

# Moral reframing increases support for economically progressive candidates

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J.G.V. and R.W. designed the research. J.G.V. and R.W. collected the data for studies 1 and 2. J.G.V. and J.S.M. compiled the data for study 3. J.G.V. analyzed the data. J.G.V. and R.W. wrote the paper.

## Abstract

Economically progressive candidates—candidates who champion redistributive policies designed to reduce inequality—rarely win elections in the United States. Here, we propose that progressive candidates achieve greater support by framing their policy platforms in terms of values that resonate beyond their progressive base. In two experiments (total  $N = 4,138$ ), including one preregistered experiment conducted on a nationally representative probability sample, we found that a presidential candidate who framed his progressive economic platform using values consistent with the “binding” moral foundations—e.g. patriotism, family, and respect for tradition—as opposed to values consistent with the “individualizing” foundations, e.g. equality and social justice, received significantly stronger support. This effect was driven by increased support among conservatives and, unexpectedly, moderates as well. By comparison, a manipulation of how progressive the candidate’s platform was had small and inconsistent effects. Despite the potential gains associated with binding framing, analyses using presidential candidates’ debate speeches reveal that appeals to binding values are least common among progressive candidates. These findings show, however, that the alignment between values and candidate support is malleable, suggesting economically progressive candidates can build broader coalitions by reframing the values they associate with their platforms.

**Keywords:** framing, persuasion, economic policy, political psychology, moral psychology

## Significance Statement

Although most Americans view economic inequality in the United States to be excessive, the candidates who most strongly support redistributive policies rarely win elections. We find in two experiments that economically progressive candidates can broaden their base of support by framing their policy platform in terms of “binding values” like patriotism, the family, and respect for tradition. Text analysis of the moral rhetoric of presidential candidates found that prominent progressive candidates were less likely to frame their platforms in terms of binding values than conservative candidates. Our results suggest that moral reframing is an effective yet underutilized strategy for progressive candidates seeking to build broader electoral coalitions.

## Introduction

Americans do not typically elect economically progressive candidates (1–4). An important consequence of the lacking electoral success of economically progressive candidates is that redistributive policies that would reduce economic equality such as increasing the minimum wage (5) and access to health care (6) do not get passed by congress. This is surprising because large majorities of Americans view economic inequality in the United States as excessive, indicating they prefer a more egalitarian society (7–9).

Here, we propose that economically progressive candidates can broaden their electoral support in general elections by appealing to values that resonate with ideologically conservative voters. We argue that ideologically conservative voters’ opposition to

economically progressive candidates is not entirely rooted in opposition to these candidates’ policies. Indeed, there is evidence that many ideologically conservative voters support these policies, likely in part because many expect that they would benefit materially from them (10). Instead, we reason that ideologically conservative voters’ opposition is at least partly rooted in the values associated with economically progressive campaigns, which are unpersuasive or even off-putting to conservatives. However, research finds that the values underlying policies and candidates are often more malleable than is commonly assumed (11–13). Therefore, we propose that economically progressive candidates can increase their electoral support, in particular among ideologically conservative voters, by connecting their policy platforms with values associated with the “binding” moral foundations—

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such as family, patriotism, purity, and tradition—that resonate more with ideologically conservative Americans (14).

## Electoral barriers to economically progressive politicians

We define economically progressive politicians as candidates who champion economically progressive policies. We define progressive economic policies as governmental interventions on the free market that aim to reduce economic inequality, poverty, or increase opportunities for upward mobility.<sup>1</sup> Progressive economic policies can be contrasted with conservative economic policies that protect the free market.

One may expect that economically progressive candidates are more successful under two conditions. First, voters perceive economic inequality as too high. Second, economically progressive policies reduce economic inequality. Both of these conditions appear to be met in the United States. Economic inequality in the United States has surged since the 1970s (15). According to one nationally representative survey, even Republicans indicate that they would desire a more equal distribution of wealth than the status quo (8). Data from the General Social Survey suggest that majorities of Americans hold the belief for decades that income inequality is too large (16). Although the extent of the difference between actual and desired levels of inequality has received significant attention in the literature (e.g. 17), no research questions that a majority of Americans would prefer a more equal society (see also 7, 9).

One potential path to reducing inequality would be passing progressive economic policies. Most policy analysis suggests that progressive economic policies—such as increasing the minimum wage and increasing access to health care—would indeed reduce inequality (5, 6, but see also 18 for an example of a critical analysis). Furthermore, comparative research suggests that one reason for the high levels of economic inequality in the United States is the absence of economically progressive policies. Specifically, compared with other Western, industrialized countries with lower levels of economic inequality, the United States has a tax system that is relatively more favorable to the wealthy (19, 20), a relatively small welfare state (21), and a low rate of unionization (22).

Given Americans are concerned about inequality and economically progressive policies could reduce inequality, one might assume that economically progressive candidates—the strongest proponents of economically progressive policies—would be very competitive in American elections. However, historical analyses show that economically progressive candidates—including those associated with third parties (e.g. labor or socialist parties)—have largely failed to gain traction in the United States (23–25). Economically progressive candidates remain unsuccessful in recent years, typically losing to moderate<sup>2</sup> (3, 4) or economically conservative candidates (26). Indeed, many scholars argue that Americans regularly elect politicians who implement policies that increase economic inequality (1), although these policies do not represent the economic preferences of the majority of Americans (27). This pattern continues to the present day, as

progressive candidates within the Democratic party underperformed in comparison with their moderate counterparts in the 2018 midterm election (28) and in studies of hypothetical challengers to Donald Trump in the 2020 presidential election (29).

Why do Americans rarely elect economically progressive candidates? A decades-old literature has identified a number of explanations for this pattern, from the challenge of organizing America's racially diverse working class (24, 30) to the out-sized influence of wealthy donors in American politics (31, 32; but see also 33).<sup>3</sup> In this paper, we study another potential factor, the possibility that progressive candidates do not employ values that receive broad support in the American public. Our argument draws on the insight that one important reason for the electoral disadvantage of more progressive candidates might be that they draw particularly strong opposition from ideologically conservative voters (4), which constitute a particularly large ideological group of American voters (10, 34, 35)<sup>4</sup>. Interestingly, many ideologically conservative voters support economically progressive policies (10), suggesting that their opposition is not entirely rooted in their views of progressive candidates' economic policy positions, but also in other factors.

Specifically, we suggest here that ideologically conservative voters' opposition is partly rooted in the values perceived to underlie economically progressive candidates' campaigns. Prior research suggests that Republican voters are particularly likely to continue voting for candidates who voted in congress against their voters' policy preferences (36, 37). The reason is that voters also hold symbolic preferences—such as moral values (37)—that can outweigh policy preferences (36).

Research in the Moral Foundations Theory framework finds that Americans who identify as ideologically conservative and liberal endorse different moral values to different degrees (14). Ideologically conservative Americans endorse the so-called binding moral foundations of loyalty, respect for authority, and sanctity more and the so-called individualizing foundations of care and fairness less than ideologically liberal Americans (14, ; cf. 38).

We suggest that economically progressive candidates often frame their campaigns around values that do not resonate with economically conservative voters. Research suggests that economically progressive candidates have a long history of embedding their rationales for progressive economic policies in a value framework focused on social justice and equality (values that are consistent with the individualizing moral foundations<sup>5</sup>), rarely employing values consistent with the binding foundations like patriotism, tradition, and religiosity that are widely held by the working class (cf. 24). Some have argued that economically progressive candidates have become even more likely in recent years to frame their policies as consistent with social justice and equality (41). Although there is some evidence that such justice and equality frames can increase support among Democrats (11, ; but see also 41), justice and equality frame are not effective in

<sup>3</sup> Others have argued that Americans' support for economically progressive policies is low because of persistent belief in high rates of upward mobility opportunities (i.e. the "American dream"; 23). However, such explanations may be less influential in the contemporary United States where, as we note above, core progressive economic policies are quite popular.

<sup>4</sup> Although conservatives remain the largest ideological group, the share of liberals has increased by five percentage points between 2012 and 2020 (ANES n.d.).

<sup>5</sup> Moral values and moral foundations are related but distinct concepts. In this paper, we understand moral reframing as a technique that links positions with moral values which we define as transsituational, abstract beliefs about right and wrong that guide judgements and behavior (based on 39). We understand moral foundations as the constraining starting point from which cultures develop and refine more specific moral values (40). For example, patriotism is a moral value derived from the moral foundation of loyalty.

<sup>1</sup> We use the term "progressive" instead of "liberal" to describe left-wing economic policies in order to avoid confusion because "liberal" is commonly associated with "neoliberalism," which favors free-market capitalism.

