One Vote Out of Step?
The Effects of Salient Roll Call Votes in the 2010 Election

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Abstract

We investigate the relationship between controversial roll call votes and support for Democratic incumbents in the 2010 midterm elections. Consistent with previous analyses, we find that supporters of health care reform paid a significant price at the polls. We go beyond these analyses by identifying a mechanism for this apparent effect: constituents perceived incumbents who supported health care reform as more ideologically distant (in this case, more liberal), which in turn was associated with lower support for the incumbent. Our analyses show that this perceived ideological difference mediates most of the apparent impact of support for health care reform on both individual-level vote choice and aggregate-level vote share. We conclude by simulating counterfactuals that suggest health care reform may have cost Democrats their House majority.

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Can one wrong vote end a legislative career? The answer is interesting, and not just for the members of Congress who are kept awake at night by this question. The relationship between roll call votes and election outcomes speaks to how voters make decisions in congressional elections. If individual roll call votes affect how constituents view their representative, then voters are not merely drawing on their partisan affiliation or responding to the presence of a competitive challenger in their district. Instead, they are relying, at least in part, on more specific information about how, and how well, they have been represented by the incumbent. Thus, voter responses to roll call votes have implications for the quality of democratic representation: if individual votes in Congress factor into voter decision-making, then representatives are being held more accountable for their actions than we might otherwise expect.

Political science suggests that legislators have reason to be concerned. Members with high rates of party loyalty (Carson 2008, Carson et al. 2010), ideologically extreme voting records (Canes-Wrone, Brady, and Cogan 2002), and unpopular positions on controversial pieces of legislation (Ansolabehere and Jones 2010) appear to pay a price at the polls. However, previous studies have not systematically connected micro- and macro-level evidence to analyze the mechanisms by which members are held accountable for controversial votes. To better understand this process, we examine three salient roll call votes—the votes for health care reform, the economic stimulus, and cap and trade during the 111th Congress—and their impact in the 2010 election.

Our analysis addresses three important questions. First, did these roll call votes matter in 2010? Our previous analyses and those of other scholars have suggested that support for these initiatives hurt incumbent Democrats in the House, especially in competitive districts (Masket and Greene 2010; McGhee, Nyhan, and Sides 2010; Jacobson 2011; Brady, Fiorina and Wilkins

2011). These findings are most robust for health care reform. Using statistical matching techniques, we isolate a more comparable set of members and districts and demonstrate that Democratic incumbents' support for health care reform was associated with lower vote share.

Second, and more importantly, how is it that roll call votes come to affect election outcomes? Previous work has demonstrated an association between support for certain pieces of legislation and vote share, but has not identified a causal mechanism. We propose such a mechanism: support for controversial legislation causes voters to see their representatives as more ideologically distant. We find support for this hypothesis among individual voters. We then show that this perception of ideological distance actually mediates much of the apparent impact of support for health care reform on both individual-level vote choice and aggregate-level election outcomes.

Third, could support for health care reform have cost the Democratic Party not only votes but seats? We simulate the Democratic seat share in the House of Representatives in a counterfactual scenario in which all Democrats in competitive districts opposed health care reform. In this scenario, Democrats would have retained an average of an additional 25 seats and would have had a 62% chance of winning enough races to maintain majority control of the House.

Our account benefits from new methods and survey data that have only become available to political scientists in the last few years. It thereby provides a methodological template and accompanying inferential standard for future efforts of this kind. Our account also constitutes one of the first efforts to trace the entire process of electoral accountability: from specific incumbent behavior to voter attitudes to election results. In the 2010 election, health care reform appeared to cost Democrats a large number of votes, primarily by making them appear more liberal, and may have cost them control of the House.

Roll Call Voting and Electoral Accountability

Given voters' lack of attention to day-to-day events in Congress, it may seem unlikely that they could hold legislators accountable for their voting records. In fact, early research on congressional elections emphasized the visibility of challengers more than the substance of incumbent behavior (Mann and Wolfinger 1981). However, members of Congress seem to think that their votes matter. Although most of them are reelected even in "anti-incumbent" years like 2010, they act as if reelection depends on avoiding mistakes, consulting extensively before casting votes on controversial issues (Kingdon 1973).

Members do have some reason to worry because their voting records appear to affect their electoral safety. For instance, members with more ideologically extreme records (Erikson 1971; Canes-Wrone, Brady, and Cogan 2002; Carson 2008; McGhee and Pearson forthcoming) and higher party unity scores (Carson 2008, Carson et al. 2010) attract less support at the polls than do more moderate members, although the penalty for ideological extremism is most severe in competitive districts (Montgomery and Nyhan 2010, Griffin and Newman n.d.).

But can specific roll call votes matter over and above a member's overall record? There is certainly anecdotal evidence that voters punish members who cast controversial votes on salient issues. For instance, Rep. Jeannette Rankin (R-MT), the first woman to serve in the House of Representatives, lost her seat after just one term because of her vote against U.S. entry into World War I (Lopach and Luckowski 2005, Smith 2002). The same fate befell her in 1942 after she was elected to Congress again and voted against entry into World War II. Similarly, Rep. Marjorie Margolies-Mezvinsky (D-PA) was defeated after casting the deciding vote for President Clinton's 1993 budget (Heidom 1994).

More systematic analyses have also highlighted the electoral perils of specific votes. Jacobson (1995) finds that support for key initiatives of President Bill Clinton—the 1993 budget and NAFTA—hurt Democratic incumbents in the 1994 election. Canes-Wrone, Minozzi, and Reveley (2011) find that Democrats who cast votes that were "tough on crime" did significantly better in the 1994, 1996, and 1998 elections—the period in recent history during which public concern with crime was at its peak. More recently, Green and Hudak (2009) find that Democrats who supported the Troubled Assets Relief Program (TARP) when it was first considered by the House (September 29, 2008) experienced a smaller increase in vote share between 2006 and 2008 than did the Democrats who opposed it. Finally, Ansolabehere and Jones (2010) show that constituents who disagreed with their representatives on salient roll calls taken in 2005 and 2006 were less likely to approve of their job performance and to vote for them.

The midterm election of 2010 provides an ideal test for whether individual roll call votes can affect incumbent electoral performance. During the 111th Congress, House Democrats passed high-profile legislation to reform health care, stimulate the economy, and create a cap and trade system designed to reduce greenhouse gases. These bills helped provoke a popular backlash that was more severe than most Democrats expected. The economic stimulus bill served as a major rallying point for the nascent Tea Party movement, and health care reform only added to the controversy (Saldin 2010). Cap and trade received less attention—in part because it did not pass the Senate—but the bill was seen as an important issue in districts that would be most affected by the price it would have placed on carbon emissions (Samuelsohn and Bravender 2010).

