

# Self-Fulfilling Misperceptions of Public Polarization

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## **Abstract**

Mass media convey deep divisions among citizens despite scant evidence for such ideological polarization. Do ordinary citizens perceive themselves to be more extreme and divided than they actually are? If so, what are the ramifications of such misperception? A representative sample from California provides evidence that voters from both sides of the state's political divide perceive both their liberal and conservative peers' positions as more extreme than they actually are, implying inaccurate beliefs about polarization. A second study again demonstrates this finding with an online sample and presents evidence that misperception of mass-level extremity can affect individuals' own policy opinions. Experimental participants randomly assigned to learn the actual average policy-related predispositions of liberal and conservative Americans later report opinions that are 8-13% more moderate, on average. Thus, citizens appear to consider peers' positions within public debate when forming their own opinions and adopt slightly more extreme positions as a consequence.

**keywords:** polarization, public opinion, ideology, political perception, survey experiment

Listening to many pundits today, one might think that America is on the verge of an ideological civil war. According to this narrative, the population is split into two deeply committed factions and engaged in a righteous struggle for no less than the soul and future of the nation. But this sensational account doesn't square with reality. Time and time again, political science has found that citizens form political attitudes with very little ideological constraint (Converse 1964; 2000), vote according to incumbents' performance rather than their issue positions (Campbell et al. 1960; Lenz 2012), and identify as "liberal" or "conservative" largely for social and symbolic reasons (Conover and Feldman 1981). And, ultimately, there is little evidence that Americans today reject centrism in their issue positions more than in the past (Brownstein 2007; Fiorina and Abrams 2009).

But do citizens recognize their own moderateness? Bombarded from the left and right by messages that convey mass-level ideological strife, do ordinary citizens' perceptions of public opinion diverge from reality? In two studies, I present evidence that they do: citizens tend to overestimate the liberalism of self-described liberals and the conservatism of self-described conservatives.<sup>1</sup> As one might expect, the severity of these misperceptions is heterogeneous across ideological groups, but both self-described liberals and self-described conservatives significantly overestimate extremism on both sides. This pattern of misperception implies a phenomenon akin to pluralistic ignorance of public moderateness: citizens tend to be relatively centrist, but they also misperceive themselves as outliers in this regard.

What are the consequences of such misperception for individuals' own attitudes? In

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Study 2, I present experimental evidence that individuals who are informed of the true distribution of public opinion tend to subsequently report political attitudes that are significantly more moderate than participants whose misperceptions are either left uncorrected or reinforced. In this sense, misperception of public extremism is, to a certain degree, a self-fulfilling process.

## Citizens' Perceptions of Ideological Groups

Over the past two decades, the press has frequently relied on the narrative of a polarized nation to explain political outcomes (Fiorina and Abrams 2008; also see Fiorina, Abrams, and Pope 2005 for excellent primary source examples). But while “the year of the angry white male” and “values voters” provide for better copy than “retrospective voting using the economy as a heuristic,” the evidence tends to support the latter narrative (Converse 1964; Jacobson 1996; Bartels 2008; Lenz 2012). Regardless of the truth, however, if citizens' sources of political information convey the existence of deep division, then their perceptions of liberal and conservative positions and their beliefs about mass-level polarization may be quite inaccurate. As Mutz (1998, 5) notes:

“One might say that mass media may not be particularly influential in telling people what to think, or perhaps even what to think about, but media are tremendously influential in telling people what *others* are thinking about and experiencing. These perceptions, in turn, have important consequences for the political behavior of mass publics and political elites as well.”

Brady and Sniderman (1985) present partial evidence for such misperception of ideological groups, finding that 1972 and 1976 ANES respondents perceive sociopolitical groups on the left side of the political divide (e.g., liberals, Democrats, and African-Americans) as significantly more liberal on specific issues than their average member

actually is. On the other hand, contrary to this study's hypothesis of a general misperception of extremism and polarization, Brady and Sniderman find that their survey respondents identify the average conservative location on specific issues with precision.

Why might citizens today also misperceive self-described conservatives' positions? For a start, social movements and elite politics on the right may have affected citizens' beliefs about mass-level conservatism. The rise of the evangelical, neoconservative, and Tea Party movements in the years since 1976 may have produced a rightward shift in citizens' general perceptions of conservatives. Citizens may also perceive greater mass-level extremism on the right because of the increase in elite-level polarization, which has been driven primarily by Republican elites becoming more extreme (McCarty, Poole and Rosenthal 2006; Hacker and Pierson 2006).

Indeed, if elites serve as exemplars of sociopolitical groups, attentive citizens may attribute greater extremism to rank-and-file liberals and conservatives even absent the mass polarization narrative. The rise of both polarized party politics and partisan media yields an information environment in which citizens more frequently encounter extreme liberal and conservative exemplars. And while these exemplars tend to be elite, evaluations of exemplars can affect evaluations of group members linked to them, even if such linkages are tenuous (Gilovich 1981). In sum, today's information environment may lead individuals to overestimate mass-level polarization multiple ways: through the use of a polarization narrative, through the role that partisan journalists play as exemplars of liberals and conservatives, and by transmitting information that elite political exemplars are, indeed, becoming more polarized.

In addition to historical developments and the changing information environment, affective processes may also be at work. Individuals may attribute extremism to a group as a consequence of the low affect they hold for that group. Conservatives' relative disdain for liberals in the 1970s, compared to liberals' generally neutral feelings about conser-

vatives at that time, produced the asymmetric misperception of liberals that Brady and Sniderman (1985) document. Today, strong liberal and conservative identifiers hold more intense feelings about these groups than they did in the 1970s (Fiorina, Abrams and Pope 2005; Iyengar, Sood and Lelkes 2012).<sup>2</sup> While this trend is primarily limited to strong identifiers, the increased animosity among strong identifiers and ideological activists could potentially trickle down to the weaker identifiers via the mass media, which gives ideological purists a bigger megaphone and a greater ability to affectively tint the news in the post-broadcast era (Prior 2007; Mutz 2007).

Indeed, there exists evidence that citizens of all political stripes hold erroneous beliefs about both liberals and conservatives today. Citizens from all parts of the political spectrum tend to overestimate the difference in moral concerns between the two groups, and in particular, overestimate conservatives' stinginess and liberals' "bleeding-heartedness" (Graham, Nosek and Haidt 2012; Farwell and Weiner 2000). Furthermore, individuals believe themselves to be different from these stereotypes, a phenomenon similar to pluralistic ignorance.<sup>3</sup> While this concerns sociological stereotypes of liberals and conservatives rather than beliefs about their policy-related and ideological predispositions, it provides even more reason to investigate the latter. In particular, I suspect that citizens, and especially those who identify as liberals or conservatives, accept ideological extremity as a norm even if they would prefer centrist outcomes, on average (Fiorina and Abrams 2009).

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<sup>2</sup>This is measured by the difference in feeling thermometer ratings for "liberals" and "conservatives."

<sup>3</sup>Pluralistic ignorance is a social psychological concept that refers to "shared but erroneous beliefs about the attitudes and behaviors of other people" (Todorov and Mandisodza 2004), or more simply, a state of affairs in which "no one believes, but everyone thinks that everyone believes" (Krech and Crutchfield 1948).

**Hypothesis 1: Misperceived mass polarization** Citizens tend to overestimate the extremity of their peers' political positions. More specifically, they overestimate the liberalism of self-described liberals and the conservatism of self-described conservatives.