<sup>2</sup> Hall (3) also finds that economically conservative candidates typically lose to more moderate candidates. Note that this effect is not specific to economic ideology. Because the political ideology of elite politicians is increasingly unidimensional, the economic policy positions of a candidate are highly associated with positions on other issues.

changing attitudes among Republicans (41) or ideologically conservative Americans (11). Thus, the values that economically progressive candidates often appeal to likely do not resonate strongly with ideological conservatives.

## Morally reframing economically progressive campaigns

The current research investigates the possibility that progressive economic policies and the values held by ideologically conservative Americans are in fact reconcilable, a claim that—if true—would allow economically progressive candidates to appeal to voters who are ideologically conservative. This claim fits with recent work showing that the value bases of policies are quite malleable and that policies can be reframed as consistent with values that resonate with people who do not currently support the policies, leading to increased overall support for the policies. For example, prior work on “moral reframing” (12) finds that various political positions can be persuasively reframed as consistent with values of different ideological groups. For example, results of one experiment showed that reading an essay emphasizing that gay men and women were proud and patriotic Americans increased ideological conservatives’ support for same-sex marriage relative to a more conventional argument for same-sex marriage based on egalitarianism. Similarly, ideological liberals who read an argument that the military helps disadvantaged people overcome poverty and inequality reported significantly greater support for military spending than ideological liberals who read a pro-military spending argument based on patriotism and respect for authority (11).

Building on this work, we propose that economically progressive candidates can increase electoral success by framing their policies as consistent with values such as patriotism and respect for authority and that this increase will be greatest among more ideologically conservative voters. To be clear, we would expect that such framing increases support among conservatives for any candidate, independent of how economically progressive they are. However, economically progressive candidates are a particularly interesting case because support for them has historically been relatively low. This prediction is nontrivial for several reasons. First, conservatives not only are less likely to express concern about economic inequality than other Americans; research finds they are uniquely likely to endorse a variety of ideologies—preference for small government, trickle-down economics, libertarianism, fair market ideology, the Protestant work ethic, and the American dream, among others—that could make them averse to progressive policies, no matter how they are framed. Further, we explore the effects of binding framing among moderates, who are also more likely to endorse these ideologies than liberals. Thus, it is possible that economically progressive candidates’ efforts to gain support through moral rhetoric that could resonate beyond the progressive base could fail because they are seen as offering a solution to a problem that does not exist or which is best addressed through fundamentally different approaches. Second, we tested our hypotheses in the context of a high salience election type (the 2020 presidential general election) with a well-known challenger (Donald Trump), a setting which other work finds was not conducive to finding persuasion effects (42). Thus, we view this setting as likely a relatively conservative one in which to test our predictions.

Third, individualizing moral values (such as justice and equality) are often seen as universally recognized, whereas binding moral values (such as patriotism and respect for traditions) are

endorsed more by ideological conservatives than liberals (43). Based on this, one might expect that individualizing value framing will result in larger overall support than binding value framing because it resonates with a larger group of people. However, work on moral reframing suggests that ideological conservatives are typically unpersuaded by justice and equality framing (11), casting doubt on the universal appeal of such values.

Finally, it may be rhetorically impossible to coherently advocate for economically progressive policies in terms of values associated with ideological conservatism, especially in a period of high polarization that finds supporters of economic progressivism and ideological conservatism typically aligned with opposing political parties (44), low rates of cross-cutting attitudes (45), and rare attitudinal change (46). Indeed, some have argued that progressive economic policies are fundamentally inconsistent with values widely held by ideologically conservative Americans (47). However, there is historic precedent for effectively tying progressive economic policies to values like loyalty and solidarity by the American labor movement (48) and the pairing of religiosity with economic redistribution by the religious Left (49). Accordingly, we argue that the relationship between economically progressive policies and values such as patriotism and respect for traditions is malleable, making it possible to craft these connections coherently and persuasively.

## Results

### Study 1

The aim of the current research is to test the idea that moral reframing increases support for economically progressive political candidates. In study 1, we tested the hypothesis that ideologically conservative participants will support a progressive political candidate more if the candidate frames their economic policies as consistent with binding instead of individualizing values in a large-scale, online survey-experiment on a nonrepresentative, convenience sample recruited from Amazon Mechanical Turk. We compared participants’ support for a hypothetical Democratic candidate in the 2020 presidential election who employed one of three economic platform frames: one based on individualizing values of social justice and equality, one based on binding values of patriotism and tradition, and one based on a technical emphasis on growth and employment. We measured candidate support as a composite of self-reported support and self-reported likelihood to vote for the candidate. Our larger project was designed to test several hypotheses related to these treatments; however, in the current paper, we focus on the moral reframing hypothesis, i.e. on the comparison of the individualizing and the binding frame conditions (for completeness, we report the results for the other hypotheses in the online supplementary material). Study 1 also included a control frame condition to determine whether potential differences between the individualizing and binding frame conditions represent a positive effect of the binding frame condition (as predicted by the moral reframing hypothesis) or instead a negative effect of the individualizing frame condition. In addition, the study manipulated the progressiveness of the policies of the candidate. Thus, the study had a 2 (policy condition: moderately progressive versus highly progressive) × 4 (frame condition: control versus individualizing versus binding versus technical) between-subjects design. Manipulation check analyses showed that the candidate’s values were perceived as significantly more conservative in the binding frame condition than in the control frame condition [ $b = 0.11$ ,  $SE = 0.01$ ,  $t(2,426) = 8.60$ ,

$P < 0.001$ , 95% CI for  $b = (0.09, 0.14)$ ). Additionally, the candidate's values were perceived to be significantly less conservative (i.e. more liberal) in the individualizing frame condition than in the control frame condition [ $b = -0.05$ ,  $SE = 0.01$ ,  $t(2,426) = -4.17$ ,  $P < 0.001$ , 95% CI for  $b = (-0.08, -0.03)$ ] (see online supplementary material for more details). All statistical models in study 1 and study 2 controlled for policy condition, gender, ethnicity, and education (all dummy-coded) as well as age and income (both mean-centered).

First, we show that there is a default value disadvantage of economically progressive candidates among conservative participants. We found a significant political ideology  $\times$  frame condition interaction effect on perceived value similarity with the candidate [ $F(3, 2,423) = 18.99$ ,  $P < 0.001$ ,  $\Delta R^2 = 0.02$ ]. Simple effect analyses were conducted to probe the effect of the different frame conditions for ideological liberals (ideology = -2), moderates (ideology = 0), and conservatives (ideology = 2). We used these concrete scale points for follow-up analyses of the interaction effect because these scale points are more readily interpretable for political ideology than one  $SD$  above or below the mean.

First, we look at conservative participants. Conservative participants in the control frame condition perceived an economically progressive candidate as having very dissimilar values. There was no significant difference between the individualizing frame condition and the control frame condition among conservatives [ $b = 0.03$ ,  $SE = 0.02$ ,  $t(2,423) = 1.52$ ,  $P = 0.130$ , 95% CI for  $b = (-0.01, 0.07)$ ]. This suggests that providing explicit information that an economically progressive candidate represents individualizing values and not providing any information about the candidate's values results in conservative participants perceiving the candidate as similarly highly dissimilar in their values. This constitutes a clear default value disadvantage among conservative voters.

In contrast, when economically progressive candidates use binding framing, their usual value disadvantage among ideologically conservative voters is reduced. Ideologically conservative participants perceived significantly more value similarity with the candidate in the binding frame condition than in either the individualizing frame condition [ $b = 0.15$ ,  $SE = 0.02$ ,  $t(2,423) = 7.14$ ,  $P < 0.001$ , 95% CI for  $b = (0.11, 0.19)$ ] or the control frame condition [ $b = 0.18$ ,  $SE = 0.02$ ,  $t(2,423) = 8.71$ ,  $P < 0.001$ , 95% CI for  $b = (0.14, 0.22)$ ].

Interestingly, we did not find that ideologically moderate and liberal participants assumed the same default about the values of economically progressive candidates. Like conservatives, moderate participants perceived significantly more value similarity with the candidate in the binding frame condition than in either the individualizing frame condition [ $b = 0.04$ ,  $SE = 0.01$ ,  $t(2,423) = 2.80$ ,  $P = 0.005$ , 95% CI for  $b = (0.01, 0.06)$ ] or the control frame condition [ $b = 0.10$ ,  $SE = 0.01$ ,  $t(2,423) = 7.00$ ,  $P < 0.001$ , 95% CI for  $b = (0.07, 0.12)$ ]. However, unlike conservatives, moderate participants also perceived significantly more value similarity with the candidate in the individualizing frame condition than in the control frame condition [ $b = 0.06$ ,  $SE = 0.01$ ,  $t(2,423) = 4.22$ ,  $P < 0.001$ , 95% CI for  $b = (0.03, 0.08)$ ]. These results suggest that both types of value framing increased perceived value similarity with moderates but the binding value framing was most effective.