Republicans were quick to use these controversial votes in advertisements attacking Democratic incumbents. For instance, the National Republican Congressional Committee (NRCC) ran radio ads attacking pro-stimulus votes by 30 vulnerable House Democrats in February 2009 (Ambinder 2009) and later ran ads accusing stimulus supporters of providing funds to create jobs in China (Karl 2010). Similarly, the NRCC ran ads attacking 31 Democratic incumbents who supported health care reform (Sack 2010) and 14 Democrats who backed cap-and-trade (Power 2009). The health care assault was especially fierce. By late October 2010, the Campaign Media Analysis Group estimated that reform opponents (including outside groups) had spent $108 million on advertisements against the legislation, roughly six times the amount spent by supporters (Sack 2010). Initial estimates from the Wesleyan Media Project show that Republicans mentioned health care in television ads three times as much as Democrats and that 70% of those were attack ads (Fowler and Ridout 2010).[1]

The outcome was record losses for Democrats. Sixty-three Democratic incumbents went down to defeat in 2010, the largest gain for Republicans in the House since 1938. Undoubtedly, many of these losses could be attributed to the weak economy, the size of the Democratic majority, and the number of marginal seats held by Democrats. However, the number of seats lost exceeded even pre-election forecasts that included these predictors (Sides 2010, Brady, Fiorina, and Wilkins 2011), suggesting that the controversial roll calls might account for the difference.

Masket and Greene (2010) first picked up on this possibility in a pre-election blog post examining the prospects for Democratic House members from conservative districts. They found that those who supported health care reform were running 2.7 percentage points behind opponents of reform. This finding was supported in an initial post-election analysis by McGhee,

[1] Comparable figures for ads about the stimulus and cap and trade are not yet available.

Nyhan, and Sides (2010), who estimated that a vote for cap and trade, the economic stimulus, health care reform, or the Troubled Asset Relief Program (a 2008 vote not included in this analysis) may have cost Democratic incumbents in marginal districts approximately four percentage points. Subsequent analyses have supported these findings. Jacobson (2011) finds that support for the stimulus, health care reform, and the Dodd-Frank financial regulation bill may have cost Democrats 3 to 4 percentage points in marginal seats. Likewise, Brady, Fiorina, and Wilkins (2011) find that health care reform appeared to hurt all Democrats and that cap and trade damaged incumbents from districts where Obama received less than 60% of the vote.

These findings regarding salient roll call votes and Democratic performance in 2010 constitute the point of departure for our analysis, which focuses on the individual-level mechanism by which incumbents were punished and the aggregate-level relationships between roll call votes and electoral outcomes (including seat share).

A Theory of Roll Call Effects

The most plausible case for the electoral effects of roll call votes should connect voter perceptions with aggregate consequences. We adopt this approach and focus on negative effects of roll call votes on electoral performance (which seem more likely than positive effects in a real-world context). For a roll call vote to have a harmful effect on incumbent performance, five criteria must be met.

First, the incumbent must cast a salient vote that contradicts the preferences of the median voter in his or her district. Despite the model of reelection-minded representatives that has become so widely accepted in political science (Mayhew 1974, Mann 1978, Jacobson 1987), newer models of parties (e.g., Aldrich and Rohde 2001, Cox and McCubbins 2007) suggest that votes that defy the median voter should occur frequently in the contemporary era. Not only are incumbents likely to have relatively extreme views (e.g., Bafumi and Herron 2010), but party activists and officials often demand support for proposals that might offend the median voter (Masket 2009). Given the potential costs of dissent, which could include a primary challenge (Bawn et al. 2006), many representatives will cast such votes despite possible risks to their general election campaign.

The second condition for a roll call effect is the dissemination of information about the vote itself. Put simply, voters cannot react to a roll call vote of which they are not aware. Creating such awareness can be difficult. Representation entails an inevitable principal-agent problem in which the intentions and actions of representatives are often hidden from their relatively inattentive constituents—a problem made worse by meager local media coverage (Arnold 2005). Nonetheless, voters may learn about roll call votes through the back-and-forth of a competitive campaign (Arnold 1992, Mann and Wolfinger 1981), particularly if an out-of-step vote attracts a quality challenger (Jacobson 1989). We do not test for this step in the process directly, but the presence of any electoral effect from roll calls presupposes its existence.

The third criterion is that the information that reaches voters about the roll call vote must cause them to update their beliefs about the incumbent. Drawing on spatial voting theory, we focus in particular on voters' perception of the member's ideology. We hypothesize that salient and controversial votes for party agenda items will cause many voters to perceive legislators as more extreme and ideologically distant than they otherwise would have, based on the overall voting record of the incumbent.

The fourth step is that voters who have updated their beliefs about the distance between themselves and the incumbent as a result of the roll call vote must then cast their ballots on that basis. In this case, we hypothesize that constituents vote against the incumbent if he or she is more ideologically distant than the opponent in a manner consistent with spatial voting theory. Perceived ideological distance therefore mediates the effect of the roll call vote on vote choice. Why might such a mediating effect occur? A direct effect of a roll call vote on vote choice or election outcomes could imply that voters have a relatively narrow focus and only update their beliefs about the incumbent on one issue at a time. In this case, however, a roll call vote salient enough to trigger such a direct effect may also signal something broader about a legislator's ideology. Voters might therefore legitimately use the roll call to update perceptions of that ideology and then use those updated perceptions as the basis for their vote choice. Indeed, this sort of two-step process is arguably less taxing for the average voter since it requires neither a detailed understanding of the bill nor a passion for that specific issue. The voter need only know—possibly after hearing from a trusted third party—that the roll call vote in question sends an important signal about the legislator's worldview. That said, both direct and indirect effects are possible and we test for each of them below.

If enough voters update their beliefs as spatial voting theory would suggest (and their shift is not offset by a corresponding positive shift among a different set of voters), this can damage the electoral performance of the incumbent at the aggregate level. Most significantly, if enough voters punish incumbents in competitive districts for controversial roll call votes, they can change the outcome of those elections and potentially shift party control of the relevant chamber of Congress. This micro-macro linkage is the fifth and final step in the representational process.

Our theory thus subsumes several approaches in the previous literature. The stylized spatial voting model presented by Canes-Wrone, Brady, and Cogan (2002) suggests that voters vote solely based on spatial considerations. Although the authors' empirical analysis focuses on candidates' overall voting records, their logic suggests that the effects of roll call votes would be mediated by perceived ideological difference. By contrast, Jacobson (2011) and Brady, Fiorina, and Wilkins (2011) estimate only the total effect of roll call votes and do not separate their mediated and direct effects. Ansolabehere and Jones (2010) estimate the effect of disagreement about roll call votes on vote choice and approval controlling for perceived ideological difference, which may underestimate the impact of those roll calls if their effects are largely mediated by differences in perceived ideology.

Roll Call Votes and Constituent Perceptions

How exactly do roll call votes affect the way constituents perceive their members? We investigate whether members' roll call voting behavior leads respondents to perceive them as more ideologically extreme and then whether perceptions of ideological difference are associated with support for the incumbent.

Our investigation relies on the 2010 Cooperative Congressional Election Study (CCES). The CCES was administered online by YouGov of Palo Alto, CA, which recruits people to a panel and then solicits panel members to take surveys. In this case, it matched those who agreed to take the CCES to a random sample of the U.S. population on such attributes as race, religion, income, education, sex, party identification, and ideological orientation. As in other types of surveys, the CCES also includes sampling weights that adjust the sample's demographics to mirror Census data. Ansolabehere and Schaffner (2011) find that this methodology produces samples similar to those produced by other survey modes on most dimensions. The main exception is that respondents tend to be more interested in and knowledgeable about politics (see also Hill et al. 2007). For example, in Ansolabehere and Schaffner's study, 68% of YouGov respondents knew the political party that controlled the House of Representatives compared with only 54% of telephone survey respondents.[2]

We limit our analysis to respondents who resided in the 230 districts with a Democratic incumbent facing a Republican challenger in the 2010 general election.[3] We exclude the districts of four incumbents who faced no Republican opponent and two incumbents who were elected in special elections in 2010. Our sample is comprised of 28,367 respondents and includes respondents living in each of the 230 districts. We examined the consequences of support for three controversial pieces of legislation:

- The Patient Protection and Affordable Care Act (health care reform), which passed 219-212 on March 21, 2010, with support from 201 of the 230 Democrats in our sample.
- The American Clean Energy and Security Act (cap and trade), which passed 219-212 on June 26, 2009, with support from 190 of the 230 Democrats in our sample.
- The American Recovery and Reinvestment Act (the stimulus), which passed 244-188 on January 28, 2009, with support from 216 of the 230 Democrats in our sample.