Research on pluralistic ignorance has also shown that erroneous beliefs about the public can affect attitudes and behaviors by leading individuals to shift toward the perceived social norm (Miller, Monin and Prentice 2000). In this case, I suspect that misperceptions of polarization have consequences for citizens' own political attitudes. Why might this be so? One reason is that citizens may use group cues as shortcuts in forming opinions. Under this view, citizens use perceptions of where their group stands to help them approximate the attitudes they would form were they to expend significant time and effort considering the issues (Lupia 1994; Levendusky 2010). Thus, when asked for an opinion on an unfamiliar issue, a respondent may satisfice by reporting what she perceives to be an opinion that a fellow group member would report.

A less sanguine view would argue that citizens are not rational cue-takers but rather blind followers of where they perceive their groups to be (Lenz 2012; Mackie and Cooper 1984). Under this view, "liberal" and "conservative" are more than sets of political orientations: they are also sociopolitical identities. As such, members of these groups "share some emotional involvement in this common definition of themselves, and achieve some degree of social consensus about the evaluation of their group and of their membership in it" (Tajfel and Turner 2005). If individuals who identify as liberal or conservative find value in a common definition of what it means to be liberal or conservative, then it follows that they will more readily accept socially constructed, albeit inaccurate, definitions of what it means to hold that identity. In this case, being a member of the group involves reporting consonant views, even if those views are somewhat more extreme than those the citizen would normally hold. Perceptions of the other side would also be important according to this view, as group identities are partially defined in relation to outgroups

(Citrin, Wong and Duff 2001). Perceiving a high degree of mass-level polarization may heighten the perceived stakes of political conflict, thus leading citizens to perceive greater threat to their own group and place greater value on group solidarity. As a result, they may report views that are more consistent with perceptions of their in-groups' positions.

Most citizens are relatively unequipped with hard information for reporting opinions about politics and public policy, but they also tend to possess a handful of considerations for any given issue. In the absence of hard knowledge, these considerations may include heuristic or group-based cues (Converse 1964; Zaller 1992). The key point here, following the preceding discussion, is that perceived group cues—and, indeed, perceptions of the broader public debate—serve as considerations that affect public opinion. If citizens attribute greater extremism to groups on the left and right, such beliefs will factor into the opinions they form and report. But, we should note that group cues aren't the only considerations that citizens possess, in most cases. As a consequence, a false sense of polarization is not entirely self-fulfilling.<sup>4</sup> Rather, I expect that the public would be even more centrist in its opinions if citizens more accurately gauged mass-level opinion.

**Hypothesis 2: The consequences of overestimating public polarization** Perceptions of public debate color individuals' own opinions. As a consequence, overestimating the policy-related disagreement between self-described liberals and self-described conservatives leads citizens to report political opinions that are more extreme than they would with perfect information about where their peers stand.

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<sup>4</sup>If it were, the public actually would be polarized and citizens would not hold erroneous perceptions as predicted in Hypothesis 1.



# Study 1: Misperceived Extremism in California

## Research Design

To test the hypothesis that citizens tend to overestimate self-described liberals' liberalism and self-described conservatives' conservatism, I relied on a population-representative survey of 2444 registered voters in California in April and May of 2013.<sup>5</sup> From this sample, I collected either respondents' own policy-related predispositions for two major policy domains in American politics, or their perceptions of self-described liberals' and conservatives' predispositions. The online sample was recruited through Survey Sampling International (SSI) and nearly perfectly matched the population of California voters on party registration, education, and race.<sup>6</sup>

Two important caveats on external validity are necessary. First, the sample contains only registered voters. Thus, any findings of perception-reality divergence can only be generalized to voters rather than citizens as a whole. Second, the sample is highly representative of registered voters in California, but not the nation as a whole. Nevertheless, while it is important to recognize these limitations, it is also important to recognize what we *can* say about the validity of any findings with this sample. Most significantly, by being able to generalize this study's findings to registered voters in California, we can show that the politically active class of citizens in the nation's largest state—a political entity unto itself—believe that the state's population is more polarized than it actually is.

I randomly asked half of the sample to place themselves on a sliding scale for two policy domains: the role of government in managing social welfare and the economy,

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<sup>5</sup>This was a random subset of a sample of size  $n=5542$ , as allocated by the Institute of Governmental Studies.

<sup>6</sup>See SI section 1.

and the tradeoff between protecting the environment and protecting jobs. Both scales ranged from 1 to 7, with the endpoints anchored by position statements.<sup>7</sup> Respondents could place themselves anywhere between 1 and 7 on these scales. I asked the other half of the sample to use the same sliding scales to denote where they thought “Californians who call themselves liberal” and “Californians who call themselves conservative” would place themselves. To test the hypothesis that citizens overestimate their peers’ extremism, I compare the average perceptions of liberals and conservatives on these two policy dimensions, as reported by this latter random half of the sample, to the actual average of the positions reported by self-described liberals and conservatives in the first half of the sample.<sup>8</sup>

Why were these two policy domains chosen? I chose to include the ANES question about the proper role of government because it captures what we traditionally think of as the primary dimension of politics and the domain that serves as the sharpest cleavage between liberals and conservatives in American politics (Gerring 1998; McCarty, Poole and Rosenthal 2006). By contrast, I chose to ask about the environment because it has at times been a cross-cutting issue in California politics. Given that “green” is not solely associated with liberalism in California politics, and that Californians have prominent green conservative archetypes (including Arnold Schwarzenegger), we should expect this domain to be a tough test of the hypothesis that Californians over-attribute policy-related extremism on the basis of ideological identity.

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<sup>7</sup>These were taken from the traditional ANES 7-point scale questions for these policy domains. See SI section 2 for wording.

<sup>8</sup>I operationalize “liberals” as respondents located at 1-3 on the standard 7-point ideological scale, and “conservatives” as respondents located at 5-7.

## Results

Do the California voters overestimate liberals' liberalism and conservatives' conservatism? To answer this question, Table 1 compares the average positions held by liberal and conservative Californians to the average perceptions of these groups. As the table shows, both liberal and conservative respondents significantly overestimate both groups' extremism on the proper role of government and environmental issues. Consistent with Brady and Sniderman (1985), conservatives' misperceptions regarding liberals are the largest. Unlike those findings, however, liberal and conservative respondents in this study both overestimate extremism within their own ranks.

(Insert Table 1 here.)

To better understand this apparent phenomenon, Figure 1 plots kernel density estimates of liberal and conservative Californians' self-placements on these two policy dimensions against the estimated distributions of perceptions of these self-placements. For three of the four comparisons, the target group's actual modal position is well over a point less extreme than the group's own modal perception of that position, and outgroup members' perceptions are even more divorced from reality.<sup>9</sup> Most significantly, Figure 1 shows that strange distributions of preferences cannot be responsible for citizens' misperceptions of their peers. With the exception of conservatives' self-placements on the role of government—the policy dimension/group dyad for which respondents tended to be most accurate—self-placements within ideological groups tended to be relatively unimodal with means (denoted in the figures with dotted vertical lines) roughly equal to

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<sup>9</sup>As Figure 1(b) shows, the sole exception is conservatives' position on the proper role of government. In this case, modal perceptions match up perfectly with the modal position of conservatives, but not with the mean position of conservatives.

modes. This rules out the possibility that respondents used “modal liberal” and “modal conservative” as heuristics for the groups’ “average” identifiers.

(Insert Figures 1a, 1b, 1c, and 1d here.)