Liberal participants perceived significantly more value similarity with the candidate in the individualizing frame condition than in either binding frame condition [ $b = 0.07$ ,  $SE = 0.02$ ,  $t(2,423) = 3.62$ ,  $P < 0.001$ , 95% CI for  $b = (0.03, 0.11)$ ] or the control frame condition [ $b = 0.08$ ,  $SE = 0.02$ ,  $t(2,423) = 4.04$ ,  $P < 0.001$ , 95% CI for  $b = (0.04, 0.12)$ ]. There was no significant difference in perceived value

similarity between the binding frame condition and the control frame condition among liberals [ $b = 0.01$ ,  $SE = 0.02$ ,  $t(2,423) = 0.41$ ,  $P = 0.679$ , 95% CI for  $b = (-0.03, 0.05)$ ]. These results suggest that providing explicit information that an economically progressive candidate represents individualizing values increases perceived value similarity among liberals, whereas providing information that an economically progressive candidate represents binding values and not providing any information about the candidate's values results in liberal participants perceiving the candidate as similarly similar in their values.

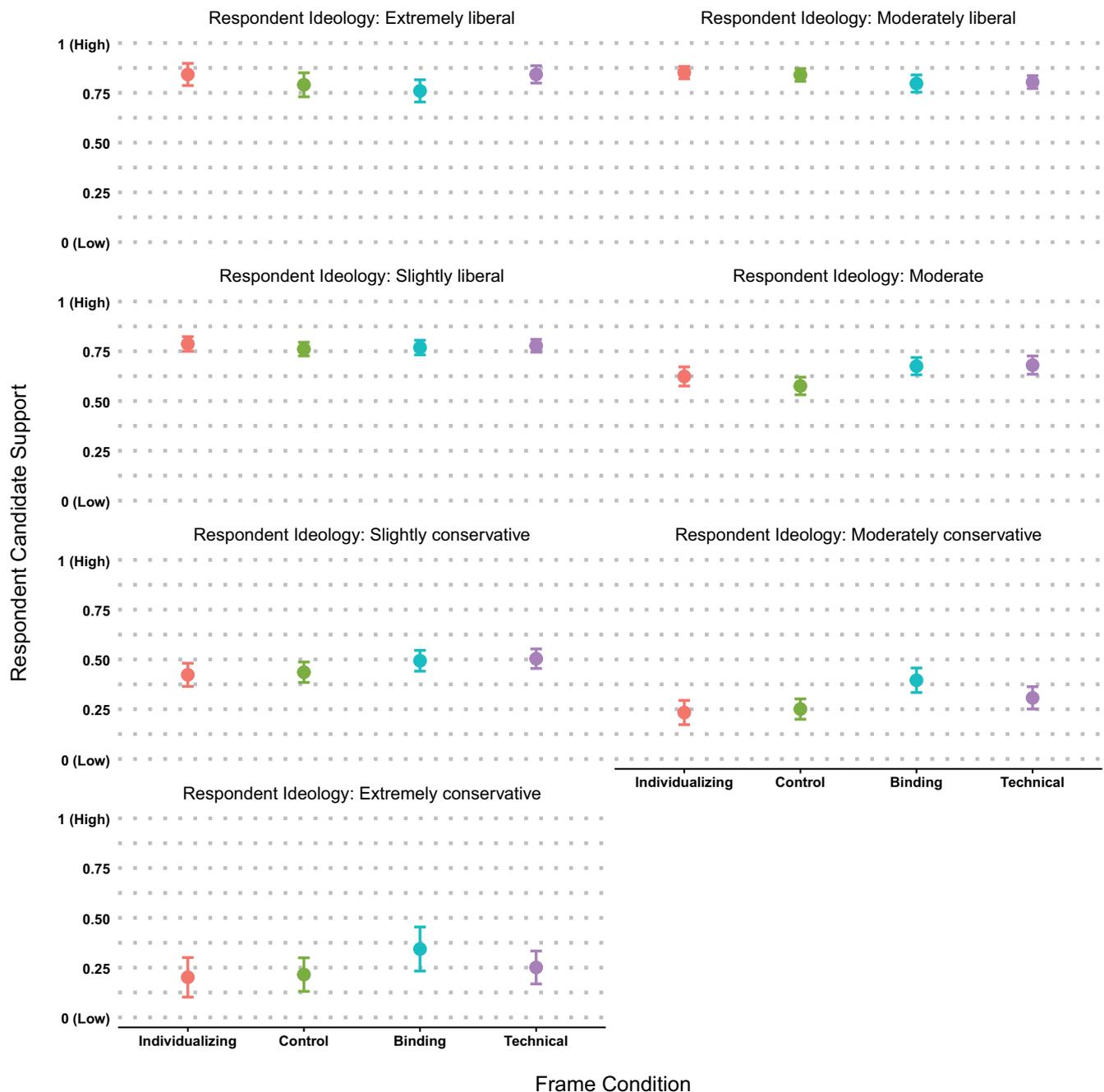
Next, we turn to the effects of the frame condition on candidate support. The predicted political ideology  $\times$  frame condition interaction effect on candidate support was significant [ $F(3, 2,423) = 10.08$ ,  $P < 0.001$ ,  $\Delta R^2 = 0.01$ ]. As illustrated in Fig. 1 (see also Fig. S1), these analyses indicate that moral reframing increased candidate support among conservatives and moderates but not liberals. Ideologically conservative participants supported the candidate significantly more in the binding frame condition than in either the individualizing frame condition [ $b = 0.13$ ,  $SE = 0.02$ ,  $t(2,423) = 6.09$ ,  $P < 0.001$ , 95% CI for  $b = (0.09, 0.17)$ ] or the control frame condition [ $b = 0.13$ ,  $SE = 0.02$ ,  $t(2,423) = 6.02$ ,  $P < 0.001$ , 95% CI for  $b = (0.09, 0.17)$ ]. There was no significant difference between the individualizing frame condition and the control frame condition among conservatives [ $b = -0.00$ ,  $SE = 0.02$ ,  $t(2,423) = -0.11$ ,  $P = 0.913$ , 95% CI for  $b = (-0.04, 0.04)$ ]. Taken together, these results support the moral reframing hypothesis.

Parallel analyses for moderates yielded similar though somewhat weaker effects. Moderate participants supported the candidate significantly more in the binding frame condition than in either the individualizing frame condition [ $b = 0.05$ ,  $SE = 0.01$ ,  $t(2,423) = 3.41$ ,  $P < 0.001$ , 95% CI for  $b = (0.02, 0.07)$ ] or the control frame condition [ $b = 0.06$ ,  $SE = 0.01$ ,  $t(2,423) = 4.58$ ,  $P < 0.001$ , 95% CI for  $b = (0.04, 0.09)$ ]. There was no significant difference between the individualizing frame condition and the control frame condition among moderates [ $b = 0.02$ ,  $SE = 0.01$ ,  $t(2,423) = 1.18$ ,  $P = 0.240$ , 95% CI for  $b = (-0.01, 0.04)$ ].

Analogous analyses among liberal participants yielded no significant differences between the three conditions. Liberal participants did not differ in their support for the candidate between the participants in the binding frame condition and the individualizing frame condition [ $b = -0.04$ ,  $SE = 0.02$ ,  $t(2,423) = -1.72$ ,  $P = 0.085$ , 95% CI for  $b = (-0.08, 0.00)$ ], between participants in the binding frame condition and the control conditions [ $b = -0.00$ ,  $SE = 0.02$ ,  $t(2,423) = -0.05$ ,  $P = 0.958$ , 95% CI for  $b = (-0.04, 0.04)$ ], or between participants in the individualizing frame condition and the control condition [ $b = 0.03$ ,  $SE = 0.02$ ,  $t(2,423) = 1.67$ ,  $P = 0.095$ , 95% CI for  $b = (-0.01, 0.08)$ ].

We also tested whether moral reframing resulted in increased candidate support in the full sample (see Table S2). In a main-effects-only model, we found that participants supported the candidate significantly more in the binding frame condition than in either the individualizing frame condition [ $b = 0.05$ ,  $SE = 0.01$ ,  $t(2,426) = 3.26$ ,  $P = 0.001$ , 95% CI for  $b = (0.02, 0.07)$ ] or the control frame condition [ $b = 0.06$ ,  $SE = 0.01$ ,  $t(2,426) = 4.52$ ,  $P < 0.001$ , 95% CI for  $b = (0.04, 0.09)$ ]. There was no significant difference between the individualizing frame condition and the control frame condition [ $b = 0.02$ ,  $SE = 0.01$ ,  $t(2,426) = 1.27$ ,  $P = 0.206$ , 95% CI for  $b = (-0.01, 0.04)$ ]. These results suggest that binding value framing increased the overall support for progressive candidates in the study sample.

