily able to incorporate mobilization information, but may not have been mobilized. Consider, for example, the 16th Congressional District in Fresno. Though very little money was spent and neither national party invested heavily, the result turned out to be a photo finish—exactly as the five-point registration spread might have suggested. We hypothesize that these voters—who expect to be in a competitive seat but find themselves bereft of attention—might be most susceptible to an informational campaign.

Figure 1. Spending in Each Congressional District



Notes: The horizontal axis is scaled in log-dollars but denoted in un-logged dollars. The vertical axis counts the number of districts at a given spending level. The white vertical line splits spending at the median figure of about \$350,000.

Methods

To assess how changing district context shapes low-propensity voters’ response to GOTV voter mailings, we utilize a block-randomized, placebo-controlled experiment where we send voter encouragement direct-mail to 149,596 registered, low-propensity California voters. As Hill and Kousser (2016) report, this voter contact increased the turnout rate for the recipients by half of a percentage point. In this section, we describe the sampling frame, mailer content, and assignment process before presenting empirical results in the following section.

Sampling Frame

The target frame in this experiment was registered voters who vote in presidential contests but had not recently participated in any primary election. In April 2014, the California registered voter file contained 17.65 million records. Because our measurement depends on individuals having a California voter registration and receiving a piece of mail, we target voters with valid mailing addresses who voted in the 2012 presidential election between Barak Obama and Mitt Romney, but who have no record of participating in the statewide primary elections of 2008, 2010, or 2012. This decreases the set of potentially assigned individuals from 17.65 million to 4.16 million. We removed 283,718 registrants who matched a vendor list of incarcerations or non-serviceable or recently changed addresses. In total, of the 17.65 million registered California voters, this criteria permit 3.87 million into our sampling frame for possible assignment to receive treatment.

Table 1. Relationship between Structural Competitiveness and Current Campaign Spending.

		Realized Competitive (Current Campaign Spending)	
		Low	High
Structurally Competitive	No	Voters know they live in a safe district, received information confirms this understanding. Average marginal impact of additional information	Voter information saturation. Low marginal impact of information.
	Yes	Voters prepared to receive information, but do not receive it. Information seeking. High marginal impact of marginal information	Saturation of information market. Average impact of marginal information.

Notes: Each cell reports voters’ likely response to the competitiveness context.

Mailers

We assign 149,596 registered voters within this population to receive a voting encouragement mailer with the remaining 3.72 million as a control. Those assigned to receive a mailer received one of three messages; 20 percent of these subjects received a mailer informing the subject of the upcoming election and encouraging the subject to vote; 40 percent of the experimental group received a mailer that reports turnout rates among co-partisans; the remaining 40 percent received information about the recent changes in the primary elections for statewide elections using the top-two institution. See Hill and Kousser (2016) for full details of the mailers.

We collaborated with California Common Cause (CCC), a nonprofit, nonpartisan advocacy organization whose aim is to strengthen public participation. Letters were sent on CCC letterhead, black & white laser printed on standard weight paper at the USPS Nonprofit Standard Mail Rate. All letters were mailed from San Diego, California. Letters addressed to recipients in southern California were mailed on May 23. To increase similarity in receipt date, letters addressed to recipients in northern California were mailed one day earlier, on May 22.

Assignment

Assignment to treatment was made via block randomization. Consistent with our strategy of examining the heterogeneous effects of mailers in districts of different electoral competitiveness, we blocked on past district competitiveness and district ethnic and racial composition. In addition, we blocked on several individual-level features, including age, party, and individual-level

2008 and 2010 vote history (Hill and Kousser 2016). We block randomized units to treatment and control using 382 separate blocks.

Outcome Measure

The outcome of interest is validated voter turnout. To measure turnout, we obtained the August 2014 California voter file and match August records to our target population drawn from the April voter file. The rate of matching between voter files is more than 98 percent of the target population. As a conservative measure, we include records from our target population that did not match to the post-treatment voter file in the analysis data, but we score these individuals as abstaining from voting.