Roll call votes and perceptions of member ideology

Our first analysis examines respondents' perceptions of their Democratic representative and how those perceptions vary with the incumbent's support for the stimulus, health care reform, and cap and trade. The CCES asked respondents to place the incumbent on a seven-point

[2] The relationship between roll call votes and perceived ideological difference and the relationship between ideological difference and vote choice could be stronger among more politically sophisticated voters. Such respondents are both more likely to pay attention to politics and more likely to draw on political issues or ideological considerations when voting. However, given that voters who turn out in midterm elections tend to be relatively politically sophisticated, this is not necessarily a flaw in our analysis. Indeed, the similarity of our individual- and aggregate-level results suggests that sample biases in the CCES are not consequential for our story.

[3] Only eight Republicans supported cap and trade and none voted for the stimulus or health care reform, so we focus exclusively on Democratic incumbents.

scale from “very liberal” (1) to “very conservative” (7). Figure 1 displays the distribution of responses for those who could place the Democratic incumbent on this scale.[4] In each of the three subfigures, we present a kernel density plots of the distributions of perceived ideology for incumbents who supported and opposed each roll call vote. This provides an initial test of whether roll call voting is associated with perceptions of members’ ideology.

[insert Figure 1 about here]

As expected, the distribution of supporters is skewed more to the left than that of opponents. Simple t-tests confirm that these roll call votes are associated with different perceptions of member ideology. Most notably, the difference in the average perceptions of supporters and opponents of health care is 0.93 on the seven-point ideology scale ($p<.001$). For the other roll call votes, the comparable differences are statistically significant but smaller in magnitude (stimulus: 0.63; cap and trade: 0.46).

How do perceptions of Democratic incumbents compare to constituents’ perceptions of themselves? We subtracted the respondent’s self-reported ideology, also on a seven-point scale, from the perceived ideology of their representative and present the distribution of this measure in Figure 2. Most respondents (58%) consider themselves more conservative than their representative, while 19% place themselves at the same place as their representative and 12% consider themselves more liberal. The vertical lines denoting the average Democratic, independent, and Republican respondents suggest, not surprisingly, that Republicans and independents tend to consider themselves more conservative than their Democratic representatives, while Democrats tend to view themselves as slightly more liberal.

[4] About 19% of respondents could not place their Democratic representative on this scale. In an auxiliary analysis (available upon request), we find that the likelihood of placement increases as respondents become more partisan and the member becomes more ideologically extreme (i.e., more liberal as measured by DW-NOMINATE). The roll call votes we analyze are not systematically related to respondents’ ability to place their members on the scale.

[insert Figure 2 about here]

Of course, voters may perceive supporters of these bills as more liberal because those members have liberal records, not because of the individual votes themselves. We thus test for whether roll call votes are associated with perceived member ideology while controlling for respondent partisanship and member ideology. We estimate OLS models in which the dependent variables are the seven-point measure of the perceived ideology of the incumbent or the signed measure of perceived ideological difference between the incumbent and constituent (which ranges from -6 to 6). The key independent variables are indicators for each of the three roll call votes. We control for the party identification of the respondent as measured using the conventional seven-point scale (with higher values indicating a less Democratic or more Republican identification) because Republicans and independents are likely to perceive Democratic incumbents as more liberal than Democrats do. We also control for members' ideology via their first-dimension DW-NOMINATE scores because perceptions of member ideology should be associated with members' overall voting records.[5]

[insert Table 1 about here]

Table 1 presents the results of these models.[6] Party identification and member ideology have their expected association with perceived ideology: as party identification shifts toward the Republican end of the spectrum, the expected placement of the Democratic incumbent shifts toward the liberal end. On average, a strong Republican would place these incumbents 1.5 units to the left of where a strong Democrat would place them. Members who have more moderate voting records (as measured by their first dimension DW-NOMINATE scores) are also perceived

[5] When we included a measure of party unity in these models, its effect was small and never statistically significant at conventional levels (results available upon request).

[6] For all multivariate models of CCES data, we apply the sampling weights provided by YouGov and adjust the standard errors to account for clustering within congressional districts.

to be less liberal: the most liberal and conservative representatives in this sample of Democratic incumbents would be perceived to be 0.66 units apart, other things equal.

The apparent effects of these roll calls are also evident. We find that Democratic incumbents who supported health care reform and cap and trade, although not the stimulus, are perceived to be more liberal. Of these votes, health care reform is most strongly associated with perceived ideology. All else equal, a supporter of health care reform would be placed 0.73 units further to the left of the respondent than an opponent—a larger shift than the estimated DW-NOMINATE effect noted above.

Our model of perceived ideological differences in the second column of results in Table 1 supports this finding. In contrast to the ideological placement model, we find that members who supported the stimulus were seen as more liberal than their constituents, but cap and trade had no significant association with ideological difference. The apparent effect of health care reform is still present: relative to opponents of health care, supporters were seen as more liberal than their constituents. Auxiliary analyses (available on request) show that the effects of health care reform were concentrated among Republicans and independents, who were naturally less likely to support the bill. The relationship between supporting health care reform and perceived ideological difference was greater for pure independents (b=-0.78; s.e.=0.27) and Republicans (b=-0.89; s.e.=0.13) than for Democrats (b=-0.38; s.e.=0.13).

In short, roll call votes in support of these controversial bills appeared to lead constituents to see Democratic incumbents as more liberal. The strongest and most consistent relationships involved health care reform, especially among independents and Republicans.

Estimates of the mediating effect of perceived member ideology

If roll call votes are associated with how constituents perceive their representative's ideology, are they also associated with how they voted? We analyze the relationship between these roll call votes and self-reported vote choice, which is coded 1 for a vote for the Democratic incumbent and 0 for the Republican challenger. Just over half (55%) of the sample reported voting for the Democratic incumbent. We first determine whether roll call votes appeared to affect vote choice directly, controlling for the respondent's party identification, Obama's share of the 2008 vote in the district, and the incumbent's first-dimension DW-NOMINATE score estimate (Poole and Rosenthal 2007). We then test our proposed mechanism by adding perceived ideological difference to the model. The relationship between this variable and vote choice, as well as any differences in the apparent effects of the roll call votes compared to the first model, will suggest whether perceived ideological difference mediates the relationship between the roll calls and vote choice.

Before conducting this analysis, we modify the perceived ideological difference variable from the version analyzed in Figure 2 and Table 1. First, we collapse the small number of respondents who placed themselves to the left of the Democratic incumbent. No matter how far to the left they were, the vast majority of these respondents voted for the Democrat. Second, we reversed the coding of this variable so that higher values indicate that respondents placed themselves further to the ideological right of the incumbent. The resulting measure ranges from 0 to 6 where 0 indicates that the respondent is to the left of or ideologically the same as the incumbent and 6 indicates that the respondent believes that he or she is very conservative and the incumbent is very liberal.