Notably, the effect sizes were considerable. Binding value framing—as opposed to individualizing value framing—resulted, on average, in a five-point increase of support on a scale from 0 to



**Fig. 1.** Effects of the frame condition, moderated by political ideology, on candidate support, study 1. For each condition and ideological group, the figure shows the unadjusted mean and a 95% CI. Figure S1 provides a corresponding figure with violin plots. Candidate support was measured as a composite of self-reported support and self-reported likelihood to vote for the candidate (both measured on 101-point scales) and was recoded to range from zero to one (higher values reflect greater support). Sample sizes in the control frame condition, from extremely liberal to extremely conservative:  $n_s = 54, 91, 89, 128, 117, 86, \text{ and } 46$ . Sample sizes in the individualizing frame condition, from extremely liberal to extremely conservative:  $n_s = 56, 102, 85, 131, 106, 88, \text{ and } 43$ . Sample sizes in the binding frame condition, from extremely liberal to extremely conservative:  $n_s = 54, 89, 99, 120, 107, 92, \text{ and } 44$ . Sample sizes in the technical frame condition, from extremely liberal to extremely conservative:  $n_s = 55, 104, 92, 122, 119, 78, \text{ and } 46$ .

100. Among conservative participants, binding value framing even caused a 13-point increase of support. To put the effect of the framing manipulation in the full sample into perspective, it was as similar in size as the effect of moving from an economically moderate policy platform to a more popular economically progressive platform. The latter effect indicated that participants in the highly progressive policy condition supported the candidate more than participants in the moderately progressive policy condition [ $b = 0.04, SE = 0.01, t(2,423) = 4.21, P < 0.001, 95\% \text{ CI for}$

$b = (0.02, 0.06)$ ]. Furthermore, we found no evidence that the frame condition interacted with the policy manipulation. All interaction effects involving the policy condition were nonsignificant,  $p_s > 0.211$ .

How consequential are such effects? We conducted two additional analyses to test whether the observed effects would hold with measures more closely approximating the choices voters face in elections. First, we dichotomized the support variable using the midpoint as the cut-off. We assume that responses above

the midpoint indicate that the participants would support the candidate in a binary choice resembling real elections. The political ideology  $\times$  frame condition interaction effect on this binary support measure was nonsignificant [ $\chi^2(3, 2,423) = 3.64, P = 0.303$ ]. However, in a main-effects-only model, we found that participants supported the candidate significantly more in the binding frame condition than in either the individualizing frame condition [ $b = 0.50, SE = 0.15, z = 3.31, P < 0.001, OR = 1.66, 95\% CI \text{ for } OR = (1.23, 2.23)$ ] or the control frame condition [ $b = 0.65, SE = 0.15, z = 4.30, P < 0.001, OR = 1.92, 95\% CI \text{ for } OR = (1.43, 2.59)$ ]. There was no significant difference between the individualizing frame condition and the control frame condition [ $b = 0.15, SE = 0.15, z = 1.00, P = 0.317, OR = 1.16, 95\% CI \text{ for } OR = (0.87, 1.56)$ ].

The second analysis we conducted used a measure that accounts for an important characteristic of real elections, the presence of a rival candidate(s). We asked participants for whom they would vote in a general election between the economically progressive candidate and Donald Trump with four response options: voting for the economically progressive candidate, voting for Donald Trump, voting for another candidate, and not voting. For the dichotomized measure (0, did not vote for the economically progressive candidate; 1, voted for the economically progressive candidate), we found a significant political ideology  $\times$  frame condition interaction effect [ $\chi^2(3, 2,423) = 12.91, P = 0.005$ ]. Simple effect analyses indicated that conservative participants were significantly more likely to intend to vote for the Democratic candidate in the binding frame condition than in either the individualizing frame condition [ $b = 0.55, SE = 0.24, z = 2.24, P = 0.025, OR = 1.73, 95\% CI \text{ for } OR = (1.07, 2.80)$ ] or the control frame condition [ $b = 0.97, SE = 0.26, z = 3.71, P < 0.001, OR = 2.63, 95\% CI \text{ for } OR = (1.59, 4.43)$ ]. There was no significant difference between the individualizing frame condition and the control frame condition among conservatives [ $b = 0.42, SE = 0.28, z = 1.51, P = 0.131, OR = 1.52, 95\% CI \text{ for } OR = (0.88, 2.65)$ ]. Analogous analyses among moderate and liberal participants yielded no significant differences between the three conditions, all  $|b|s < 0.59$ , all  $SEs < 0.32$ , all  $|z|s < 1.96$ , all  $ps > 0.050$ . In summary, we find that binding framing increases support for economically progressive candidates across different measures. Although we do not consistently find significant interaction effects for the dichotomous measures, this could be due to insufficient power.

Mediation analyses (see online supplementary material for details) are consistent with the idea that the interaction effect of political ideology and frame condition on candidate support was mediated by perceived value similarity. Binding framing—as opposed to individualizing framing and the control—significantly increased perceived value similarity among conservative participants and, to a lesser extent, among moderate participants. Perceived value similarity significantly predicted candidate support, controlling for the political ideology  $\times$  frame condition interaction effect. Importantly, while these mediation analyses are consistent with a mediating role of perceived value similarity, they only offer correlational evidence (50).

We used political ideology as the moderator following prior psychological research on moral framing and politics (11, 12, 14). However, in electoral contexts, partisanship is another interesting and relevant potential moderator. Results of a robustness check show that we find significant partisanship  $\times$  frame condition interaction effects and significant simple effects among Republicans and Independents (see online supplementary material for details). Thus, results of analyses using party identification and political ideology as a moderating variable are substantively symmetrical.