Among all registered voters, turnout in the 2014 primary election was 25.2 percent. Among the voters we identified as previous primary nonvoters and targeted to potentially receive contact in this study, the mean turnout rate was 9.3 percent, suggesting that our targeting criteria successfully identified unlikely voters.

Experimental Results

We now turn to describe the experimental results, conditional on district characteristics.¹ Overall, within our sampling frame, 9.8 percent of registered voters who received our mailers turned out to vote, compared to 9.3 percent of registered voters who did not receive our mailers. Thus, receiving treatment caused an increase in the likelihood of voting of 0.5 percent, an increase of 5.3 over baseline. This increase is similar to effects commonly found in single-piece mail interventions (Green, Aronow, and McGrath 2013). The first four rows of Table 2 report the mean turnout in each treatment condition and the fifth row reports the mean turnout across all treatments. Because there is no evidence that one letter was uniquely effective at mobilizing voters, in the remaining analysis we pool all forms of contact into a single measure that identifies whether a voter's mailing address was assigned to receive a letter.

Table 3 presents treatment effects of assignment to receive any letter for each combination of structural competitiveness and district spending. Baseline turnout in these districts varied from 13.2 percent in structurally competitive low-spending districts to 29.7 percent in structurally uncompetitive high-spending districts, while turnout among our target population varies from 5.0 to 11.6 percent (see Tables S1 and S2 in the Supplemental Information). In the lower-right cell of Table 3, in gray, we again report the overall treatment effect, which is the difference in turnout rates between those low-propensity voters who received one of our mailers and those who did not. In each of the gray cells, along the rightmost column and the bottommost row, we report the treatment effect conditioning only on structural competitiveness or current campaign spending, respectively.²

¹ We show in the Supplemental Information that the different types of competitiveness generated different turnout among the control group of our target population in these districts.

² We preregistered analysis for heterogeneity by district competitiveness prior to fielding the experiment. A report of the pre-analysis is available at *Evidence in Governance and Politics*, ID number 20140611AA.

Table 2. Mean Turnout Percentage by Treatment Condition.

Treatment	Mean Turnout (%)	SE Turnout	N
Control	9.31	(0.02)	3,722,672
Partisan	9.84	(0.12)	59,857
Top-Two Info	9.76	(0.12)	59,854
Election Info	9.81	(0.17)	29,885
Any Letter	9.80	(0.08)	149,596

Notes: There is no evidence to support heterogeneous treatment effects conditional on the type of contact. To increase power, all treatment conditions are collapsed into an Any Letter treatment.

Stronger Mobilization Effects in Structurally Competitive Districts

What is the relationship between district competition context and the strength of our mobilization cue? Recall that our theory predicts that voters in areas that frequently experience active

political competition are relatively more effective at incorporating mobilization cues. In these structurally competitive districts, this theory predicts that the effect of a political mailing should be relatively stronger than in districts that are not structurally competitive.

We find that in structurally competitive districts, the effect of receiving a mailer is significantly stronger. As we report in the rightmost column in Table 3, in these districts, receiving a mailer increases turnout by 0.65 points. In contrast, in districts that are structurally uncompetitive, we find that although receiving a mailer does still increase turnout compared to control, we find that the effect is significantly smaller, 0.43 points. As we report Table S3 in the p-value for this difference in treatment effect is 0.11 in a logit regression model.

Weaker Mobilization Effects in High Spending Districts

In line with a theory of voters with limited attention and information processing, we find that in districts where there is more voter contact, the effectiveness of our experimental manipulation is lower than in districts where there is less spending by candidates. For instance, in districts in the highest third of total spending, districts where spending was greater than \$350,000, receiving our experimental mailer increased the probability that a voter turned out to the polls by only 3.2 percent over baseline. By contrast, receiving a letter in a district where relatively little campaign contact was being undertaken was much more effective. Receiving a mailer in these districts increased the probability of turning out to vote by 8.3 percent. As we report in Table S3 the p-value for this difference is less than 0.01 in a logit regression model.