Finally, we estimate models both for the entire sample and for Democrats, independents, and Republicans separately. (Independents who lean toward a party are counted as partisans.) Partisans were quite polarized in their support for health care reform and these other initiatives and thus their responses may differ. In the models for independents, we drop party identification. In the models for Democrats and Republicans, we substitute a measure of strength of partisanship, which is coded 1 for independents who lean towards the party, 2 for weak partisans, and 3 for strong partisans.

[insert Table 2 about here]

The first model, which is estimated for all respondents who reported voting in their House election, suggests that support for health care reform is associated with a lower likelihood of voting for the incumbent. Respondents are approximately five points less likely to vote for an incumbent who supported health care reform than one who opposed it. None of the other roll call votes has a statistically significant relationship. When the perceived ideological difference between respondent and representative is included (model 2), it is strongly associated with approval and vote choice. A one standard deviation shift from the mean (from approximately 2 to 4 on the 0-6 scale) is associated with 44-point decrease in the probability of voting for the Democratic incumbent. Moreover, as expected, perceived ideological difference appears to mediate some of the effect of health care reform. The coefficient for health care reform is much lower in magnitude in this model (b=-0.27) than in model 1 (b=-0.52).

The results for the separate partisan groups tell a similar story. Among Democrats, a Democratic incumbent's support for health care reform is not significantly associated with a lower likelihood of voting for that incumbent. Interestingly, the only important roll call vote is for cap and trade; support for this initiative actually appears to increase the likelihood that

Democratic voters will support a Democratic incumbent. Among independents and Republicans, however, support for health care reform is associated with a lower probability of voting for the Democratic incumbent. The apparent mediation effect emerges among independents and Republicans as well. For both groups, including perceived ideological difference in the model weakens the relationship between the incumbent's support for health care reform and vote choice. For independents, this relationship is also no longer statistically significant at conventional levels.

Appendix A presents several robustness checks to demonstrate that these individual-level results are not spurious. Our results hold when the dependent variable is job approval instead of vote choice as a dependent variable and when we account for the potential endogeneity between perceived ideological distance and vote choice. We also present a more sophisticated mediation analysis that estimates the direct effect of the roll call votes on individual vote choice as well as the indirect effect via perceived ideological difference. These results provide even stronger evidence that the most of the relationship between the health care reform vote and vote choice is mediated by perceived ideological difference. Our results are thus consistent with the analysis presented above and appear relatively robust to confounding factors.

Taken as a whole, our individual-level results suggest that Democratic incumbents' support for a controversial piece of legislation—health care reform—led respondents to perceive them as more liberal and more ideologically distant even after accounting for their overall voting record. This perceived ideological difference appeared to mediate the effect of health care reform on the likelihood of voting for the incumbent, particularly among Republican voters.

Roll Call Votes and Democratic Vote Share in 2010

The results in the previous section demonstrate that salient roll call votes, and in particular health care reform, appeared to translate into greater perceived ideological distance and less electoral support for Democratic incumbents among individual voters. But do these effects scale up to the district level? In other words, did those micro-level perceptions have negative macro-level consequences for Democrats?

Effects of roll call votes on Democratic incumbent vote share

We begin by regressing each Democratic incumbent's two-party vote share on the three roll call votes, the Democratic share of the two-party presidential vote in 2008, which captures the partisan leanings of each member's district, as well as members' first dimension DW-NOMINATE score (Poole and Rosenthal 2007) and *Congressional Quarterly* party unity score in the 111th Congress, which capture important characteristics of their overall voting records.[7]

The first column of Table 3 shows that, even after controlling for Obama's share of the district's 2008 presidential vote and their DW-NOMINATE and party unity scores, the three roll call votes are jointly significant in an F-test ($p<.01$), suggesting that they provide additional explanatory power. The vote share of Democratic supporters of health care reform was 8.5 points lower than that of Democratic opponents. By contrast, support for the stimulus or cap and trade did not have a statistically significant relationship with vote share.[8]

[insert Table 3 about here]

[7] Since many observers believe the economy hurt Democratic incumbents, we also tested a district-level estimate of unemployment, but it did not have statistically significant effects.

[8] These results do not appear to derive from multicollinearity. The variance inflation factors of all variables are well below levels of concern.

However, supporters and opponents of health care reform, the stimulus, and cap and trade represented very different districts and had very different overall voting records. For example, we simply do not observe Democratic incumbents in safe seats opposing health care reform. To visualize this concern, Figure 3 plots the association between district presidential vote in 2008 and the Democratic incumbent's vote share in 2010 for supporters and opponents of each of the three bills. Black circles represent opponents of the bill in question, and gray triangles represent supporters.

[insert Figure 3 about here]

As Figure 3 illustrates, opponents of the bills appear to have outperformed supporters in swing districts where both are represented, especially in the case of health care reform. In addition, as the interactive models estimated by McGhee, Nyhan, and Sides (2010) and Brady, Fiorina, and Wilkins (2011) suggest, the effect of supporting the bills appears to vary depending on district partisanship. However, most opponents represent competitive districts, while supporters are concentrated in safer districts that backed Obama by wide margins. Since we lack cases in which opponents of health care reform and the other two votes represent more conservative districts, the statistical models presented above may be extrapolating beyond the bounds of the observed data (see, e.g., Ho et al. 2007).

To address these concerns, Columns 2-4 of Table 3 present regression results for matched samples of Democratic incumbents. These matched samples maximize balance in district presidential vote, party unity, and DW-NOMINATE first dimension scores among Democratic incumbent supporters of the bills in competitive districts and their most comparable opponents (see Appendix A for more details). Our results suggest that the apparent effect of health care reform is not the result of extrapolation. The vote share of Democrats who supported health care reform was 5.8 points lower than that of the most comparable Democrats who opposed the bill. The vote share of supporters of cap and trade was 3.1 points lower than that of opponents, which is consistent with the findings of Brady, Fiorina, and Wilkins (2011). The apparent effect of the stimulus is again null.

Estimates of the mediating effect of perceived member ideology

Having established that the negative relationship between support for health care reform and vote choice hold at the aggregate level, we now test our hypothesized mediation model. As in the individual-level data, Democratic incumbents who supported health care reform were seen as more liberal on average by their constituents than those who did not.[9] The question is whether this roll call vote had an indirect effect on vote share via increased perceptions of ideological distance. To test whether individual opinions affected election outcomes, we first need estimates of constituent opinion in each congressional district—specifically, average perceptions of ideological distance from the incumbent. We generate these aggregated opinion estimates with data from the CCES, using multilevel regression and poststratification to improve the precision of these estimates. We then estimated how much these district-level perceptions of ideological distance mediated the relationship between these roll call votes and vote share. (Details of this analysis can be found in Appendix B.)