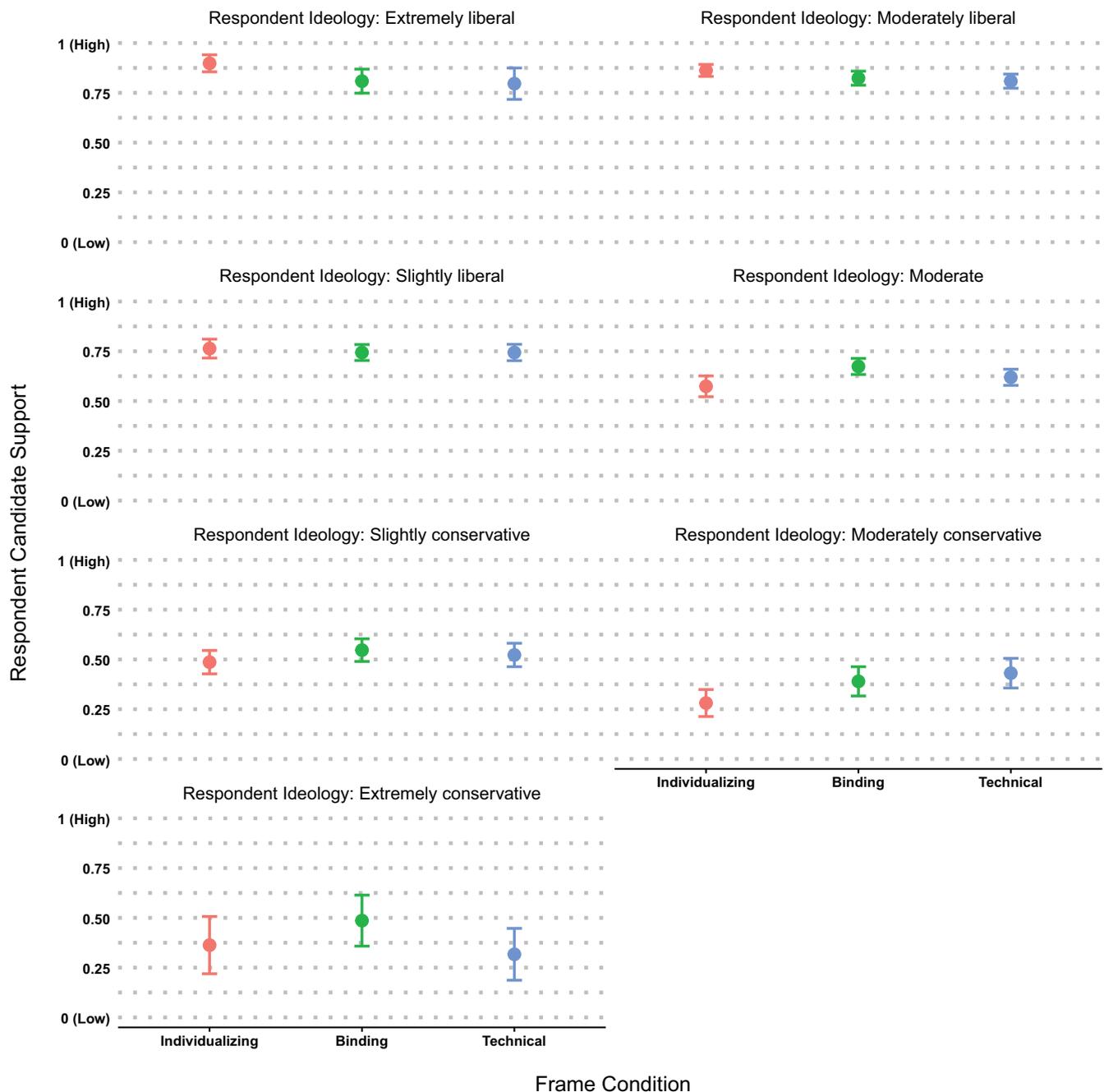
## Study 2

Study 1 found support for the moral reframing hypothesis. However, like most prior moral reframing studies, it was conducted on a nonrepresentative, convenience sample. Given that the ability to generalize to the American population is an important consideration in studies of public opinion dynamics, the second study aimed to directly replicate the results of study 1 with a preregistered experiment on a nationally representative probability sample. The design, procedure, and measures paralleled that of study 1, except that the study was shortened to reduce the cost. Regarding the design, we dropped the control frame condition, resulting in a 2 (policy condition: moderately progressive versus highly progressive)  $\times$  3 (frame condition: individualizing versus binding versus technical) between-subjects design. Manipulation check analyses showed that the candidate's values were perceived to be significantly more conservative in the binding frame condition than in the individualizing frame condition [ $b = 0.12, SE = 0.01, t(1,679) = 8.98, P < 0.001, 95\% CI \text{ for } b = (0.09, 0.15)$ ]. The candidate's policies were perceived to be significantly more conservative in the moderately progressive policy conditions than in the highly progressive policy conditions [ $b = 0.02, SE = 0.01, t(1,679) = 2.16, P = 0.031, 95\% CI \text{ for } b = (0.00, 0.04)$ ] (see online supplementary material for more details).

The predicted political ideology  $\times$  frame condition interaction effect on candidate support was significant [ $F(2, 1,677) = 7.23, P < 0.001, \Delta R^2 = 0.01$ ]. As illustrated in Fig. 2 (see also Fig. S2), simple effects analyses indicate that moral reframing increased candidate support among conservatives and moderates but not liberals. Ideologically conservative participants supported the candidate significantly more in the binding frame condition than in the individualizing frame condition [ $b = 0.10, SE = 0.02, t(1,677) = 4.36, P < 0.001, 95\% CI \text{ for } b = (0.06, 0.15)$ ]. Parallel analyses for ideologically moderate participants yielded a similar but weaker effect [ $b = 0.04, SE = 0.02, t(1,677) = 2.54, P = 0.011, 95\% CI \text{ for } b = (0.01, 0.07)$ ]. Analogous analyses among ideologically liberal participants yielded no significant difference between the binding and the individualizing frame conditions [ $b = -0.03, SE = 0.02, t(1,677) = -1.11, P = 0.269, 95\% CI \text{ for } b = (-0.07, 0.02)$ ]. Taken together, these results support the moral reframing hypothesis.

We also tested whether moral reframing resulted in increased candidate support in the full sample (see Table S3). In a main-effects-only model, we found that participants supported the candidate significantly more in the binding frame condition than in the individualizing frame condition [ $b = 0.04, SE = 0.02, t(1,679) = 2.55, P = 0.011, 95\% CI \text{ for } b = (0.01, 0.07)$ ]. This result suggests that the moral reframing effect resulted in increased candidate support overall.

Notably, the effect sizes were considerable. Binding value framing—as opposed to individualizing value framing—resulted, on average, in a 4-point increase of support on a scale from 0 to 100. Among conservative participants, binding value framing even caused a 10-point increase of support. To put the effect of the framing manipulation in the full sample into perspective, the change in framing was more impactful than moving from an economically moderate policy platform to a more popular economically progressive platform. In contrast to study 1, participants in the highly progressive policy condition did not support the candidate significantly more than participants in the moderately progressive policy condition [ $b = 0.01, SE = 0.01, t(1,677) = 0.94, P = 0.346, 95\% CI \text{ for } b = (-0.01, 0.04)$ ]. Furthermore, we found no evidence that the frame condition interacted with the policy manipulation. All interaction effects involving the policy condition were nonsignificant,  $ps > 0.914$ .



**Fig. 2.** Effects of the frame condition, moderated by political ideology, on candidate support, study 2. For each condition and ideological group, the figure shows the unadjusted mean and a 95% CI. Figure S2 provides a corresponding figure with violin plots. Candidate support was measured as a composite of self-reported support and self-reported likelihood to vote for the candidate (both measured on 101-point scales) and was recoded to range from zero to one; higher values reflect greater support. Sample sizes in the individualizing frame condition, from extremely liberal to extremely conservative:  $n_s = 47, 81, 78, 127, 119, 85,$  and  $34$ . Sample sizes in the binding frame condition, from extremely liberal to extremely conservative:  $n_s = 35, 94, 78, 138, 104, 78,$  and  $38$ . Sample sizes in the technical frame condition, from extremely liberal to extremely conservative:  $n_s = 39, 75, 87, 153, 91, 76,$  and  $38$ .

We conducted two additional analyses to test whether the observed effects would hold with measures more closely approximating the choices voters face in elections. First, we dichotomized the support variable using the midpoint as the cut-off. The political ideology  $\times$  frame condition interaction effect on this binary support measure was nonsignificant [ $\chi^2(2, 1,677) = 0.74, P = 0.691$ ]. However, in a main-effects-only model, we found that participants supported the candidate significantly more in the binding frame condition than in the individualizing frame condition [ $b = 0.39, SE = 0.15, z = 2.59, P = 0.010, OR = 1.48, 95\% CI$  for  $OR = (1.10, 1.99)$ ].

The second analysis we conducted used a measure that accounts for an important characteristic of real elections, the presence of a rival candidate(s). We asked participants for whom they would vote in a general election between the economically progressive candidate and Donald Trump on a seven-point scale. We recoded responses above the midpoint as 1, indicating that the participants would support the candidate in a binary choice resembling real elections, and all other responses as 0. The political ideology  $\times$  frame condition interaction effect on this binary support measure was nonsignificant [ $\chi^2(2, 1,677) = 1.19, P = 0.551$ ]. However, in a main-effects-only model, we found that

participants supported the candidate significantly more in the binding frame condition than in the individualizing frame condition [ $b = 0.39$ ,  $SE = 0.16$ ,  $z = 2.37$ ,  $P = 0.018$ ,  $OR = 1.47$ , 95% CI for  $OR = (1.07, 2.03)$ ]. In summary, we find that binding framing increases support for economically progressive candidates across different measures. Although we do not consistently find significant interaction effects for the dichotomous measures, this could be due to insufficient power.

Mediation analyses (see online supplementary material for details) are consistent with the idea that the interaction effect of political ideology and frame condition on candidate support was mediated by perceived value similarity. Binding framing—as opposed to individualizing framing—significantly increased perceived value similarity among conservative participants and, to a lesser extent, among moderate participants. Perceived value similarity significantly predicted candidate support, controlling for the political ideology  $\times$  frame condition interaction effect. Importantly, while these mediation analyses are consistent with a mediating role of perceived value similarity, they only offer correlational evidence (50).

### Study 3

If economically progressive candidates could increase their support by using binding framing, are economically progressive candidates using this strategy in practice? To provide insights into this question, we examine the association between candidates' political ideology and their value framing in debates among recent presidential candidates, from 2000 to the present. Presidential debates are an excellent data source for our research question because they feature the most well-known candidates in front of the broadest audience during an integral part of the American election cycle. In total, we analyzed 46,434 speech segments from 144 debates at the candidacy level (defined as a unique combination of candidate, election year, and election stage). The debates featured 82 unique candidates and 114 unique candidacies.

In analyzing these speeches, we combined new text-based measures of value framing with previously validated machine learning-based measures of candidates' political ideology. We measured the value framing of a candidacy using dictionary-based word frequency analysis. We counted the number of individualizing values words (the words in the Moral Foundations Care and Fairness Dictionaries; 51) and binding values words (the words in the Moral Foundations Loyalty Authority and Purity Dictionaries; 51). We calculated the percentage of binding framing by dividing the number of binding values words by the sum of binding and individualizing values words. We measured candidates' political ideology using previously validated "DW-DIME" scores (52). The DW-DIME scale ranges from  $-1$  (the most progressive score) to  $1$  (the most conservative score). Because the political ideology of elite politicians is increasingly unidimensional, a measure of candidates' general political ideology—such as DW-DIME scores and DW-NOMINATE scores—generally acts as a good approximation for a candidates' economic policy positions (53). Among the 114 candidacies analyzed, 104 candidacies (51 Democratic and 53 Republican) could be assigned a DW-DIME score.<sup>6</sup>

Do economically progressive candidates typically use different value framing than economically conservative candidates? We examined this question by estimating the correlation between

our measures of candidacies' political ideology and binding value framing. Correlational analyses are well suited for this question because our question is whether economically progressive and economically conservative candidates use different value framing. Our question is not whether the candidate's political ideology causes differences in value framing. Indeed, our argument is that there is not a necessary causal link between candidates' political ideology and value framing.