This result is the opposite side of the same theoretical coin. In areas where voters are receiving a large amount of campaign material, the influence of one mailer is more likely lost in the background of other campaign contact. Voters may have a limited attention span, or may have already been motivated to vote by other voter contact. Indeed, the baseline turnout for individuals assigned to control in districts that receive a large amount of spending is fully 2.5 points higher than in districts without high campaign spending. This finding strengthens the findings in

Table 3. Conditional Intent-to-Treat (CITT)

		Realized Competitiveness		
		<i>Low</i>	<i>High</i>	<i>All</i>
Structural Competitiveness	<i>No</i>	0.60	0.16	0.43
		(0.11)	(0.16)	(0.09)
		1,816,453	1,056,884	2,873,337
	<i>Yes</i>	0.87	0.58	0.65
		(0.27)	(0.17)	(0.15)
		204,285	794,615	998,900
<i>All</i>	0.63	0.34	0.49	
	(0.27)	(0.12)	(0.08)	
	2,020,738	1,851,499	3,872,268	

Notes: Effects for the fully crossed structural and realized competitiveness classifications are shown in internal (white) cells. The uncompetitive, low-spending condition is the base category and is significantly different from the null hypothesis of no treatment effect. Significance for the other CITT are drawn from interactions in the estimating models. The competitive, low-spending CITT is significantly larger than the uncompetitive, low-spending CITT. The uncompetitive, high-spending CITT is significantly smaller than the uncompetitive, low-spending CITT.

Hill and Kousser (2016) that (a) low-propensity voters do not turn out in part because they are not contacted; but furthermore, that (b) they could turn out at higher rates if campaigns reached out to them.

Distinct Effects When Crossing Competitiveness and Spending

An even clearer picture of how context shapes the effectiveness of mobilization mailers is apparent when structural competitiveness and current campaign spending are crossed. As we report in the internal (white) cells of Table 3, the effect of mobilization mailings are quite different in the off-diagonal cells: in districts that are structurally competitive but receive lower than median current campaign spending our mailer is highly effective, increasing turnout by nearly a full percentage point. This strong effect is in stark contrast to districts that are not typically competitive, but where high current campaign spending has voters awash in campaign contact materials. In these districts it is not possible to distinguish the effect of our mailer from zero. The treatment effect here is one-third the magnitude of the unconditional effect. As we report in Table S4, a logit regression provides strong evidence that the effect of treatment is smaller in structurally uncompetitive, high-spending districts than the overall effect of treatment. Also note that for uncompetitive, low-spending districts and competitive, high-spending districts, the effect of as-

segment to treatment is positive but indistinguishable from the unconditional effect. In sum, the experimental pattern of mobilization in this experiment is closely aligned with the predictions made by theories of information processing presented in Table 1. This suggests that a campaign looking for the largest marginal return should target races that have been competitive in prior races but that are receiving little attention in the present contest.

Conclusion

In sum, we find that the effect of GOTV messages in California's top-two primary varies by the context of the campaign in which it is received. When the targeted voter resides in a district with large amounts of campaign spending, the marginal effect of one mailer is smaller than when the voter lives in a district with low campaign spending. More novel, we find large heterogeneity in the effectiveness of messages by the long-term characteristics of the district. Registrants who reside in districts that are generally competitive show greater responsiveness to our mail messages than registrants who reside in districts that are not generally competitive. This holds regardless of the level of spending in the specific election. We find our mailers were three times as effective in long-term competitive districts when spending was high, and 1.5 times as effective in long-term competitive districts when spending was low—and thus about double when averaged across these types of districts.

An important caveat to our analysis is that the finding of heterogeneity in a treatment effect is observational, and so omitted variable problems are possible. That is, other features of these districts correlated with our measures may actually drive heterogeneity in treatment effects. Future research should aim to replicate this finding in other contexts and in consideration of potential confounds.