As in the individual-level analysis, we also find that the relationship between these roll call votes—and health care reform in particular—was substantially mediated by perceived ideological distance. Among all Democratic incumbents, both the mediation effect via perceived ideological distance and the direct effect of health care reform are negative and statistically

[9] The average rating of supporters of health care reform, the stimulus, and cap and trade was 2.6 on the 0-6 scale where higher values are more conservative. By contrast, opponents of health care reform averaged 3.5, opponents of stimulus 3.2, and opponents of cap and trade 3.0.

significant. However, among the matched sample of health care reform supporters and opponents, the direct effect is no longer significant but the mediated effect is significant, reducing supporters' vote share by approximately 4.5 percentage points via an increase in perceived ideological distance. By contrast, the apparent effects of cap and trade in Table 3 are not evident in the matched sample. Thus, both the individual-level and aggregate-level analyses confirm that support for health care reform was associated with electoral losses for Democratic incumbents largely because of the effects of this roll call vote on perceived ideological distance.

Health Care Reform and Democratic Seat Share

The results above suggest that health care reform had a powerful effect on the vote share of Democratic incumbents. But did it actually cost them seats? We simulate a counterfactual scenario where all Democrats in competitive seats (those where President Obama received less than 60% of the two-party vote in 2008) vote no on health care reform. How many additional seats would Democrats have retained in this scenario?

To estimate this effect, we simulate the predicted vote share for these incumbents using the health care reform model for the full sample in Table 3, comparing predicted outcomes in the observed data with a counterfactual in which all Democrats in competitive districts voted against reform.[10] We then compare the number of seats predicted to be held by Democrats in the two scenarios. Over 10,000 simulations, the median outcome hands Democrats 25 additional seats they otherwise lost (95% CI: 21, 29). In 62 percent of simulations, Democrats are predicted to win 25 or more additional seats, which would have given them enough to retain the House (they ended up with 193 seats after the election). This estimate suggests that health care reform may

[10] To conduct these simulations in R, it was necessary to use regular (i.e., non-robust) standard errors in estimating the model, which is otherwise identical to the first column of Table 3.

account for the difference between Democrats' 63-seat loss and the median academic forecast of 44 seats in Table 1 of Brady, Fiorina, and Wilkins (2011).

Conclusion

To use President Obama's term, Democrats got a "shellacking" in the 2010 election. This outcome caught many observers by surprise. It was never going to be a good year for the majority party given the number of marginal seats they had to defend, the weak economy, and the president's middling approval ratings, but few observers thought they would lose 63 House seats. Our analysis suggests one possible reason for these losses: health care reform. Democratic incumbents who supported health care reform were perceived by many of their constituents as more liberal than the individual constituents themselves. And largely because of this ideological gap between representative and constituents, Democrats who supported health care reform received fewer votes—a consequence visible at both the individual and aggregate levels. Ultimately, we estimate that health care reform reduced the Democratic House delegation by 26 seats, which may have cost them control of the chamber.[11] This estimate is comparable to the gap between the outcome and forecasts that relied on traditional predictors such as the economy and presidential approval.

Our analysis of the 2010 elections also has broader implications for the study of roll call voting and congressional elections. First, we have sought to identify the apparent causal impact of roll call votes by matching Democratic opponents of health care reform to the supporters most similar to them on several key dimensions. Particularly noteworthy is that, in 2010 at least, support for health care reform was more important than either the incumbent's ideology or party

[11] Whether this was an acceptable price for Democrats to pay for passing the legislation is, of course, a matter for debate (see, e.g., Saletan 2010).

unity, both of which have been identified by previous research as making incumbents appear "out of step." In fact, it may take only a single vote on a prominent issue—not a long track record of ideological or partisan fealty—to create that impression among constituents.

Second, we have pinpointed a mechanism for the relationship between roll call votes and aggregate vote share that other studies have noted. Controversial roll call votes—or, more likely, the publicity that they generate in the news media and in campaign communications—can shift constituents' perceptions of their representative's ideology. In 2010, Democratic supporters of health care reform were perceived as further to the ideological left, which made them more distant from most of their constituents, especially independents and Republicans. Of course, more research needs to be done to compare this explanation to plausible alternatives and to test for its existence in other elections. Nevertheless, our results provide the most specific evidence to date about *how* roll call votes affect attitudes and vote choice.

Finally, our simulations suggest that the marginal effect of support for health care reform on Democratic incumbents' vote share "added up" to tangible seat losses in November 2010. This sort of counterfactual is not very common in the literature on voting behavior and elections, but we believe it is critical. After all, what ultimately matters is not whether a Democratic incumbent won their seat by a narrower margin due to health care reform, but whether the vote losses changed who actually won the seat. By estimating this counterfactual, the full consequences of roll call voting for representation become clear: members who are out of step, even on a single salient vote, really can end up out of office.

However, there are important caveats to this counterfactual analysis, which varies only the votes for health care reform cast by Democratic House members in competitive districts. The real political world is more dynamic. We have no way of knowing, for example, whether more

Democratic dissent in the House would have doomed the health care bill and thereby led voters to see the Obama presidency and Democratic Congress as failures. It is also possible that the failure of health care reform would have demobilized some Democratic donors, interest groups, and voters in 2010. Although our results suggest that Democratic supporters of health care reform lost votes as a consequence, counterfactuals about the number of seats lost inevitably leave out many other factors and possibilities.

Finally, while we go further than previous efforts in testing a causal model of how roll call votes affect elections, there are nonetheless limitations to our analysis. One is simply the challenge of estimating causal effects in observational data. We have made extensive efforts to isolate the effects of roll call votes using statistical matching and sensitivity analysis. But until we convince members of Congress to randomize their votes, our inferences about the effects of those votes will be necessarily provisional. Second, there are missing pieces to the story. Perhaps most important among them is the content of campaign communication. We know that health care reform figured prominently in television advertising and other communication with voters, but we lack the necessary data to examine the effects of such messages on vote choice. This is a question future research should explore.

Despite these caveats and the limitations in the available data, we have attempted to craft a compelling and rigorous case that key roll call votes mattered in 2010. Establishing this result confirms a series of important studies of congressional representation. Health care reform was a bold move by Democrats, and it prompted a strong response.