We find that more progressive candidates rely less on binding value framing than more conservative candidates. As Fig. 3 illustrates, there is a clear positive association between political ideology and using more binding value framing [ $b = 6.10$ ,  $SE = 1.39$ ,  $t(102) = 4.37$ ,  $P < 0.001$ , 95% CI for  $b = (3.33, 8.86)$ ]. The model estimates that a progressive candidate (a score of  $-0.5$ ) uses 58.6% binding words when talking about values. In contrast, the model estimates that a conservative candidate (a score of  $0.5$ ) uses 64.7% binding words. Thus, these results suggest that more progressive recent US presidential candidates rely less on binding relative to individualizing value framing than more conservative candidates.

However, our results also provide two pieces of evidence that strengthen our argument that it is possible to reconcile progressive candidacies and conservative values. First, even though progressive candidates rely less on binding value framing than conservative candidates, progressive candidates use more binding words than individualizing words. Second, Fig. 3 shows that there are progressive candidacies that rely a lot on binding value framing. Bernie Sanders in his 2016 primary run is an example of using binding values to argue in favor of economically progressive policies.

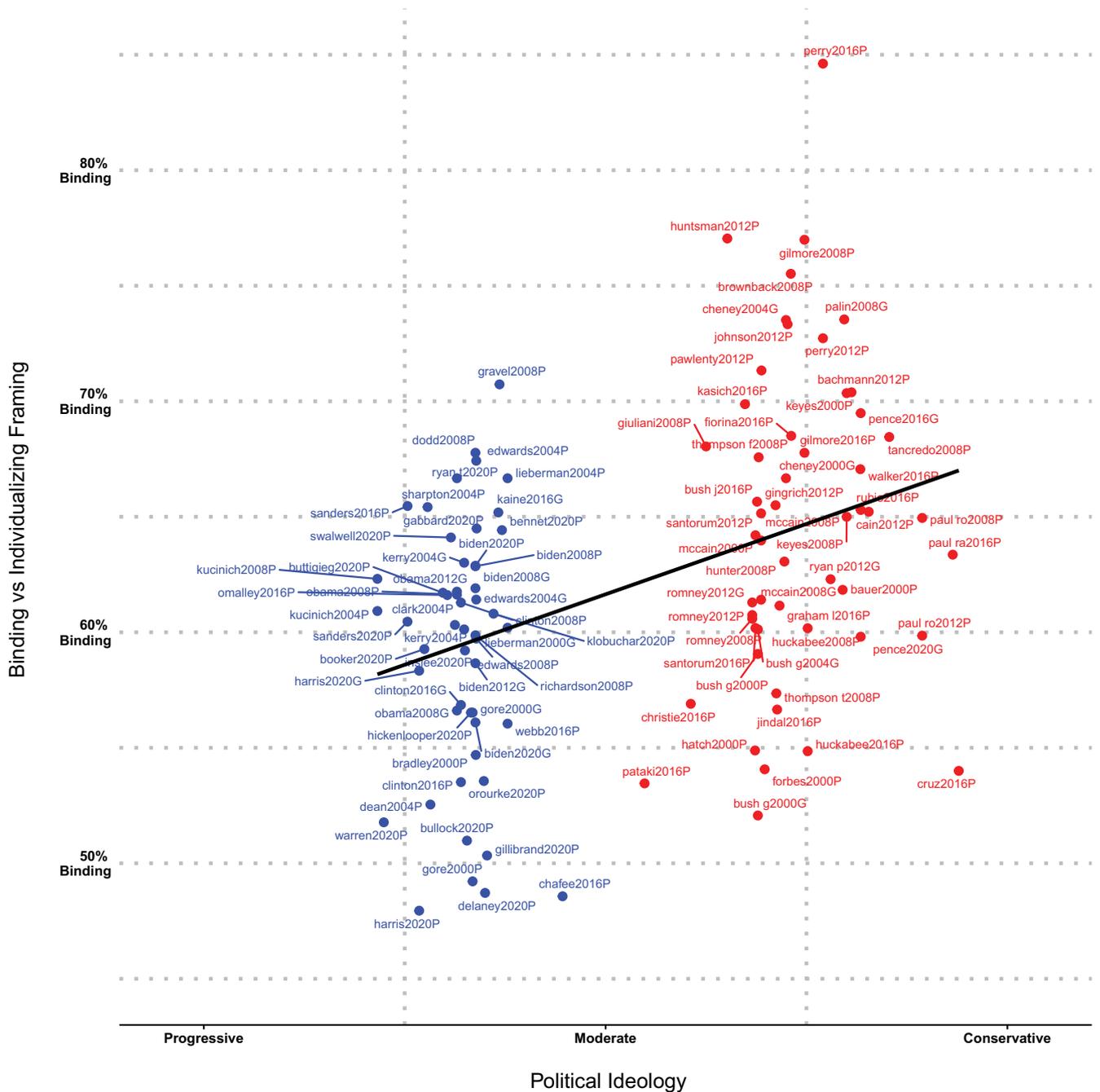
An important limitation of this study is our focus on debates. Candidates may employ different value framing outside of debates. However, since debates are an important part of the American election cycle, we think that value framing employed during debates is nonetheless meaningful in its own right. Furthermore, our results are similar to those in other text analyses (e.g. 54). Thus, these results are consistent with our claim that if economically progressive candidates used different value framing, they could form a broader coalition and increase their overall support.

### Discussion

One path to reducing economic inequality is through electing economically progressive candidates that champion redistributive policies. The current research suggests that ideological conservatives' opposition to economically progressive candidates is rooted less in these candidates' economically progressive policies but in the perceived values of these candidates. Across two experiments, we did not find any evidence that running on a more economically moderate policy platform increases support for candidates—and some evidence that running on a more economically progressive policy platform actually increases support. In contrast, we found that appealing to binding—as opposed to individualizing—values significantly and sizably increased support for economically progressive candidates. This effect was driven by increased support among ideologically conservative and moderate voters. Thus, overall, the most successful candidate in our research advocated for economically progressive policies as being consistent with binding values.

Our experimental studies focus on the general election context in which economically progressive candidates benefit from support beyond their Democratic base. The effects of using binding value framing in Democratic primaries is unknown, but one

<sup>6</sup> Former president Donald Trump, the opponent of the economically progressive candidate in studies 1 and 2, did not have a DW-DIME score in the database. Therefore, he was not part of the analysis. Our value framing analysis found that Donald Trump's binding framing score was 61.1 in the 2016 primary election debates, 63.2 in the 2016 general election debates, and 56.0 in the 2020 general election debates. Trump's usage of binding framing was average compared with other candidates ( $M = 61.8$ ;  $SD = 6.7$ ).



**Fig. 3.** Relationship between US presidential candidates' political ideology and value framing, study 3. The figure shows a scatterplot. The measure of political ideology ranged from  $-1$  (most progressive) to  $1$  (most conservative). The measure of binding versus individualizing framing ranged from  $0$  ( $0\%$  binding framing,  $100\%$  individualizing framing) to  $100$  ( $100\%$  binding framing,  $0\%$  individualizing framing). Sample size:  $n = 104$ .

may be particularly concerned that binding framing may be less effective than individualizing framing in such contexts. Simple effects analyses (see Tables S4–S7) in which we probed the significant interaction by testing the effects of binding and individualizing framing for all seven categories of political ideology and partisanship suggest that binding framing does not cause reduced candidate support relative to the control condition for any of the liberal or Democratic groups (including strong Democrats). However, we find in both studies that extremely liberal participants and strong Democrats supported the candidate (marginally) significantly more in the individualizing frame condition than in the binding frame condition. Thus, we find some

evidence that binding framing is less persuasive than individualizing framing among extreme liberals and strong Democrats.

In other words, we find some suggestive evidence that binding rhetoric may disadvantage a Democratic candidate in a primary setting, but would advantage them in the general election. This would suggest that candidates who change their rhetoric from primaries to general elections could maximize candidate support. However, our test for the effects in primaries is imperfect, since we are extrapolating from a study conducted in a general election context. Furthermore, candidates who use binding framing in primaries could appear more electable, which research finds can be an influential consideration in primaries (e.g. 55).