The finding of heterogeneity by district context has important implications for political reformers as well as campaigns. For reformers whose goal is to increase participation in California's primary elections, the findings suggest paths to cost-effective mobilization. Reformers interested in cost-effective mobilization may want to target messages more to structurally competitive districts that are not likely to be competitive in the current election.

Candidate campaigns for higher-level office with potential mobilization targets in multiple lower-tier districts (e.g., governor, senator, but even state senate and U.S. House) may want to account for the long- and short-term competitiveness of the other contests subsumed in their constituency when devising mobilization strategies. Because a vote for governor is the same whether it is mobilized in a competitive or noncompetitive House district, the gubernatorial campaign may minimize costs by developing targeting strategies in less competitive places.

These findings also add to evidence on voter behavior and campaigns in political science. They highlight that average treatment effects from GOTV field experiments are exactly that: averaged across many individuals and contexts. Well-powered experiments can help us understand important heterogeneity in response to such stimuli. Our findings show that the effectiveness of campaign messages does vary importantly across contexts, and so global conclusions about effective campaign strategies may be more elusive than commonly described. While we confirm that GOTV can motivate previous primary nonvoters to turn out in top-two primaries, we also show that who you ask and in what campaign they are asked has important implications for the effectiveness of that message.

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Supplemental Information

Overall Turnout and District Context

To provide the context necessary to understand the experimental results of our voter contact, we first describe the non-experimental rates of turnout within each of the district competitiveness conditions. We first consider structural and realized competitiveness separately before then considering turnout when structural and realized competitiveness are crossed.

The top panel of Table S1 presents the turnout rates among our targeted voters, conditional on the structural or realized competitiveness of the district. Turnout rates in structurally uncompetitive districts were 1.2 percent higher than in structurally competitive districts in the June primary. By way of comparison, in the 2008 general election—the most proximate election for which there was variation in voting outcomes for our target population—the turnout rate in structurally uncompetitive districts was 3.4 percent lower than in competitive districts. This observational result presents an interesting counterpoint to existing scholarship. Whereas in the existing literature Betsy Sinclair (2015) argues that the top-two system has provided only limited opportunities for voters to select more moderate candidates, the higher turnout rate in previously uncompetitive districts suggests the possibility that among this type of voter the rule change may be associated with increased turnout.

The relationship between structural competitiveness and turnout contrasts with the relationship between realized competitiveness and turnout. High-spending districts had turnout rates 2.4 percent higher than lower-spending districts. This gap in turnout continued into the general election, where the highest-spending districts had a turnout rate 5.5 percent higher than districts spending less than the median. This is quite different, as well, from the turnout rates in the 2008 general election, where those districts with the highest spending in 2014 had a turnout rate that was 1.2 percent lower than other districts.

The lower panel of Table S2 crosses these two competitiveness concepts and reports the turnout for each of the two-by-two comparisons. Of particular note is that “surprisingly competitive” districts, those that were structurally uncompetitive but realized competitive, had an average turnout rate of 11.6 percent among our targeted low-propensity voters, more than 2.2 percent higher turnout than the second most combination of structurally competitive and realized competitive districts. This difference persists into the general election where structurally uncompetitive districts with high volumes of campaign money are the highest turnout districts. Consistent with the sports analogy, those districts that are “in the hunt,” or that are realized as competitive districts are the highest turnout districts; those districts that are surprisingly uncompetitive are the lowest-turnout districts, with turnout rates that are only 60 percent the rate of the highest-turnout districts.

While our focus is on low-propensity voters, we note here that low-propensity voters behave similarly to the general voting population. Table S2 presents a table calculated in the same way as Table S1, but includes all voters. The ordering of all voters is the same as the ordering for low-propensity voters: surprisingly competitive districts are the highest-turnout districts, followed by those districts expected to be competitive and are realized as competitive, then the all-around uncompetitive districts. The lowest-turnout districts are those that should have been competitive on structural features, but are disappointingly uncompetitive. In fact, in these surprisingly uncompetitive districts, voters turn out at half the rate of voters in both surprisingly competitive districts and expectedly competitive districts.