Interestingly, one group is more accurate than the others in its perceptions of liberals and conservatives: the staunch moderates. Whereas both liberal and conservative identifiers believe liberal Californians to be significantly more liberal than they actually are, the moderate respondents who claim to not lean either way hold perceptions of liberals that are not significantly different from the truth. Moderates actually tend to underestimate conservatives’ conservatism on economic issues. And while their perceptions of conservatives’ environmental views are slightly more extreme than the truth, these perceptions are significantly better than those held by conservatives themselves. While unexpected, this finding is noteworthy, particularly when considering the information flows these individuals are likely to receive vis-a-vis other citizens. Moderate citizens may be less politically engaged (Abramowitz 2010) and less likely to receive messages about mass polarization from the media and other elites as a result. Compounding this, ideological identifiers are more likely than true moderates to turn to the ideological and partisan media outlets that most heavily exaggerate polarization (Stroud 2008). However, like partisans, ideological identifiers may simply enjoy political competition more than true moderates (Green, Palmquist and Schickler 2002) and may overestimate conflict between the groups as a result. As discussed in the final section of this paper, future work should examine this unexpected result more systematically.

## **Study 2: The Effect of Misperceived Extremism on Political Attitudes**

Study 1 demonstrates that voters in California who identify as liberal or conservative, or at least lean one way or the other, tend to overestimate the degree of polarization within the state's mass public. What are the consequences of this perceptual error? More specifically, do these erroneous beliefs about peers lead individuals to develop and report attitudes that are more extreme than they otherwise would? Study 2 relies on a survey experiment conducted on Amazon's Mechanical Turk (MTurk) online labor market to answer this question.<sup>10</sup>

### **Research Design**

The goals of this study are twofold: to again demonstrate Study 1's findings with a different population and to determine whether these misperceptions affect individuals' political attitudes. As such, a "tell-ask" experimental research design is an ideal strategy

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<sup>10</sup>As Berinsky, Huber and Lenz (2012) note, Amazon's online labor market is more representative of the United States population than the student samples traditionally used in psychology experiments, but it is "less representative than subjects in Internet-based panels or national probability samples." The more often expressed concern about MTurk regards validity. Many fear that the economics of MTurk incentivize participants to take surveys and experiments less-than-seriously (Paolacci, Chandler and Ipeirotis 2010). Both studies cited in this footnote, however, have replicated results conducted in the laboratory, suggesting that Mechanical Turk can be used to make inferences that are at least as valid as those made using traditional convenience samples.

because it allows us to do both of these things in cases in which widespread ignorance exists in the population of interest. In this design, the true positions of liberals and conservatives are provided to subjects assigned to the “tell” condition, thus manipulating beliefs by *removing* the ignorance.<sup>11</sup>

The procedures for the “tell” and “ask” conditions were identical but for the manipulation itself, which occurred over a series of three screens on an Internet survey.<sup>12</sup> I presented participants assigned to the “ask” condition with two manipulable sliding seven-point scales on each of these three screens. Each screen contained the text from an American National Election Study (ANES) issue scale question and asked participants to estimate the “average positions taken by people who call themselves liberal and people who call themselves conservative.” In an attempt to capture three different, salient, dimensions of political conflict in America, I asked participants to estimate the average

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<sup>11</sup>Similar information-providing designs have been implemented to test whether the correction of widely-held misinformation affects political attitudes. See Kuklinski et al. (2000), Gilens (2001), Todorov and Mandisodza (2004), and Howell and West (2009).

<sup>12</sup>Since the nature of the study made the collection of party and ideological self-identification problematic—collecting these data prior to the experiment would introduce priming, but collecting them after the experiment exposes them to the effects of the treatments—I used a two-wave panel design. Participants reported party identification, ideological self-placement, education, and political knowledge in the first wave. Participants completed the second wave, in which the experiment was embedded, five to nine days after the first. Attrition was high (49.3%), albeit typical for Mechanical Turk panels, and a potential concern is that participants in the second wave were unusual, thus severely limiting external validity. However, no differences emerge to trigger concerns about nonresponse bias. (See SI section 3.)

liberal and conservative positions on: 1) whether or not the government should guarantee each person a job and a certain standard of living, 2) how much they favor or oppose the U.S. government paying for all necessary medical care for all Americans, and 3) the importance of environmental protection versus protecting jobs and standard of living.<sup>13</sup> After identifying their perceptions of the average liberal and average conservative stance on these policy domains, participants moved on to the survey content in which the dependent variables were measured.

I presented participants randomly assigned to the “tell” condition with graphics that looked identical to the sliding scales used in the “ask” condition, but these graphics were not manipulable. Instead, they showed participants liberals’ and conservatives’ true average positions on these three policy dimensions. (See SI section 4 for a comparison of the experience across the conditions.) The average liberal position shown to subjects in “tell” was the mean self-placement on each of the issue scales by 2008 ANES respondents who identified as liberal, while the average conservative position was the mean self-placement on the same issue scales by ANES respondents who identified as conservative.<sup>14</sup>

However, these types of manipulations present a compound treatment problem: the “tell” treatment manipulates not only participants’ beliefs, but also the certainty with

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<sup>13</sup>The first and third questions are analogous to the “role of government” and “environment-economy tradeoff” questions used in Study 1. Study 2 was actually conducted prior to Study 1, in 2012, and the Supreme Court had not yet ruled on the Constitutionality of the Patient Protection and Affordable Care Act. For this reason, I removed all questions and manipulations related to health care from Study 1.

<sup>14</sup>Similar to Study 1, ANES respondents who self-placed at 1, 2, or 3 on the seven-point ideology scale were considered liberal, and ANES respondents who self-identified as 5, 6, or 7 on the seven-point ideology scale were considered conservative.

which they hold those beliefs. By comparing the “tell” and “ask” groups on the dependent variable, we estimate an average treatment effect of being *fully informed* of the true state of the world. While participants in the “ask” condition might only be taking a best guess about the state of the world, participants in the “tell” condition believe with certainty that the information they possess is correct, provided that the manipulation works as intended. This certainty, rather than the information itself, could affect outcomes on dependent variables of interest. If, indeed, respondents use beliefs about groups’ positions as heuristic considerations when reporting policy opinions, these considerations may become more important as certainty about the groups’ positions increases. On the other hand, if respondents believe the groups hold extreme positions but hold such beliefs with uncertainty, they may discount these beliefs and instead rely more heavily on other considerations. Thus, at best, the compound nature of the “tell” treatment vis-a-vis the “ask” condition renders causal inference murky, and, at worst, could bias results.

I solve this problem with a treatment that differs only from the “tell” condition on the information presented. Whereas the “tell” condition informs participants that self-described liberals and conservatives are relatively moderate, the third condition (called “distort”) attempts to impart (false) knowledge that the public is, in fact, relatively more polarized along ideological lines than it actually is. While results from the “tell” and “ask” conditions can determine whether misperceptions affect attitudes, comparing the “tell” and “distort” conditions can determine whether misinformation about polarization, decoupled from certainty, affects attitudes. The average positions given to participants assigned to this condition were the mean self-placement on each of the issue scales by ANES respondents who self-identified as “extremely liberal” and “extremely conservative.”<sup>15</sup>

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<sup>15</sup>These were the respondents who self-placed at 1 and 7 on the ANES 7-point scale. On the healthcare issue scale, though, the mean location of “conservative” respondents



On the same screen, I asked participants in “tell” and “distort” whether or not the locations depicted on the issue scales surprised them. This question serves three purposes. First, providing interactive content slows the survey experience on the manipulation screen, thus decreasing the probability that quick survey-takers miss the manipulation. Second, without such a question, participants in these two conditions might wonder why they were shown the information and begin to suspect their role as experimental subjects rather than survey respondents, thus opening the door for noncompliance or demand characteristics. Finally, the question about whether or not the locations are surprising serves as a manipulation check. Responses to this question can indicate whether the “tell” condition presented novel information, and similarly, whether the “distort” condition conformed to participants’ prior beliefs. The manipulation check confirms the effectiveness of the treatments. Additionally, randomization checks confirm that random assignment produced groups that were balanced on key covariates.<sup>16</sup>

The primary dependent concept of interest is the degree of extremity of policy opinions reported post-treatment. I asked for opinions on six specific policies, each of which was related to one of the broader policy dimensions used in the treatments. These policy questions included five-point scales related to Social Security privatization, the 2009 economic stimulus, deficit reduction via raising taxes versus cutting spending, the Keystone XL pipeline, cap-and-trade, and a three-point question on the Patient Protection and Affordable Care Act. Each item presented a neutral response (e.g., “Neither favor nor oppose”), and such responses were always located at the midpoint of the response set. I

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was actually more conservative than that of “very conservative” respondents. Because the goal of the “distort” condition is to create the illusion of mass-level polarization as the true state of the world, I chose to use the average response of the former group.