While typically viewed as in tension, our research suggests progressive policies and binding value concerns are reconcilable in practice and that such a combination can be persuasive. To this point, participants in study 1 rated an economically progressive candidate appealing to binding values as similarly “consistent” as an economically progressive candidate appealing to individualizing values (see online supplementary material for details). Nonetheless, using text analyses, we found that progressive candidates use less binding framing than their conservative opponents in recent presidential debates. Taken together, these findings suggest that the value and ideological underpinnings of policies and candidates are more malleable than commonly assumed and underutilized by progressive candidates.

Our research makes several significant contributions. First, we show how validated typologies of values (56) can contribute to the understanding of enduring social scientific puzzles, such as why Americans do not support economically progressive parties and candidates (24, 25). Second, we question the assumption that individualizing values are more popular than binding values because they appeal to people across the ideological spectrum (43). We find evidence that binding values uniquely resonate with ideologically conservative and moderate voters. Third, we demonstrate the consequences of increasing political polarization for economic inequality. Recent work suggests that political polarization causes connections between previously unrelated issues (45). These connections increase the leverage for elites who seek to maintain their privilege that are based on unpopular policies because elites can wed these unpopular policies with other more popular stances. Our results here suggest that one way economically conservative politicians may maintain economic inequality is by creating associations between economic conservatism and popular values such as patriotism, tradition, and respect for authority.

Previous literature found that an important disadvantage for economically progressive candidates is that Republican voters increasingly turnout for their opponents in general elections (4). In our studies, we found no evidence that binding framing significantly decreased voter turnout intentions among Republicans. Thus, we did not find evidence that binding framing closes the turnout gap between Democratic and Republican voters when economically progressive candidates are on the ballot. The significant persuasion effects we observed on candidate support measures represent an alternative way for economically progressive candidates to mitigate a potential outparty turnout advantage.

Our experiments meet several important standards for external validity. The first study was highly powered; included a manipulation of policy platforms that varied the extremity of economical progressiveness across which we obtained consistent results, i.e. we did not find stronger effects of binding moral framing for either moderately or highly progressive candidates; included party cues that usually reduce persuasion effects; and was conducted in the context of the most prominent election type (presidential elections). The second study maintained all of these features and was conducted on a nationally representative probability sample with preregistered hypotheses and procedures. Future research is needed to replicate the current results in other electoral contexts, temporally closer to elections (57), and ideally in the context of real political campaigns.

An important and understudied aspect of real political campaigns is counterframing (58, 59). Counterframing could reduce the effects of binding value frames, especially when conservative voters are exposed to frames from sources that they generally

trust, such as Republican elites (60, 61). However, it is also possible that moral framing is less vulnerable to counterframing because moral framing resonates with deeply held beliefs and individuals typically integrate strong frames in their position even in the presence of counterframes (58). A recent paper suggests that partisans are receptive to persuasive appeals even in the presence of competing in-party elite cues, integrating both into their attitudes (62). Furthermore, other aspects of real campaigns could strengthen the effects of binding value framing, such as repeated exposure to such frames, especially in less prominent elections. We think our results are best understood as indicating that binding value framing is a promising way for an economically progressive candidate to broaden their base of support, but future research is needed to determine to what extent (or how) the effects of binding value framing can be made sustainable and/or strengthened, especially in the face of counterframes.

Future research is also needed to determine the precise mechanisms underlying the observed effects. We think that the most likely mediator is perceived value similarity with the candidate. This is consistent with prior research (see 12 for a review) and the fact that the frames produced the intended effects on participants’ perceived conservatism of the values of the candidates and participants’ perceived value similarity with the candidate. However, we acknowledge that we cannot conclusively determine what is driving the effect of the frames. Future research could strengthen the confidence in the effect by using many operationalizations of binding value frames in different electoral contexts (63).

An alternative mechanism that warrants particular interest is perceptions of the candidate’s party loyalty (64). In other words, binding value framing may increase conservative participants’ support for economically progressive candidates because these participants perceive such candidates as less loyal Democrats. This account is consistent with our finding that moderates (and Independents) were also persuaded by the binding moral rhetoric, a pattern that was surprising to us. Interestingly, we did not find a significant drop off in candidate support for the binding value framing candidate among liberals/Democrats. This suggests either that the frame did not have a large effect on perceived party loyalty (at least among Democrats) or that Democrats did not mind a somewhat less loyal Democratic candidate in this particular electoral context.

Another interesting avenue for future research is the comparison of value cues and policy cues. Our results suggest that value cues might be more influential than policy cues. This suggests that moral reframing may offer a more effective path to building political consensus than policy compromise. Another promising future direction would be to study the effect of moral reframing on other factors that influence candidate support. For example, in the current studies, we tested whether binding framing—as opposed to individualizing value framing—would reduce the effect of racial resentment on candidate support (cf. 65). We found support for this hypothesis in study 1, but not study 2. These inconclusive results (see online supplementary material for more information) merit further attention.

It would be irresponsible not to note that the effectiveness of moral reframing does not imply that it is necessarily socially desirable. For example, one can readily identify a number of oppressive regimes that sought to ideologically link values such as loyalty and purity with redistributive economic policy agendas, with disastrous effect. It is important to emphasize that, as with any effective political tool, the ethical value of moral reframing depends critically on the ends to which it is put.

## Materials and methods

### Ethics statement and reproducibility

Studies 1 and 2 were approved by the Institutional Review Board at Stanford University. All participants provided informed consent. The anonymized data files, study materials, and analysis scripts for all studies are available via <https://osf.io/6vykw/>.

### Study 1

Based on a priori power analyses conducted with GPower (66), we estimated we would need a sample size of 1,721 to achieve 95% power to detect the interaction effect predicted by the moral reframing hypothesis, assumed to be small in size ( $f=0.1$ ). Taking exclusion criteria into account and rounding up to a round number, we aimed for a final sample size of 2,500 participants. We recruited US citizens from a large panel of previously recruited Amazon Mechanical Turk workers. Our initial sample size consisted of 2,751 participants who received a small payment for their participation. We excluded 3 participants due to duplicate IP addresses (keeping only the first case for each participant), 185 participants due to missing values, 119 participants due to failed comprehension checks, and 1 participant who was below age 18, yielding a final sample of 2,443 participants. Demographic characteristics of the sample are summarized in Table S1.

The procedure consisted of two parts. In part 1, participants were introduced to a hypothetical Democratic candidate, Scott Miller, running for president in 2020. Each participant read three sets of information about Scott Miller—information about his economic policy platform (policy information), excerpts from a speech given by him about his political principles (frame information), and excerpts from the same speech about how his policies and principles are linked (policy and frame information). The order of the policy information and the frame information was randomized, while the policy and frame information section was always presented last.

Participants were randomly assigned to one of two policy conditions. In the moderately progressive policy conditions, participants learned that Scott Miller supported 4 relatively moderate progressive policies: setting up an infrastructure program with 200,000 new jobs, maintaining the Affordable Care Act in its current form, increasing the federal minimum wage to \$9.50, and creating a parental leave program that would provide 1 month of paid leave for all working mothers. In the highly progressive policy conditions, Scott Miller supported setting up an infrastructure program with 5,000,000 new jobs, expanding Medicare to cover all uninsured Americans, increasing the minimum wage to \$12.00, and creating a parental leave program that would provide 3 months of paid leave for all working mothers and fathers.<sup>7</sup>

Participants were randomly assigned to one of four frame conditions. While the frame information in the *control frame condition* provided participants with basic information about the American election system, participants in the other frame conditions read excerpts from a speech in which Scott Miller explained his political principles. For example, in the *individualizing frame condition*, participants read that Scott Miller's "vision for our

country is based on principles of economic justice, fairness, and compassion" and that he stands for "economic policies that are based on justice and care, policies that will stop corporations from exploiting working people, pocketing huge profits while offering their workers substandard wages and benefits." In the *binding frame condition*, participants read that Scott Miller's "vision for America is based on respect for the values and traditions that were handed down to us: hard work, loyalty to our country, and the freedom to forge your own path" and that he believes "it is patriotic to put American families ahead of big money donors and special interests."

The section with policy and frame information depended both on the policy and frame conditions participants were assigned. While participants in the control frame condition read basic information about the American presidential nomination system, all other participants read excerpts from a speech in which Scott Miller explained how his policy positions and principles are linked. Policy platform and value frame were manipulated independently of each other. For example, in the *moderately progressive policy—individualizing frame condition*, participants read: "I support these policies because they will help reduce economic inequality and promote economic justice. My federal infrastructure plan will create 200,000 jobs, good jobs with fair pay and benefits." In the *moderately progressive policy—binding frame condition*, participants read "I support these policies because showing respect for hard-working Americans is a sacred national tradition that I believe we must honor. My federal infrastructure plan will create 200,000 jobs, good jobs with dignity and respectable wages." In the *highly progressive policy—individualizing frame condition*, participants read the same rhetoric, but the policy was changed accordingly (for example, to "5,000,000 jobs" instead of "200,000 jobs"). The complete wording of all stimuli is included in the online supplementary material.