Table S1. District Context Predicts Turnout Among Low-Propensity Voters

Competitiveness		Primary (%)	SE	General (%)	SE	N
Structural	Spending					
Uncompetitive	--	9.63	0.02	27.83	0.03	2,873,337
Competitive	--	8.46	0.03	26.02	0.04	998,900
--	Low	8.17	0.02	24.75	0.03	2,020,738
--	High	10.6	0.02	30.22	0.03	1,851,499
Uncompetitive	Low	8.52	0.02	25.38	0.03	1,816,453
Uncompetitive	High	11.55	0.03	32.03	0.05	1,056,884
Competitive	Low	5.01	0.05	19.09	0.09	204,285
Competitive	High	9.35	0.03	27.8	0.05	794,615
--	--	9.33	0.01	27.36	0.02	3,872,237

Notes: District context predicts turnout among low-propensity voters. Observational results, conditional on district competitiveness. Cells containing a dash indicate no conditioning on that factor. Average overall turnout was 9.33 in the primary and 27.36 in the general, among targeted voters. The highest turnout in both the primary and general races was surprisingly competitive districts: structurally uncompetitive districts with competitive spending amounts. The lowest turnout was in structurally competitive districts with uncompetitive spending amounts.

Convergent Validity

Our expectation is that structurally uncompetitive districts should feature lower levels of campaign activity—measured as campaign spending—whereas structurally competitive districts should feature higher levels of campaign activity and spending. Figure S1, panel three, presents data that confirm this convergent validity of measurement. On the one hand, in those districts identified as being structurally competitive, more than 75 percent are also high spending. On the other hand, using only structural features would have correctly identified 25 districts as uncompetitive, nearly 90 percent of low-spending districts.

Preregistered Models

In this section, we report the results of every preregistered heterogeneous treatment effect. Because there is very little reported literature concerning mobilization efforts for low-propensity voters in primary elections, we report the whole set of estimates that we produced. In short, the findings that we were the most interested in—competitiveness context—were the only election contexts or individual characteristics that were associated with differential response to treatment.

Table S2. District Context Predicts Turnout Among All Voters

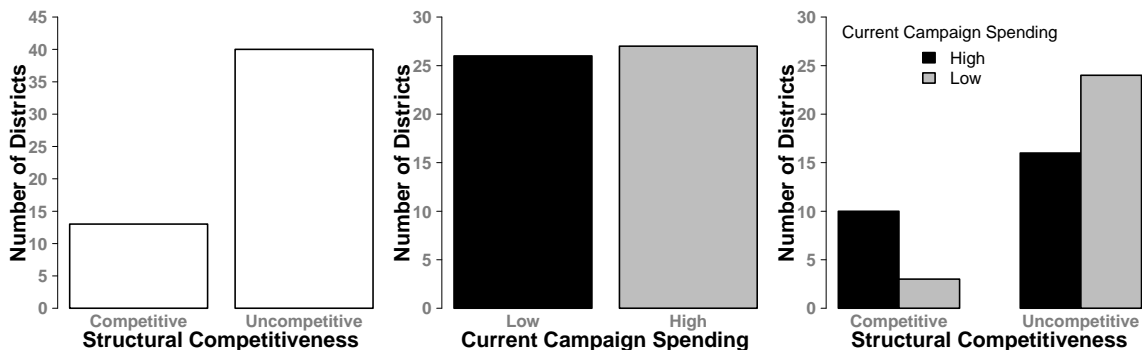
Competitiveness		Primary (%)	SE	N
Structural	Spending			
Uncompetitive	--	25.62	0.01	13,150,926
Competitive	--	23.61	0.02	4,521,311
--	Low	22.32	0.01	9,377,377
--	High	28.24	0.02	8,314,900
Uncompetitive	Low	23.32	0.01	8,446,942
Uncompetitive	High	29.74	0.02	4,703,983
Competitive	Low	13.20	0.04	930,394
Competitive	High	26.29	0.02	3,610,917
--	--	25.10	0.01	17,692,237

Notes: District context predicts turnout among all voters. Observational results, conditional on district competitiveness. Cells containing a dash indicate no conditioning on that factor. Average overall turnout was 9.33 in the primary and 27.36 in the general, among targeted voters. The highest turnout in both the primary and general races was surprisingly competitive districts: structurally uncompetitive districts with competitive spending amounts. The lowest turnout was in structurally competitive districts with uncompetitive spending amounts.