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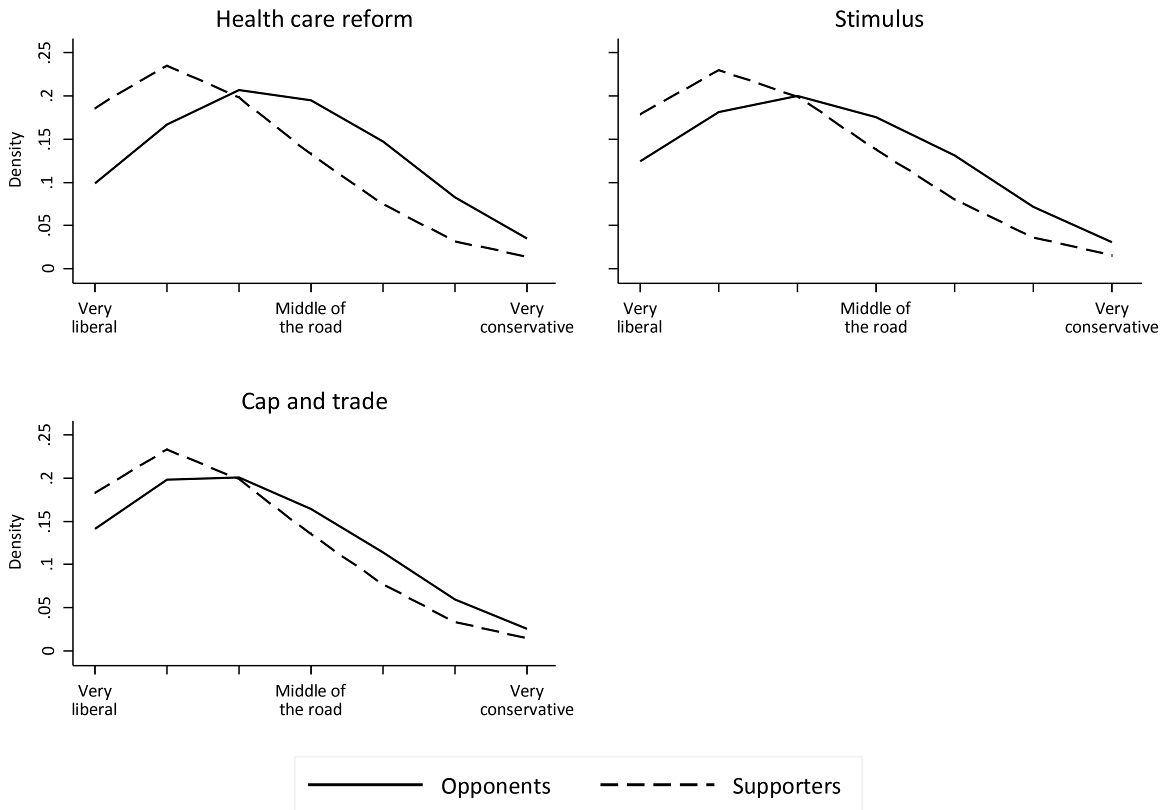
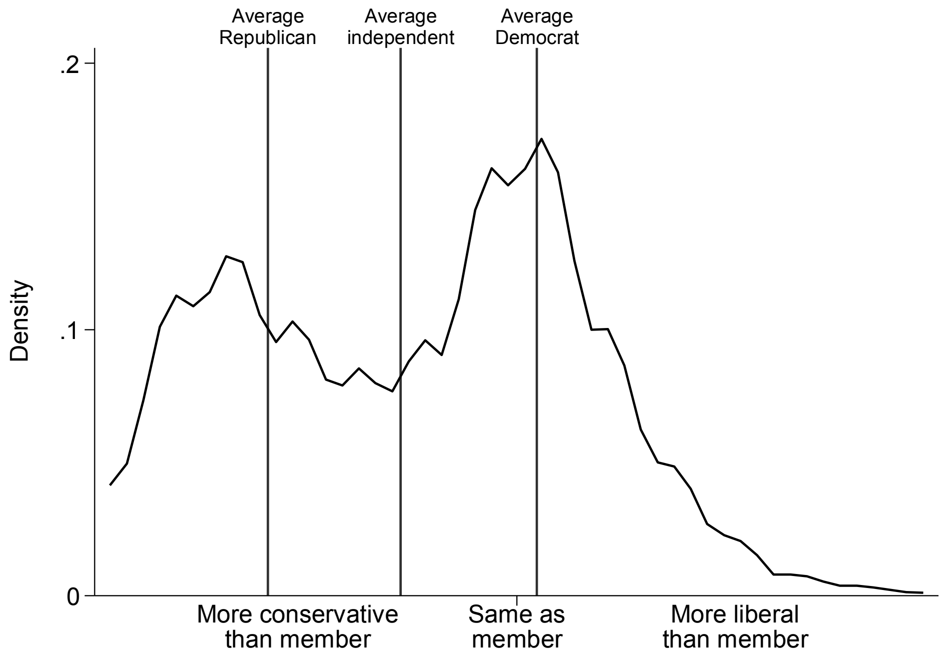
Figure 1. Constituent Perceptions of Ideologies of Democratic Incumbents



Each plot presents kernel densities of the perceived ideology of Democratic incumbents who supported or opposed each roll call vote. The bandwidth is 0.95. Source: 2010 CCES.

Figure 2. Constituent Perceptions of Ideological Distance from Democratic Incumbents



The plot presents a kernel density of the difference between the perceived ideology of Democratic incumbents and constituents' own ideologies. The vertical lines denote the average difference for Republican, Democratic, and independent constituents, counting independents who lean towards a party as partisans. The bandwidth is 0.50. Source: 2010 CCES.