<sup>16</sup>See SI sections 7-8.

measure response extremism, the dependent variable, as the absolute distance of the reported opinion from the neutral response. As per Hypothesis 2, I expect that subjects in the “tell” condition will report policy opinions that are significantly closer to the midpoints of the policy questions than subjects assigned to the “ask” or “distort” conditions. Because responses to individual survey items tend to be highly noisy byproducts of multiple considerations (Zaller 1992; Ansolabehere, Rodden and Snyder 2008), I construct an index to measure the average extremism of responses to all questions (with extremity for each component item rescaled 0-1). This index, ranging from 0-1, serves as the primary outcome variable.<sup>17</sup>

## Results

I turn first to presenting a similar pattern of results as those from Study 1. As Figure 2 shows, participants asked about their perceptions of the typical liberal and conservative positions on the three policy dimensions reported beliefs that were significantly different from the truth. These average misperceptions were large and in the expected direction: participants’ perceptions of liberals and conservatives were far closer to the positions held by the most extreme identifiers (those shown to participants assigned to the “distort” condition) than to the true average positions of all group members (the positions shown in the “tell” condition).<sup>18</sup>

(Insert Figures 2a, 2b, and 2c here.)

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<sup>17</sup>See SI section 6 for details on the index and component items.

<sup>18</sup>As the confidence intervals indicate, the perceptions reported by participants assigned to “ask” tend not to be significantly different from the positions held by the most extreme liberals and conservatives. See SI section 5 for a full table corresponding to Figure 2.

As in Study 1, these misperceptions are not limited to beliefs about the outgroup. As Table 2 shows, both liberal and conservative participants tend to overestimate the extremism of both groups. Thus, we again observe a tendency to overestimate the degree of polarization between citizens who identify as liberal and citizens who identify as conservative, rather than a simple attribution of extremity to the other side.

Evidence of moderates' better perceptual accuracy is less clean in Study 2. The sample included just 12 non-leaning moderates, rendering meaningful inferences difficult to obtain. Further, the evidence from this small subsample of moderates is mixed. On the one hand, they report the most accurate perceptions, on average, for three of the six issue-group pairings, better than any other group. On the other three issues for which they are not more accurate than the target group itself, moderates' perceptions are consistently better than those of the target group's outgroup (e.g., conservatives beliefs about liberals' positions). On the other hand, the differences between moderates' average perceptions and those of the other groups are not significant, while moderates' perceptions are significantly different from reality for five of the six issue-group pairings. But again, we should interpret these results with caution: 95% confidence intervals for moderates' average perceptions were large, ranging from 1.35 to 1.84 points in width on the 7-point scale.

(Insert Table 2 here.)

Having found that participants overestimate their peers' political extremity, I turn to testing the effect of the "tell" condition. Does clearing up these misperceptions reduce participants' own extremity? Consistent with Hypothesis 2, the experimental results suggest that it does. Informing participants of the public's moderateness appears to decrease the average extremity of opinions participants report in the battery of policy questions. As Figure 3 shows, participants assigned to the "tell" condition report attitudes that are 8.0 percentage points more moderate, on average, than those reported by participants

assigned to the “ask” condition ( $p = .09$ ). This suggests that misperception of public polarization induces attitudes that are more extreme than they otherwise would be. This apparent effect translates into a poleward movement of .24 on a seven-point scale. While this may seem relatively small, it is important to note that if the “ask” condition most accurately represents the state of the world, polarization on these issues is close to half a point greater on a seven-point scale than it would be were participants fully informed about where liberals and conservatives stand.

(Insert Figure 3 here.)

Similarly, reinforcing misperceptions of mass-level extremity produces policy opinions that are significantly more extreme, on average, than those reported by participants whose incorrect perceptions were dispelled. Figure 3 shows that participants assigned to the “distort” condition reported opinions that were 11.3 percentage points more extreme, on average, than those reported by participants assigned to the “tell” condition ( $p = .02$ ). Again translating this into spatial terms, the average treatment effect of the “distort” condition is equivalent to a movement of .34 toward the appropriate anchor of a seven-point scale. Note, however, that while participants assigned to “distort” reported attitudes slightly more extreme than those assigned to “ask,” this difference is not statistically significant. The major difference is found between “tell” and the other two treatments. Correcting participants’ ignorance of the public’s centrism thus appears to lead participants to report policy positions roughly 8–11 percentage points (or 0.48–0.68 scale points) more moderate, on average, than they otherwise would for these issues.

The estimates reported in Figure 3 are average treatment effects of information, generated by comparing the mean extremity of opinions reported by participants from the three groups. However, we know that some participants (17.9%) assigned to the “tell” condition reported being unsurprised by the relatively centrist positions held by self-described

liberals and conservatives. In addition to the average effect of this information, we might be interested in the effect of such information being novel or surprising. We can estimate such an effect via instrumental variables. This procedure is relatively straightforward for a randomized experiment with one-way noncompliance, which we have in the case of comparing the “ask” group to the “tell” group.<sup>19</sup> By using assignment to the “tell” condition as an instrument for becoming informed about other citizens’ relative moderateness, we can estimate a *complier average causal effect* (CACE) (Bloom 1984; Angrist and Pischke 2009). This is a local average treatment effect for individuals whose beliefs about their peers’ extremism would be changed by the information provided in the “tell” condition.

According to such an analysis, as expected, the effect of the treatment on compliers is larger than the corresponding average treatment effect depicted in Figure 3. Compared to those assigned to the “ask” condition, participants who learn that liberals and conservatives are actually more centrist than they had previously thought report opinions that are 13 percentage points more moderate, on average (s.e. = 0.07,  $p = 0.08$ , two-sided t-test,  $n = 67$ ).<sup>20</sup> Information about fellow citizens’ relative moderateness does not affect everyone equally. But when this treatment does alter perceptions of public polarization, its effect on the political opinions that individuals subsequently report is quite apparent.

The results presented thus far address the moderating effect of information about the public’s relative centrism on individuals’ *average* extremity, measured by an index of policy opinion questions. This is the most reasonable way to gauge such an effect, as responses to individual survey items reflect a sample of disparate considerations and are

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<sup>19</sup>That is, there is no way that participants assigned to the “ask” group could have received the treatment, but participants assigned to the “tell” group could have been—and were, in 17.9% of cases—unaffected by it.