None of age, party preference, or past voting history were associated with distinct conditional average treatment effects.

In Table S4 we report a logit regression that reproduces the main results estimated in the body of this essay. This model reports that there was an overall significant relationship between receiving treatment and turning out. Furthermore, in structurally competitive but low-current spending districts the treatment was demonstrably more effective. These are the districts where theory predicts that voters have developed heuristics for incorporating mobilization information, but may not have received any such mobilization cues in the current cycle. In contrast, this model reports that in structurally uncompetitive, but high spending districts, voter mobilization was demonstrably less effective. In these districts—districts where voters who may be mobilized have already been mobilized by other voter contact—voters are less likely to have developed effective heuristics for incorporating campaign contact information and are already awash in contact from a large number of sources.

Figure S1. Convergent Validity in Competitiveness Measures



Notes: In the left panel, structural competitiveness is calculated using past party vote totals and is described in detail in subsection 2.3. In the center panel, realized competitiveness is calculated using spending in the current race, split at the median; this is described in subsection 2.2. In the right panel, we note that structurally competitive districts are highly likely to also realize high spending amounts. We also note that districts with low spending amounts are highly likely to be structurally uncompetitive. We note that the y-axes are not common between all plots.

In Table S5 we use an identical method as in the competitiveness contact regression to examine whether our treatment was more effective among voters of different ages. Our data is consistent with the literature that old individuals are more likely to engage than younger people. Compared to 18–28 years olds, voters between the ages of 29–48 are more likely to take part in the election; voters older than 48 were less likely to take part. We do not find any evidence that supports the hypothesis that voter contact is especially effective among different age segments. No interactions—the test for heterogeneous treatment effects—are significant or even approaching significance.

In Table S6 we examine whether receiving a mailer was more effective when sent to voters who are not registered with one of the two major parties. Because one of the nominal motivations for enacting the top-two election system was to provide increased representation for individuals who support candidates not running on the Democratic or Republican tickets, we hypothesized that our mailer may be more effective when sent to voters either registered as No Party Preference or Other. There is no evidence to support this hypothesis, although we do find voters who are registered, but do not register a preference with either the Democratic or Republican party are less likely to vote out in the primary than voters who have a preference for either the Democratic or Republican Party. One likely cause of this difference is the closed primary system employed by the California Republican Party: voters who might otherwise have crossed over from a third-party candidate are not permitted to vote in the Republican primary without changing their party preference.

Finally, in Table S7 we examine whether voters who have previously voted in midterm primary elections are more likely to turnout to vote. Similar to the theory in the main text of this essay, voters who have previously voted may develop heuristics for incorporating voter contact. We do not find any such evidence.

Table S3. Logit Regression of (Independent) Structural and Spending Heterogeneous Treatment Effects

	<i>Dependent variable:</i>			
	Turnout to Vote			
	(1)		(2)	
Str. Competitive	-0.144	***		
	(0.004)			
High Spending			0.29	***
			(0.004)	
Any Letter	0.049	***	0.082	***
	(0.01)		(0.013)	
Str. Competitive * Any Letter	0.033			
	(0.021)			
High Spending * Any Letter			-0.046	***
			(0.018)	
Constant	-2.24	***	-2.423	***
	(0.002)		(0.003)	
Observations	3,872,237		3,872,237	
Log Likelihood	-1,200,298		-1,197,527	
Akaike Inf. Crit.	2,400,605		2,395,062	

Note: *p<0.1; **p<0.05; ***p<0.01

Table S4. Logit Regression of Competitive-Context Based Heterogeneous Treatment Effects