In part 2, we measured participants' support for, and impression of, the Democratic candidate. Our main dependent variable, *candidate support*, was measured with two items: "How much would you support or oppose Scott Miller's candidacy for president in 2020?", answered on a slider scale from 0 (strongly oppose) to 100 (strongly support), and "How likely would you be to vote for Scott Miller for president in 2020?", answered on a slider scale from 0 (very unlikely) to 100 (very likely). The two items were averaged to form the *candidate support composite* ( $r=0.94$ ). As a manipulation check and possible mediator, participants' *perceived value similarity* with the candidate was assessed with the item: "To what extent do you feel Scott Miller has the same values you do?", answered on a scale from 0 ("not at all") to 100 ("a great deal"). To measure political ideology, our hypothesized moderator, participants rated their ideology on a scale from 1 ("extremely liberal") to 7 ("extremely conservative"). Since political ideology was assessed after the policy and frame manipulations, we tested whether it was predicted by frame condition, policy condition, or their interaction. All of these effects were nonsignificant,  $ps > 0.257$ . Finally, as part of a short demographic survey, participants indicated their gender, age, ethnicity, education, and income.

We conducted several checks that yield substantively the same results. These robustness checks included bootstrapping regression coefficients to account for violations of standard regression assumptions, excluding participants in the technical frame condition from the analysis, including participants who failed the comprehension check questions, and using a measure of political ideology participants indicated in a prescreen survey instead of the postmanipulation measure of political ideology we collected in the current survey. We also collected several additional

<sup>7</sup> We chose policy positions based on our predictions of what policy platforms of moderately and highly progressive presidential candidates in 2020 may be. This task was complicated by the fact that we ran the experiments in 2018. A Washington Post analysis of candidate positions (67) suggests that we captured differences between economically more moderate and more progressive candidates but significantly underestimated that most candidates would take a more progressive position than what we expected on paid leave programs and minimum wage. Our results for the manipulation check in study 2 support that participants perceived the moderately progressive policies as significantly more conservative than the highly progressive policies.

dependent variables. We found that the effects of binding value framing extended to a series of other perceptions of the progressive candidate and indicators of support. We describe the robustness checks in detail in the online supplementary material.

## Study 2

The determination of the sample size via a priori power analyses, data exclusion procedures, central hypotheses, recoding of independent and dependent variables, and the statistical models for the test on our main dependent variable were all preregistered. The preregistration is accessible at <https://osf.io/mbu28/>.

We recruited a general population sample of US adults age 18 years and older from NORC's AmeriSpeak Panel for this study. AmeriSpeak is a probability-based panel designed to be representative of the US household population. Randomly selected US households were sampled using area probability- and address-based sampling, with a known, nonzero probability of selection from the NORC National Sample Frame. Sample size was determined by multiple preregistered a priori power analyses and cost constraints. Based on power analyses for significant tests with  $\alpha = 0.05$ , we estimated that we would need a sample size of  $n = 1,650$  to achieve at least 92% power for detecting each of the hypothesized effects. Our initial sample size consisted of 2,612 participants which included participants from both a small pretest and the full sample. After excluding 193 participants due to doubled IDs or doubled IP addresses (keeping only the first cases), 402 participants due to missing values, and 322 participants due to failed comprehension checks, we obtained a final sample of 1,695 participants which, as preregistered, includes the pretest participants. Demographic characteristics of the sample are summarized in Table S1.

The design and measures paralleled that of study 1, except that the study was shortened to reduce the cost. We retained only the most relevant dependent variables: candidate support ( $r = 0.94$ ), willingness to help campaigning, identification with the candidate, support for the candidate's economic platform, intention to vote for the candidate versus Donald Trump in the 2020 election, political ideology as a hypothesized moderator, perceived value conservatism as a manipulation check, and perceived value similarity as a manipulation check and possible mediator. We added a manipulation check of the policy condition. Since political ideology was assessed after the policy and frame manipulations, we tested whether it was predicted by frame condition, policy condition, or their interaction. All of these effects were nonsignificant,  $p_s > 0.254$ .

We conducted several checks that yield substantively the same results. These robustness checks include the same checks as in study 1. The only exception was that we did not have a prescreen survey measure of political ideology. We conducted an additional robustness check excluding participants from the pretest (study 2). The results reported above are robust to all of these checks. We also collected several additional dependent variables. We found that the effects of binding value framing extended to a series of other perceptions of the progressive candidate and indicators of support. We also conducted several robustness checks using weights. Based on methodological research on the drawbacks of weights for significant testing (68), our preregistered analysis script specified that we would use unweighted regression analyses for hypothesis testing. Overall, the analyses with weights indicate results in the same direction but with smaller effect sizes. We describe the robustness checks in detail in the online supplementary material.

## Study 3

The data set consists of all available transcripts from the presidential and vice-presidential debates as well as the Democratic and Republican primary debates from 2000 to 2020. The transcripts are available via the American Presidency Project (69). Our sample consisted of 17 presidential debates, 6 vice-presidential debates, 53 Democratic primary debates, and 68 Republican primary debates. The speech segments were assigned to candidacies. Here, a "candidacy" is defined by a unique combination of candidate, election year, and election stage (i.e. primary or general election). This definition implies that the same candidate can have multiple candidacies. For example, there are three candidacies of Hillary Clinton in our data set: her 2008 primary candidacy, her 2016 primary candidacy, and her 2016 general candidacy.

We measured the value framing of a candidacy using dictionary-based word frequency analysis based on an updated version<sup>8</sup> of the Moral Foundations Dictionaries for Linguistic Analyses, 2.0 (51). We counted the number of individualizing value words (the words in the Moral Foundations Care and Fairness Dictionaries) and binding value words (the words in the Moral Foundations Loyalty, Authority, and Purity Dictionaries). We calculated the percentage of binding framing by dividing the number of binding values words by the sum of binding and individualizing values words. This measure fulfills several important criteria. First, it is a bipolar measure of value framing. That is, it can assign candidates to either the individualizing or the binding side of the value framing spectrum. This bipolarity aligns with the typical conceptualization of ideology which ranges from extremely liberal to extremely conservative. Second, the measure is insensitive to value-irrelevant words. Because the measure includes only value-related words in the denominator, the frequency of speaking value-unrelated words does not affect this measure. Finally, the measure is easily interpreted. A score of 100 means that a candidate uses exclusively binding value framing. A score of 0 means that a candidate uses exclusively individualizing value framing.

We measured candidates' political ideology using previously validated "DW-DIME" scores (52). The DW-DIME scale ranges from  $-1$  (the most progressive score) to  $1$  (the most conservative score). DW-DIME scores are estimates of the first dimension of DW-NOMINATE scores, a standard measure of the political ideology of members of the House and Senate based on their congressional voting records (70). Because the political ideology of elite politicians is increasingly unidimensional, a measure of candidates' general political ideology—such as DW-DIME scores and DW-NOMINATE scores—generally acts as a good approximation for a candidates' economic policy positions (53). Supervised machine learning is used to predict DW-NOMINATE scores based on campaign contribution data (71). DW-DIME scores are preferable to DW-NOMINATE scores because many presidential candidates have never served in the House or Senate and, thus, have no DW-NOMINATE score. In contrast, since DW-DIME scores are based on campaign contribution data, DW-DIME scores can be estimated for presidential candidates who have never served in congress but ran for federal office. Among the 114 candidacies

<sup>8</sup> We excluded the following words from the authority foundation in the MFD 2.0: "president," "presidents," "vice-president", "governor," and "governors," because candidates often refer to other candidates on stage with their titles and there were different numbers of incumbent presidents or incumbent or former governors on stage in different debates. Thus, usage of these words was confounded with the field of candidates. In addition, since the care dictionary contains the terms "health," "care," and "healthcare," it was unclear whether we should count the term "health care" as one or two value words. We decided to count it as just one word.

analyzed, 104 candidacies (51 Democratic and 53 Republican) could be assigned a DW-DIME score, whereas only 72 candidacies could be assigned a DW-NOMINATE score.

We conducted several checks that yield substantively the same results. These robustness checks include controlling for potential year-specific confounds, accounting for the dependencies between multiple candidacies by the same candidate, and using alternative measures of candidates' value framing and ideology (see Table S8). We also tested for several potential moderators but did not identify significant moderators. We describe the robustness checks and moderation analyses in detail in the online supplementary material.

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## Supplementary material

[Supplementary material](#) is available at PNAS Nexus online.

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## Author contributions

### Data availability

The anonymized data files and study materials are available via <https://osf.io/6vykw/>.

### Code availability

The analysis R code for all studies is available via <https://osf.io/6vykw/>.

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