<sup>20</sup>See SI section 10 for full details on the analysis and regression tables.

prone to measurement error (Zaller 1992; Ansolabehere, Rodden and Snyder 2008). Given this tendency, we should be surprised to find a significant effect of the “tell” treatment on all of the individual policy opinion items, and, indeed, very few of these tests reach statistical significance.<sup>21</sup> However, the coefficients associated with the “ask” and “distort” treatments are positive for 10 out of the 12 individual items, which we would only expect with a probability of .045 if the sign of these coefficients was determined by the flip of a fair coin.<sup>22</sup> This outcome indicates the robustness of the main finding and implies that no single opinion item is driving the results reported in the pooled analyses.

## Discussion

The studies here provide evidence that citizens believe their peers to be more polarized than they actually are. Study 2 also provides evidence that such misperceptions can affect individuals’ own political attitudes. When misperceived extremism is cleared up, participants report attitudes of their own that are more moderate, on average, than those of participants whose prior beliefs about liberals and conservatives are simply primed or are reinforced. In this sense, misperceptions of polarization appear to be partially self-fulfilling: erroneous beliefs about the extreme views of liberal and conservative citizens lead individuals to adopt views that are slightly more extreme in and of themselves.

The finding that liberals and conservatives tend to view members of both groups as

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<sup>21</sup>See SI section 6 for these individual tests and survey item details.

<sup>22</sup>When we drop the analysis of the “distort” condition on health care because respondent perceptions of liberals and conservatives on this issue were actually *more* extreme than the positions reported in “distort,” we are left with positive coefficients on 10 out of 11 individual-item analyses ( $p = .013$ ).

more extreme than they actually are is distinct in comparison to previous studies finding that citizens are accurate with respect to their own groups' positions but overattribute extremism to the outgroup (Brady and Sniderman 1985; Linville and Jones 1980). Indeed, Study 1 provides evidence that the most perceptually accurate participants are the moderates—those who explicitly choose not to identify with either group when given the chance to lean one way or the other. The reason for this noteworthy finding is beyond the scope of this research but certainly worth future exploration. Past research has often concluded that choosing sides correlates with civic engagement and political knowledge (Keith et al. 1986; Abramowitz 2010). In the case of accurate perception of public opinion, this does not appear to be true.

Interestingly, a similar pattern of across-the-board misperception emerges in Farwell and Weiner's (2000) lab study of stereotypes of liberals and conservatives: members of both groups believe that ingroup members as well as outgroup members will behave in a more stereotype-confirming fashion than they actually do. Similarly, Robinson et al. (1995) find that partisans are likely to believe their fellow group members are more ideologically-motivated and less politically pragmatic than they truly are. The point is that erroneous perceptions of other citizens are not restricted to beliefs about the outgroup, but instead appear to follow a more general pattern of overestimated polarization.

Why do we observe a discrepancy between the pattern of results found in this study and the others described above when compared to Brady and Sniderman's seminal finding of one-sided misperception?<sup>23</sup> While this question is outside the purview of this study,

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<sup>23</sup>A potential reason pertains to samples. Brady and Sniderman rely on the ANES, a representative sample of the American population, while the studies discussed and cited here rely on a representative sample of Californian voters and a variety of convenience samples. The results from California in Study 1 should cast doubt on this explanation.

a possible avenue for future research concerns the information flows to which citizens are exposed today compared to past decades. The proliferation of partisan media via cable television, talk radio, and the Internet is a relatively recent phenomenon and one that has shaped the way that citizens learn about politics. Gone are the days of the dominance of dry and relatively unslanted nightly news broadcasts. Instead, the most politically interested can choose from any number of ideologically congruent media outlets, while the least interested can opt out altogether (Prior 2007). And as the late James Q. Wilson (2006) argues, the increased competition in the media landscape has produced greater sensationalism and combativeness in political coverage. Even in traditional news outlets, however, citizens today encounter more extreme exemplars of liberals and conservatives due to elite polarization. This, in and of itself, could affect citizens' perceptions of the groups at the mass-level. Future experimental research could manipulate the types of media to which individuals are exposed, as well as the elite exemplars covered therein, to better identify the effect of information flows on perceptions of mass-level polarization.

Additionally, citizens have become increasingly sorted into liberal and conservative enclaves in recent decades (Bishop 2009). Residential sorting tends to produce social networks that are more homogenous with respect to politics, which tends to encourage political discussion within networks (Mutz 2002). One might conclude that increased discussion would lead citizens to hold more accurate perceptions. However, when citizens think about sociopolitical groups, they may be most likely to recall the most ideologically devoted members. Ideologues are most likely to engage in campaign activities, try to per-

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The distribution of ideology in California is not unlike that of the entire United States (see SI section 1.) More importantly and contrary to popular belief, Californians tend not to be isolated in liberal and conservative havens where they rarely encounter the other side of a debate (Kousser, Phillips and Shor 2013; Ahler, Citrin and Lenz 2013).



suade other citizens to adopt similar beliefs, and undertake the types of actions that make them easily accessible as liberal or conservative archetypes (Allport and Hartman 1925; Fiorina, Abrams and Pope 2005). Thus, the effect of residential sorting on how citizens perceive their own sociopolitical groups is another avenue of research worth exploring.

The psychological mechanisms underpinning this phenomenon should be fully explored, but so too should potential cures. The “tell” treatment very rarely exists in the real world, if at all, but the “distort” treatment is available with the click of a mouse or the tuning of a dial. This holds consequences for democratic accountability. A public that believes itself to be divided into two extreme factions is one that can be more easily manipulated by an elite political class that is, by many accounts, more extreme than the citizens it informs and represents (Fiorina and Abrams 2009; Bafumi and Herron 2010). The research presented here provides evidence that such erroneous beliefs do not simply exist, but that citizens consider these beliefs when forming opinions and subsequently veer from the political center themselves. As such, finding a way to broadcast the true distribution of public opinion may constitute a start toward improving the political climate and re-engaging citizens in constructive political discussion.

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# References

- Abramowitz, Alan I. 2010. *The Disappearing Center: Engaged Citizens, Polarization, and American Democracy*. New Haven, CT: Yale University Press.
- Ahler, Douglas J., Jack Citrin and Gabriel S. Lenz. 2013. "Do Open Primaries Help Moderate Candidates? An Experimental Test on the 2012 California Primary." Working paper.
- Allport, Floyd and D.A. Hartman. 1925. "The Measurement and Motivation of Atypical Opinion in a Certain Group." *American Political Science Review* 19:735–760.
- Angrist, Joshua D. and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics*. Princeton, NJ: Princeton University Press.
- Ansolabehere, Stephen, Jonathan Rodden and James M. Snyder. 2008. "The Strength of Issues: Using Multiple Measures to Gauge Preference Stability, Ideological Constraining, and Issue Voting." *American Political Science Review* 102(215-232).
- Bafumi, Joseph and Michael C. Herron. 2010. "Leapfrog Representation and Extremism: A Study of American Voters and Their Members in Congress." *American Political Science Review* 104(3):519–542.
- Bartels, Larry M. 2008. *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton, NJ: Princeton University Press.