	<i>Dependent variable:</i>					
	Turnout to Vote					
	(1)		(2)		(3)	
Str. Competitive, Low Spending	-0.671	***	-0.671	***	-0.676	***
	(0.011)		(0.011)		(0.011)	
Str. Uncompetitive, High Spending	0.236	***	0.236	***	0.238	***
	(0.005)		(0.005)		(0.005)	
Str. Uncompetitive, Low Spending	-0.102	***	-0.102	***	-0.102	***
	(0.005)		(0.005)		(0.005)	
Any Letter			0.057	***	0.067	***
			(0.009)		(0.02)	
Str. Competitive, Low Spending * Any Letter					0.104	*
					(0.053)	
Str. Uncompetitive, High Spending * Any Letter					-0.052	**
					(0.025)	
Str. Uncompetitive, Low Spending, * Any Letter					0.007	
					(0.024)	
Intercept	-2.272	***	-2.274	***	-2.275	***
	(0.004)		(0.004)		(0.004)	
Observations	3,872,237		3,872,237		3,872,237	
Log Likelihood	-1,194,669		-1,194,649		-1,194,642	
Akaike Inf. Crit.	2,389,356		2,389,308		2,389,300	

Note: *p<0.1; **p<0.05; ***p<0.01

Table S5. Logit Regression of Age-Based Heterogeneous Treatment Effects

	<i>Dependent variable</i>					
	Turnout to Vote					
	(1)	(2)	(3)	(4)	(5)	(6)
Age in 2014	0.022*** (0.0001)	0.022*** (0.0001)	0.022*** (0.0001)			
Any Letter		0.058*** (0.009)	0.079*** (0.026)		0.058*** (0.009)	0.056*** (0.009)
Age in 2014 *			-0.0004 (0.001)			
Any Letter						-0.023 (0.024)
Age 29-38 *						-0.026 (0.023)
Any Letter						0.016 (0.022)
Age 39-48 *						-0.020 (0.022)
Any Letter						-0.008 (0.021)
Age 49-58						
Age 59-68 *						
Any Letter						
Age 69+ *						
Any Letter						
Age 29-38				1.110*** (0.005)	1.110*** (0.005)	1.111*** (0.005)
Age 39-48				0.240*** (0.004)	0.240*** (0.004)	0.241*** (0.005)
Age 49-58				-0.036*** (0.004)	-0.036*** (0.004)	-0.037*** (0.004)
Age 59-68				-0.047*** (0.004)	-0.047*** (0.004)	-0.046*** (0.004)
Age 69+				-0.051*** (0.004)	-0.051*** (0.004)	-0.051*** (0.004)
Constant	-3.273*** (0.005)	-3.275*** (0.005)	-3.276*** (0.005)	-2.169*** (0.002)	-2.171*** (0.002)	-2.171*** (0.002)
Observations	3,872,237	3,872,237	3,872,237	3,872,199	3,872,199	3,872,199
Log Likelihood	-1,176,817	-1,176,787	-1,176,796	-1,172,567	-1,172,546	-1,172,544
Akaike Inf. Crit.	2,353,639	2,353,599	2,353,600	2,345,146	2,345,106	2,345,113

Note: *p<0.1; **p<0.05; ***p<0.01

Table S6. Logit Regression of Party-Based Heterogeneous Treatment Effects

	<i>Dependent variable:</i>		
	Turnout to Vote		
	(1)	(2)	(3)
Not Major Party	-0.102*** (0.004)	-0.102*** (0.004)	-0.102*** (0.004)
Any Letter		0.057*** (0.009)	0.056*** (0.011)
Not Major Party * Any Letter			0.003 (0.019)
Constant	-2.241*** (0.002)	-2.243*** (0.002)	-2.243*** (0.002)
Observations	3,872,237	3,872,237	3,872,237
Log Likelihood	-1,200,566	-1,200,546	-1,200,546
Akaike Inf. Crit.	2,401,136	2,401,097	2,401,099