Figure 3. Roll Call Imbalance by District Partisanship

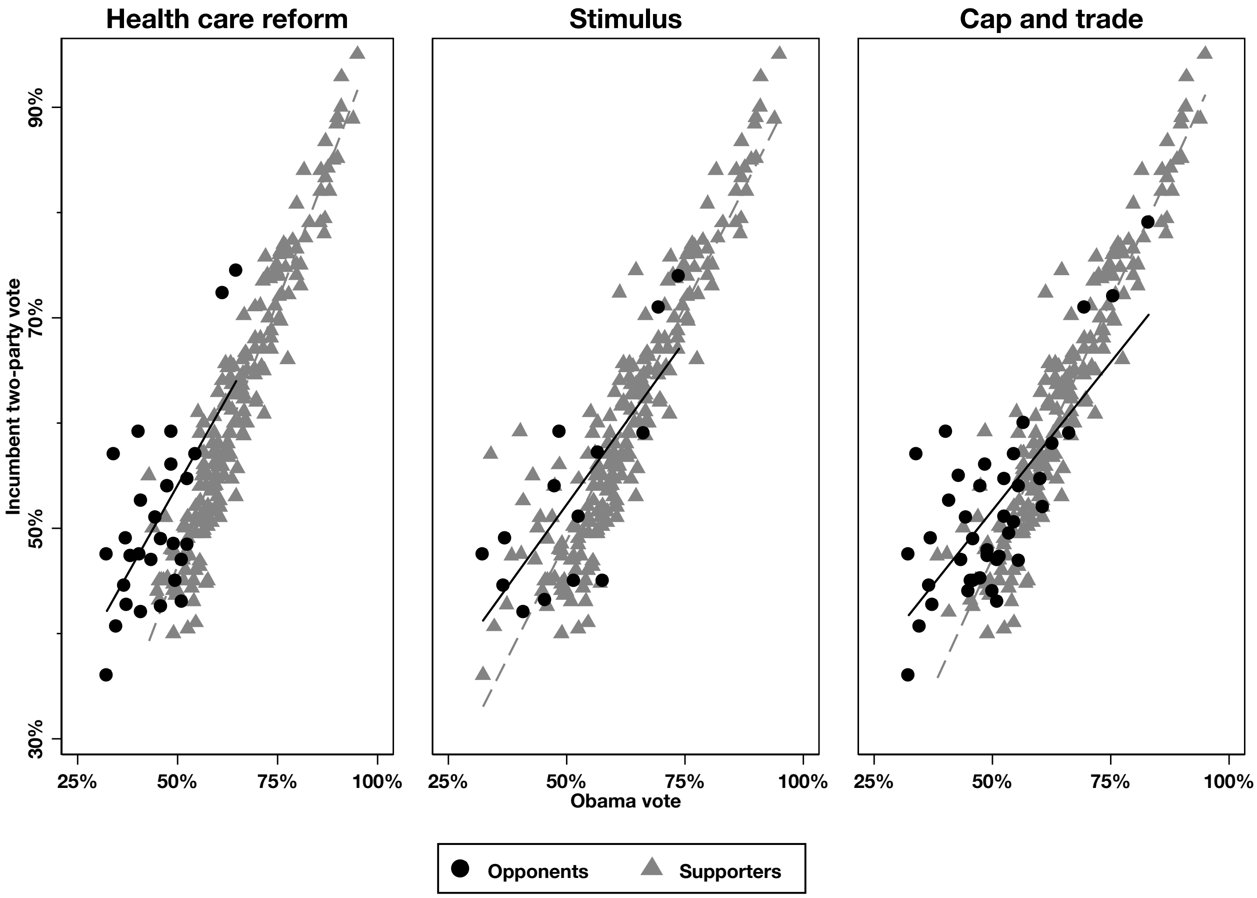


Table 1. Models of Perceived Ideologies of Democratic Incumbents

	Ideological placement of Democratic incumbent	Perceived ideological difference
Party identification	-0.25*	-0.80*
	(0.01)	(0.01)
DW-NOMINATE score	0.75*	0.61*
	(0.17)	(0.20)
Health care reform	-0.73*	-0.64*
	(0.10)	(0.11)
Stimulus	-0.13	-0.22*
	(0.11)	(0.10)
Cap and trade	-0.18*	-0.08
	(0.07)	(0.08)
Constant	4.85*	2.51*
	(0.13)	(0.12)
R^2	0.17	0.48
Unweighted N	21,878	21,576

Cell entries are ordinary least squares regression coefficients with standard errors in parentheses. The data are weighted with sampling weights and the standard errors are calculated to reflect clustering within congressional districts. Ideological placement is coded 1 (very liberal) to 7 (very conservative). Perceived ideological difference is coded -6 (more conservative than incumbent) to +6 (more liberal than incumbent). *p<0.05.

Table 2. Models of Vote Choice in House Races

	All		Democrats		Independents		Republicans	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ideological difference		-0.56*		-0.48*		-0.64*		-0.51*
		(0.03)		(0.05)		(0.05)		(0.04)
Health care reform	-0.52*	-0.27*	-0.19	-0.12	-0.56*	-0.25	-0.66*	-0.39*
	(0.12)	(0.12)	(0.18)	(0.18)	(0.21)	(0.25)	(0.14)	(0.16)
Stimulus	0.01	0.13	-0.16	-0.18	0.49	0.71	0.01	0.15
	(0.13)	(0.16)	(0.25)	(0.24)	(0.26)	(0.38)	(0.17)	(0.17)
Cap and trade	0.03	0.12	0.37*	0.33*	-0.15	0.05	-0.13	-0.03
	(0.10)	(0.09)	(0.12)	(0.13)	(0.15)	(0.16)	(0.12)	(0.14)
DW-NOMINATE score	0.16	-0.35	-0.23	-0.57	0.68	-0.34	0.39	0.06
	(0.24)	(0.26)	(0.43)	(0.42)	(0.49)	(0.59)	(0.33)	(0.39)
Obama 2008 vote share	0.01*	0.01*	0.01	0.005	0.02*	0.01	0.01*	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Party identification	-0.69*	-0.42*						
	(0.02)	(0.02)						
Strength of partisanship			0.31*	0.20*			-0.17*	-0.08
			(0.04)	(0.04)			(0.04)	(0.05)
Constant	2.47*	2.18*	0.56	1.12*	-1.11*	-0.15	-1.05*	-0.17
	(0.20)	(0.22)	(0.30)	(0.30)	(0.39)	(0.50)	(0.28)	(0.31)
Unweighted N	15625	15625	7557	7557	1291	1291	6777	6777

Cell entries are probit coefficients with standard errors in parentheses. The data are weighted with sampling weights and the standard errors are calculated to reflect clustering within congressional districts. The dependent variable is coded 1 if the respondent reported voting for the Democratic incumbent and 0 if they reported voting for the Republican challenger. *p<0.05.

Table 3. Models of Two-Party Vote Received by Democratic Incumbents in 2010

		Matched		
	All	HCR	Stimulus	Cap/trade
Presidential vote	0.99*	0.56*	0.24*	0.49*
	(0.03)	(0.16)	(0.13)	(0.13)
Party unity	0.03	-0.03	-0.06	-0.13
	(0.06)	(0.06)	(0.07)	(0.09)
DW-NOM 1st dim.	-0.22	-8.65*	-11.47*	-13.0*
	(2.59)	(4.24)	(5.22)	(5.89)
Health care reform	-8.49*	-5.80*		
	(1.44)	(0.80)		
Stimulus	-1.66		1.75	
	(1.62)		(2.96)	
Cap and trade	-1.68			-3.12*
	(1.03)			(1.57)
Constant	5.66	25.7*	38.2*	35.9*
	(4.31)	(8.22)	(8.59)	(9.20)
R^2	0.88	0.40	0.19	0.35
N	230	85	99	86

Cell entries are ordinary least squares regression coefficients with robust standard errors in parentheses. Columns 2-4 include matched samples of bill supporters in competitive districts and their most comparable opponents and include weights to maximize balance. *p<0.05.

Appendix A: Additional individual-level analysis and robustness tests

To investigate the robustness of the results presented in Table 2, we conducted a variety of additional analyses of the individual-level CCES data.

Different dependent variable

Similar findings emerge in models of approval of incumbent job performance. Specifically, independent and Republican voters are less likely to approve of a supporter of health care reform than an opponent. In addition, the apparent effect of support for health care reform is again reduced when we control for perceived ideological difference, which itself is substantively and statistically significant. These results are available on request.

Endogeneity of perceived ideological differences

Our findings are also supported by instrumental variables models that seek to account for the potential endogeneity of perceived ideological difference to vote choice—namely, people may exaggerate the perceived difference for candidates they do not like, which may inflate the probit coefficients we report. Following Ansolabehere and Jones (2010), we use the roll call votes as instruments for perceived ideological difference in IV probit models and find that the coefficients are uniformly *larger*, suggesting that endogeneity is not inflating our estimates. These results are also available upon request.

Bias and causal inference issues in mediation estimates

The estimation approach we use in the main text to detect mediation—contrasting models that include and exclude the mediating variable—can produce biased estimates of mediation effects (Bullock, Green, and Ha 2010). To address this concern, we also implement the approach to causal mediation analysis developed by Imai et al. (2009, 2010a, 2010b), which allows for nonparametric estimation of mediation models and sensitivity testing of the key assumptions necessary for the results to be interpreted as causal.[12] Table A-1 reports estimated mediation, direct, and total effects along with 95% confidence intervals for each of the three roll call votes on individual vote choice for Democrats with a probit outcome model (Democrat=1, Republican=0) and a linear model for perceived ideological difference.[13]

The first two columns of results in Table A-1 present estimates and confidence intervals for all CCES respondents who were represented by a Democratic incumbent who faced a Republican challenger (excluding those respondents with missing data for self-reported ideology, perceptions of representative ideology, or party identification). Democratic incumbents' support for health care reform is associated with a lower likelihood that their constituents would vote to re-elect them, and this effect was largely mediated by perceived ideological difference. The mediation effect (-0.07) accounts for 93% of the total effect (-0.08). Support for cap and trade also had a negative and significant mediating effect, but the total effect of both the stimulus and cap and trade was null.

Table A-2 disaggregates the estimated effect of health care reform to determine how it varies across partisan subgroups. As in Table 2, the relationship between health care reform and vote choice is evident only for independents and Republicans. Again, most of the effect of this

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[12] To do so, we use the `mediation` package for R (Tingley et al. 2011).