- Berinsky, Adam J., Gergory A. Huber and Gabriel S. Lenz. 2012. "Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk." *Political Analysis* 20(2):351–368.
- Bishop, Bill. 2009. *The Big Sort: Why the Clustering of Like-Minded America is Tearing Us Apart*. Boston: Houton Mifflin Harcourt.
- Bloom, Howard S. 1984. "Accounting for No-Shows in Experimental Evaluation Designs." *Evaluation Review* 8:225–246.
- Brady, Henry E. and Paul M. Sniderman. 1985. "Attitude Attribution: A Group Basis for Political Reasoning." *American Political Science Review* 79:1061–1078.
- Broockman, David E. 2013. "An Artificial Disconnect: The Extreme Public and Its Moderate Representatives." Working paper.
- Brownstein, Ronald. 2007. *The Second Civil War: How Extreme Partisanship Has Paralyzed Washington and Polarized America*. New York: Penguin Press.
- Campbell, Angus, Philip E. Converse, Warren E. Miller and Donald E. Stokes. 1960. *The American Voter*. Chicago: University of Chicago Press.
- Citrin, Jack, Cara Wong and Brian Duff. 2001. The Meaning of American National Identity: Patterns of Ethnic Conflict and Consensus. In *Social Identity, Intergroup Conflict, and Conflict Reduction*, ed. Richard D. Ashmore, Lee J. Jussim and David Wilder. Oxford: Oxford University Press.
- Conover, Pamela Johnston and Stanley Feldman. 1981. "The Origins and Meaning of Liberal/Conservative Self-Identifications." *American Journal of Political Science* 25(4):617–645.

- Converse, Philip. 1964. The Nature of Belief Systems in Mass Publics. In *Ideology and Discontent*, ed. David Apter. New York: Free Press.
- Converse, Philip E. 2000. "Assessing the Capacity of Mass Electorates." *Annual Review of Political Science* 3:331–353.
- Farwell, Lisa and Bernard Weiner. 2000. "Bleeding Hearts and the Heartless: Popular Perceptions of Liberal and Conservative Ideologies." *Personality and Social Psychology Bulletin* 26(7):845–852.
- Field (California) Poll – September 2012. 2012. [Machine-readable data file.] San Francisco, CA: Field Research Corporation: Field (California) Poll 12-04.
- Fiorina, Morris P. and Samuel J. Abrams. 2009. *Disconnect: The Breakdown of Representation in American Politics*. Norman, OK: University of Oklahoma Press.
- Fiorina, Morris P., Samuel J. Abrams and Jeremy Pope. 2005. *Culture War?* New York: Pearson Longman.
- Gerring, John. 1998. *Party Ideologies in America: 1828-1996*. New York: Cambridge University Press.
- Gilens, Martin. 2001. "Political Ignorance and Collective Policy Preferences." *American Political Science Review* 95(2):379–396.
- Gilovich, Thomas. 1981. "Seeing the Past in the Present: The Effect of Associations to Familiar Events on Judgments and Decisions." *Journal of Personality and Social Psychology* 40(5):797–808.
- Graham, Jesse, Brian A. Nosek and Jonathan Haidt. 2012. "The Moral Stereotypes of Liberals and Conservatives: Exaggeration of Differences across the Political Spectrum." *PLoS ONE* 7(12):e50092. doi:10.1371/journal.pone.0050092.

- Green, Donald, Bradley Palmquist and Eric Schickler. 2002. *Partisan Hearts & Minds: Political Parties and the Social Identities of Voters*. New Haven, CT: Yale University Press.
- Hacker, Jacob S. and Paul Pierson. 2006. *Off Center: The Republican Revolution & the Erosion of American Democracy*. New Haven, CT: Yale University Press.
- Howell, William G. and Martin R. West. 2009. "Educating the Public." *Education Next* 9(3):41–47.
- Iyengar, Shanto, Gaurav Sood and Yphtach Lelkes. 2012. "Affect, Not Ideology: A Social Identity Perspective on Polarization." *Public Opinion Quarterly* 76(3):405–431.
- Jacobson, Gary C. 1996. "The 1994 House Elections in Perspective." *Political Science Quarterly* 111(2):203–223.
- Keith, Bruce E., David B. Magleby, Candice J. Nelson, Elizabeth Orr, Mark C. Westlye and Raymond E. Wolfinger. 1986. "The Partisan Affinities of Independent 'Leaners'." *British Journal of Political Science* 16:155–184.
- Kousser, Thad, Justin Phillips and Boris Shor. 2013. "Reform and Representation: Assessing California's Top-Two Primary and Redistricting Commission." Working paper.
- Krech, David and Richard S. Crutchfield. 1948. *Theory and Problems of Social Psychology*. McGraw-Hill chapter The Field and Problems of Social Psychology, pp. 3–28.
- Kuklinski, James H., Paul J. Quirk, Jennifer Jerit, David Schweider and Robert F. Rich. 2000. "Misinformation and the Currency of Democratic Citizenship." *The Journal of Politics* 62(3):790–816.
- Lenz, Gabriel S. 2012. *Follow the Leader? How Voters Respond to Politicians' Policies and Performance*. Chicago: University of Chicago Press.

- Levendusky, Matthew S. 2010. "Clearer Cues, More Consistent Voters: A Benefit of Elite Polarization." *Political Behavior* 32(1):111–131.
- Linville, Patricia W. and Edward E. Jones. 1980. "Polarized Appraisals of Out-Group Members." *Journal of Personality and Social Psychology* 38(5):689–703.
- Lupia, Arthur. 1994. "Shortcuts Versus Encyclopedias: Information and Voting Behavior in California Insurance Reform Elections." *American Political Science Review* 88(1):63–76.
- Mackie, Diane and Joel Cooper. 1984. "Attitude Polarization: Effects of Group Membership." *Journal of Personality and Social Psychology* 46(3):575–585.
- McCarty, Nolan, Keith T. Poole and Howard Rosenthal. 2006. *Polarized America: The Dance of Ideology and Unequal Riches*. Cambridge, MA: MIT Press.
- Miller, Dale T., Benoit Monin and Deborah A. Prentice. 2000. Pluralistic Ignorance and Inconsistency between Private Attitudes and Public Behaviors. In *Attitudes, Behaviors, and Social Context*, ed. Deborah J. Terry and Michael A. Hogg. Mahwah, NJ: Lawrence Erlbaum Associates.
- Mutz, Diana C. 1998. *Impersonal Influence: How Perceptions of Mass Collectives Affect Political Attitudes*. Cambridge: Cambridge University Press.
- Mutz, Diana C. 2002. "The Consequences of Cross-Cutting Networks for Political Participation." *American Journal of Political Science* 46(4):838–855.
- Mutz, Diana C. 2007. "Effects of "In-Your-Face" Television Discourse on Perceptions of a Legitimate Opposition." *American Political Science Review* 101(4):621–35.
- Paolacci, Gabriele, Jesse Chandler and Panagiotis G. Ipeirotis. 2010. "Running Experiments on Amazon Mechanical Turk." *Judgment and Decision Making* 5(5):411–419.

- Prior, Markus. 2007. *Post-Broadcast Democracy: How Media Choice Increases Inequality in Political Involvement and Polarizes Elections*. New York: Cambridge University Press.
- Robinson, Robert J., Dacher Keltner, Andrew Ward and Lee Ross. 1995. "Actual Versus Assumed Differences in Construal: "Naive Realism" in Intergroup Perception and Conflict." *Journal of Personality and Social Psychology* 68(3):404–417.
- Stroud, Natalie Jomini. 2008. "Media Use and Political Predispositions: Revisiting the Concept of Selective Exposure." *Political Behavior* 30(3):341–366.
- Tajfel, Henri and John C. Turner. 2005. *Political Psychology*. New York: Psychology Press chapter The Social Identity Theory of Intergroup Behavior.
- Todorov, Alexander and Anesu N. Mandisodza. 2004. "Public Opinion on Foreign Policy: The Multilateral Public that Perceives Itself as Unilateral." *Public Opinion Quarterly* 68(3):323–348.
- Wilson, James Q. 2006. "How Divided Are We?" *Commentary* pp. 15–21.
- Zaller, John R. 1992. *The Nature and Origins of Mass Opinion*. Cambridge: Cambridge University Press.