Note: *p<0.1; **p<0.05; ***p<0.01

Table S7. Logit Regression of Past-Voter Based Heterogeneous Treatment Effects

	<i>Dependent variable:</i>		
	Turnout to Vote		
	(1)	(2)	(3)
Past Voter	0.063*** (0.004)	0.063*** (0.004)	0.064*** (0.004)
Any Letter		0.057*** (0.009)	0.066*** (0.011)
Past Voter * Any Letter			-0.027 (0.019)
Constant	-2.294*** (0.002)	-2.297*** (0.002)	-2.297*** (0.002)
Observations	3,872,237	3,872,237	3,872,237
Log Likelihood	-1,200,792	-1,200,772	-1,200,771
Akaike Inf. Crit.	2,401,588	2,401,550	2,401,550

Note: *p<0.1; **p<0.05; ***p<0.01

Tables of District Competitiveness

In this section we report how our measurements of structural competitiveness and current campaign spending identified congressional districts as either competitive or uncompetitive. In Table S8 we report the structural competitiveness, based on prior electoral returns as described in the main text. As a brief reminder, competitiveness for this election was calculated based on the previous election cycle (2012) returns. If the district met either the *Sliding Mayhew* or *Two-or-more Mayhew* criteria of competitiveness, we classify that district as competitive.

In Table S9 we report the current campaign spending competitiveness. This was calculated using the spending totals tabulated for the entire election period and including the two weeks after the election (to ensure that all primary-related spending is captured). In contrast to structural competitiveness which makes a prediction about how competitive a district will become during the race, the current campaign spending tallies and classifies the competitiveness after the race has concluded.

Table S8. Structural Competitiveness

District	Competitive	District	Competitive
CG001	False	CG028	False
CG002	False	CG029	False
CG003	True	CG030	False
CG004	True	CG031	True
CG005	False	CG032	True
CG006	False	CG033	True
CG007	False	CG034	False
CG008	False	CG035	False
CG009	False	CG036	False
CG010	False	CG037	False
CG011	False	CG038	True
CG012	False	CG039	False
CG013	False	CG040	True
CG014	False	CG041	True
CG015	True	CG042	False
CG016	False	CG043	False
CG017	False	CG044	False
CG018	False	CG045	True
CG019	False	CG046	False
CG020	False	CG047	False
CG021	False	CG048	False
CG022	False	CG049	False
CG023	False	CG050	False
CG024	False	CG051	False
CG025	True	CG052	True
CG026	True	CG053	False
CG027	False		

Table S9. Current Campaign Spending Competitiveness

District	Spending	Classification	District	Spending	Classification
CG001	(\$) 196,691	Low	CG028	(\$) 286,000	Low
CG002	228,630	Low	CG029	256,268	Low
CG003	926,399	High	CG030	358,293	Low
CG004	531,200	High	CG031	2,418,296	High
CG005	426,093	High	CG032	66,918	Low
CG006	235,428	Low	CG033	7,218,482	High
CG007	2,278,318	High	CG034	244,209	Low
CG008	183,225	Low	CG035	209,487	Low
CG009	242,015	Low	CG036	829,551	High
CG010	566,402	High	CG037	255,152	Low
CG011	370,216	High	CG038	215,501	Low
CG012	707,631	High	CG039	365,203	High
CG013	302,028	Low	CG040	133,219	Low
CG014	264,290	Low	CG041	457,965	High
CG015	1,210,664	High	CG042	311,672	Low
CG016	459,284	High	CG043	216,121	Low
CG017	3,277,801	High	CG044	127,295	Low
CG018	565,732	High	CG045	1,616,619	High
CG019	198,092	Low	CG046	456,234	High
CG020	144,664	Low	CG047	126,324	Low
CG021	983,956	High	CG048	280,078	Low
CG022	384,830	High	CG049	518,717	High
CG023	1,141,491	High	CG050	259,556	Low
CG024	1,377,250	High	CG051	185,211	Low
CG025	1,872,170	High	CG052	1,979,750	High
CG026	891,122	High	CG053	197,075	Low
CG027	194,732	Low			