## **Biographical Statement**

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## Tables and Figures

**Table 1:** Liberal and Conservative Positions, as Perceived by Respondents in Study 1

	Role of Government		Environmentalism	
	Liberals	Conservatives	Liberals	Conservatives
Actual Mean Position	3.71 (0.08) (n=444)	5.34 (0.08) (n=342)	3.55 (0.07) (n=342)	4.74 (0.08) (n=445)
Mean Estimate by Liberal Respondents	3.45** (0.08) (n=434)	5.52** (0.08) (n=434)	3.32** (0.07) (n=436)	5.39*** (0.07) (n=435)
Mean Estimate by Conservative Respondents	2.74*** (0.10) (n=305)	5.64** (0.08) (n=306)	2.81*** (0.10) (n=305)	5.12*** (0.08) (n=306)
Mean Estimate by Moderate Respondents	3.63 (0.08) (n=431)	5.16** (0.08) (n=431)	3.60 (0.08) (n=432)	4.89* (0.08) (n=432)

Standard errors in parentheses. Two-sided *t*-tests of the hypothesis that the mean estimate equals the actual mean position. Asterisks denote levels of statistical significance: \* =  $p < .10$ ; \*\* =  $p < .05$ ; \*\*\* =  $p < .001$ .



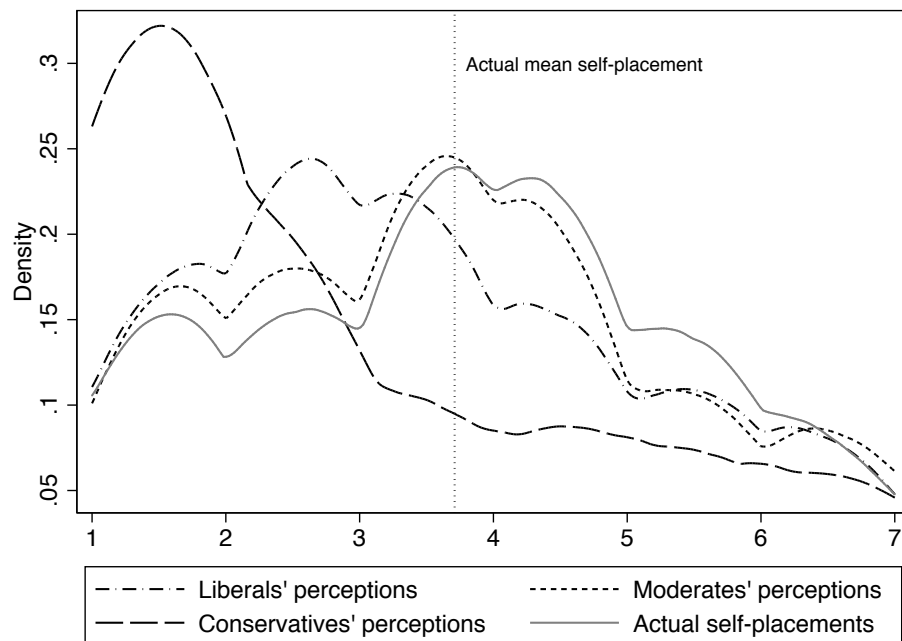
**Table 2:** Liberal and Conservative Positions, as Perceived by Liberal, Conservative, and Moderate Participants in Study 2

	Role of Government		Universal Healthcare		Environmentalism	
	Liberals	Conservatives	Liberals	Conservatives	Liberals	Conservatives
True Position	3.64	5.13	2.58	4.88	3.24	4.37
Mean Estimate by Liberal Participants	2.67*** (0.23) (n=41)	5.91** (0.23) (n=41)	2.01** (0.17) (n=41)	5.82*** (0.25) (n=41)	2.78** (0.20) (n=41)	5.92*** (0.17) (n=41)
Mean Estimate by Conservative Participants	2.17*** (0.29) (n=16)	5.65* (0.27) (n=16)	1.70*** (0.20) (n=16)	5.96*** (0.21) (n=16)	2.08*** (0.18) (n=16)	5.64*** (0.21) (n=16)
Mean Estimate by Moderate Participants	2.43** (0.33) (n=12)	5.71* (0.32) (n=12)	2.04 (0.31) (n=12)	5.57 (0.42) (n=12)	2.42** (0.32) (n=12)	5.48** (0.32) (n=12)

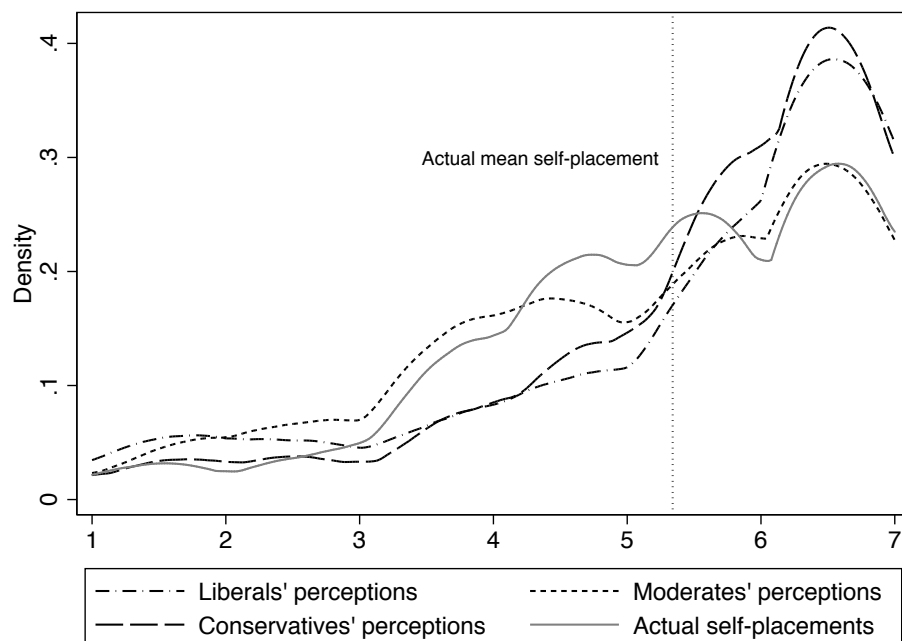
Standard errors in parentheses. Two-sided *t*-tests of the reported estimates against the true positions taken by the average liberal or average conservative on the 2008 ANES. \* =  $p < .10$ ; \*\* =  $p < .05$ ; \*\*\* =  $p < .001$ .

**Figure 1:** Perceptions of Liberals and Conservatives in California, Compared with Actual Positions (Kernel Density Estimates)

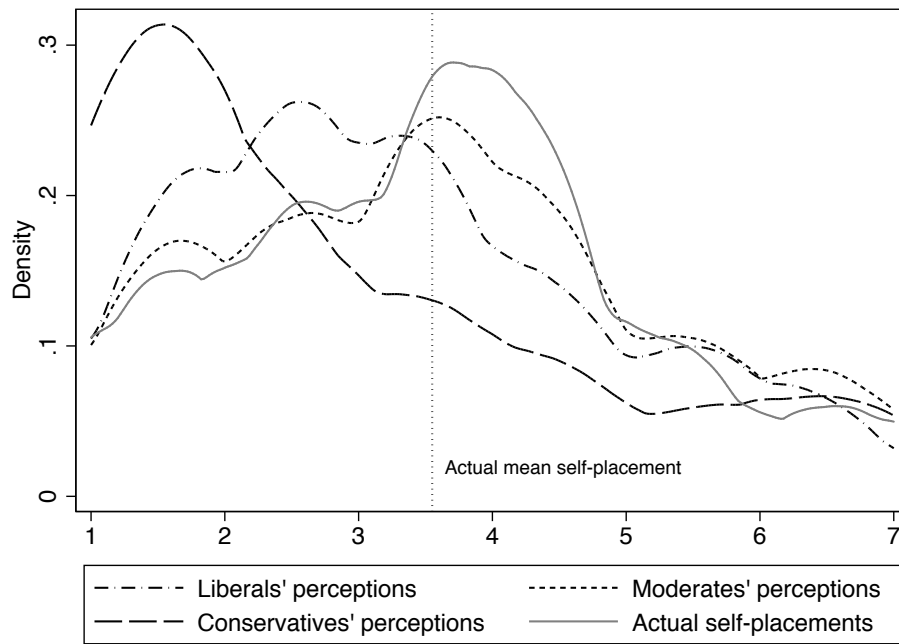
**(a) Perceived and Actual Positions of CA Liberals on the Role of Government**



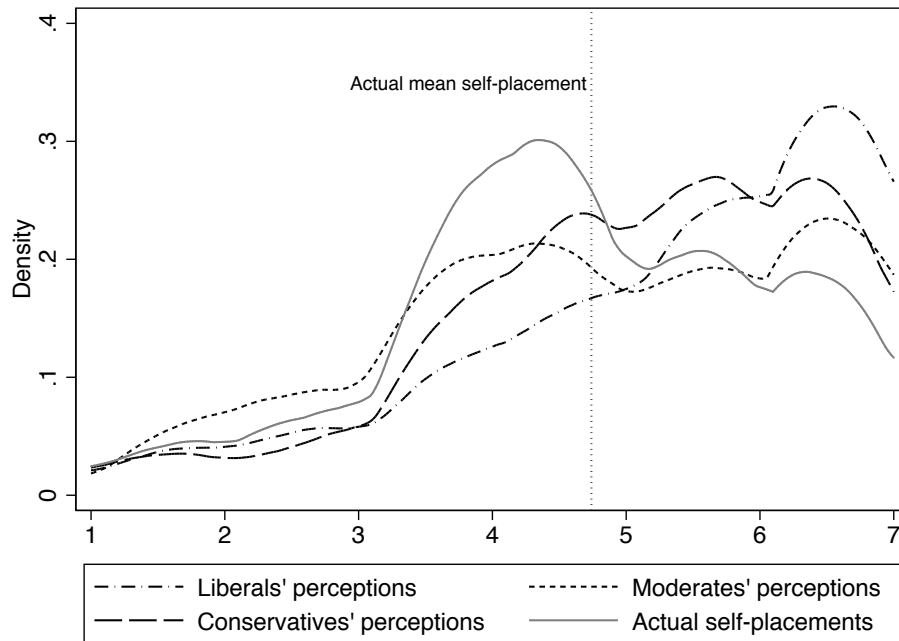
**(b) Perceived and Actual Positions of CA Conservatives on the Role of Government**



(c) Perceived and Actual Positions of CA Liberals on Environmentalism



(d) Perceived and Actual Positions of CA Conservatives on Environmentalism



**Figure 2:** Spatial Representation of Perceptions of Liberal and Conservative Policy-Related Predispositions, Compared to Information Given in “Tell” and “Distort”



**(a) Role of Government in Economic Welfare**



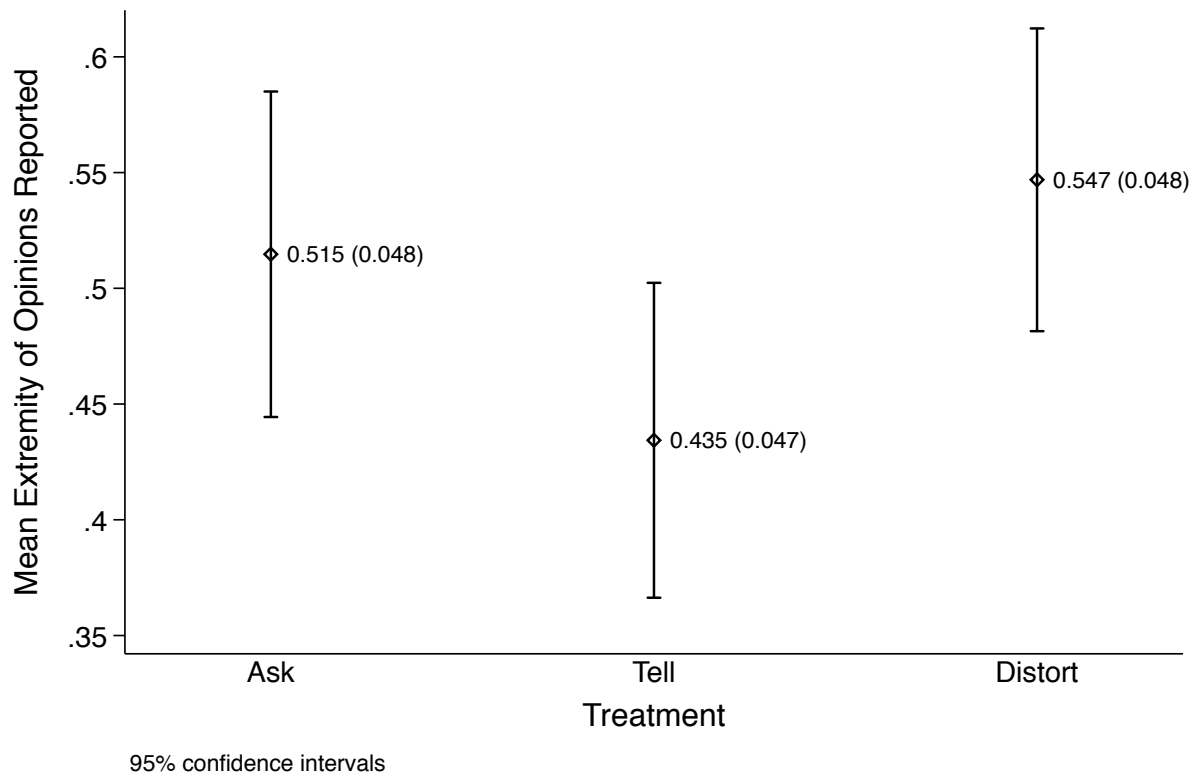
**(b) Healthcare**



**(c) Environmental Policy/Protection**

$A_L$  and  $A_C$  are the average liberal and conservative positions given by subjects assigned to the “ask” condition. Thick black bars represent 95% confidence intervals.  $T_L$  and  $T_C$  are the average positions reported by all self-described liberals and self-described conservatives on the 2008 ANES, and subsequently used for the “tell” condition in this study.  $D_L$  and  $D_C$  are the average positions reported by the most extreme liberal and conservative identifiers on the 2008 ANES, used for this study’s “distort” condition.

**Figure 3:** Mean Extremity of Political Opinion Reported by Study 2 Participants, by Experimental Condition



Extremity is measured as the average of all policy opinions reported, folded. Standard errors in parentheses. The difference in extremity between the “ask” and “tell” conditions is -0.80 ( $p < 0.10$ ). The difference in extremity between the “distort” and “tell” conditions is -0.113 ( $p < 0.05$ ). The difference in extremity between the “ask” and “distort” conditions is 0.032, which is not statistically significant. All p-values are based on two-sided t-tests. See SI section 9 for regression tables.