[13] The 95% confidence intervals for all mediation results in this paper are calculated using 1000 nonparametric bootstrap repetitions. In this case, our treatment is at the district level but the mediating and outcome variables are at the individual level, a so-called "2-1-1" structure which can distort mediation results by confounding between- and within-group variance in the mediating and outcome variables (Preacher, Zyphur, and Zhang 2010). As recommended by Zhang, Zyphur, and Preacher (2009), we account for this issue by creating a district-level mean value of perceived ideological difference as well as an individual-level deviation from that mean. Details are available from the authors upon request.

roll call vote is mediated by perceived ideological difference. For example, among Republicans, the mediation effect (-0.12) is 80% of the total effect (-0.15).

These results do not appear to be driven by differences in the types of Democrats who voted for or against the bills in question. The third and fourth columns in Tables A-1 and A-2 report equivalent results for a matched set of Democratic incumbents. Using Sekhon's (2011) genetic matching algorithm, we match the Democratic supporters of each bill in competitive districts, which we define as those in which President Obama received less than 60% of the two-party vote in 2008, to the most comparable opponents of each bill. Thus, we estimate the average treatment effect on the treated (ATT) where the treatment is supporting the bill in question in a competitive district and the estimand of interest is the effect of that support on vote choice. Given the small sample size, we match on only three variables: two-party district presidential vote in 2008, the incumbent's *Congressional Quarterly* party unity score, and the incumbent's first-dimension DW-NOMINATE ideal point.[14] Though we cannot achieve perfect balance, Table A-3 shows that the distributions are far more similar after matching (more details on the procedure used are available upon request).

Among respondents represented by this smaller but more comparable set of representatives, the same story emerges: a representative's support for health care reform is associated with a lower likelihood that their constituents voted for them, but this relationship is largely mediated by perceived ideological difference. The substantive magnitude of these apparent effects is again largest among Republican voters.

For these estimates to be causal, the mediator must be unrelated to the outcome variable given the treatment and pre-treatment covariates. To address this concern, we use the sensitivity

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[14] Before matching, we drop control units outside the support of the treatment units—i.e., those with a predicted probability of treatment that is less than the minimum predicted probability (or greater than the maximum predicted probability) of any observed treatment unit.

analysis approach developed by Keele, Imai, and Yamamoto (2010a). Their sensitivity analysis provides an estimate of how large the correlation (ρ) between the errors of the mediation and outcome models would need to be in order to nullify our results. If our results are sensitive to only a small correlation in the errors—i.e., a very modest violation of the conditions necessary for causal inference—then we cannot be very confident in what we have found. But if the correlation would need to be substantially larger to nullify our results, then our results are less sensitive to violations of the assumptions needed to ensure causal inference.

For the sample as a whole—i.e., the results presented in the first two columns of Table A-1—the correlation ρ would need to equal -0.45 to nullify the mediation effect of the health care reform vote. The correlation would need to be even greater (ρ=-0.55) to eliminate this mediation effect in the matched sample of respondents in competitive districts, thereby increasing our confidence in these results. The effects that we report among partisan subgroups (Table A-2) are also not particularly sensitive. For Republican respondents in our matched sample—where we report a mediation effect of -0.14 and a total effect of -0.13—the correlation ρ would have to equal -0.55 for the mediation effect to equal 0.

Table A-1. Mediated and Direct Effects of Roll Calls on Democratic Vote Choice

Health care reform (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.03*	(-0.04, -0.02)	-0.03*	(-0.04, -0.02)
Direct effect	-0.01*	(-0.02, -0.01)	0.01	(-0.01, 0.03)
Total effect	-0.04*	(-0.05, -0.03)	-0.02	(-0.04, 0.01)
N	15565		6649	

Stimulus (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.00	(-0.01, 0.00)	-0.01*	(-0.02, -0.00)
Direct effect	0.01	(-0.00, 0.02)	0.01	(-0.00, 0.03)
Total effect	0.00	(-0.01, 0.02)	0.00	(-0.02, 0.02)
N	15565		7513	

Cap and trade (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.00*	(-0.01, -0.00)	-0.01	(-0.01, 0.00)
Direct effect	0.00	(0.00, 0.00)	0.02	(0.00, 0.03)
Total effect	0.00	(-0.01, 0.00)	0.01	(-0.01, 0.03)
N	15565		6542	

Cell entries are estimates from the `mediation` package for R (Tingley et al. 2011). Data are from the 2010 CCES and include respondent weights. Matched data include respondents in competitive districts whose representatives voted yes on the bill and those in districts represented by the bill's most comparable opponents. *p<0.05.

Table A-2. Mediated and Direct Effects of Health Care Reform on Democratic Vote Choice by Party Identification

Democrats (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.01	(-0.01, 0.00)	-0.01	(-0.02, 0.00)
Direct effect	-0.00	(-0.03, 0.04)	0.03	(-0.02, 0.08)
Total effect	-0.01	(-0.03, 0.03)	0.02	(-0.02, 0.08)
N	7547		2728	

Independents (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.16*	(-0.24, -0.08)	-0.05	(-0.15, 0.03)
Direct effect	-0.00	(-0.10, 0.08)	0.05	(-0.09, 0.17)
Total effect	-0.17*	(-0.28, -0.04)	-0.00	(-0.17, 0.15)
N	1275		583	

Republicans (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-0.10*	(-0.15, -0.06)	-0.14*	(-0.20, -0.07)
Direct effect	-0.02	(-0.06, 0.01)	0.01	(-0.06, 0.07)
Total effect	-0.12*	(-0.19, -0.07)	-0.13*	(-0.22, -0.04)
N	6743		3338	

Cell entries are estimates from the `mediation` package for R (Tingley et al. 2011). Data are from the 2010 CCES and include respondent weights. Matched data include respondents in competitive districts whose representatives voted yes on the bill and those in districts represented by the bill's most comparable opponents. *p<0.05.

Table A-3. Covariate Balance in Overall and Matched Data

Health care reform

	All		Matched	
	Opponents	Supporters	Opponents	Supporters
Presidential vote	44.9	64.9	51.8	53.9
Party unity	78.5	96.1	89.9	92.4
DW-NOM 1st dim.	-0.13	-0.38	-0.21	-0.28
N	29	201	11	74

Stimulus

	All		Matched	
	Opponents	Supporters	Opponents	Supporters
Presidential vote	51.1	63.1	52.8	51.8
Party unity	78.3	94.9	89.9	90.3
DW-NOM 1st dim.	-0.18	-0.36	-0.21	-0.25
N	14	216	9	90

Cap and trade

	All		Matched	
	Opponents	Supporters	Opponents	Supporters
Presidential vote	49.9	65.0	52.9	53.6
Party unity	83.4	96.1	90.8	92.1
DW-NOM 1st dim.	-0.23	-0.38	-0.27	-0.27
N	40	190	18	68

Includes all 230 Democratic incumbents who faced a Republican challenger in 2010. Matched data includes supporters of the bill in competitive districts and the most comparable opponents.

Appendix B: Additional district-level analysis and robustness tests

Multilevel regression and poststratification

Our district-level analysis requires measures of average ideological distance from the incumbent. The CCES data offer a useful starting point for such estimates, but even with a sample size of more than 50,000, the average congressional district contains only 122 respondents, with 8 containing fewer than 50 and only 16 containing more than 200. Simply disaggregating the data by district is likely to produce noisy and unreliable estimates.

To increase the precision of our estimates, we turn to multilevel regression and poststratification (MRP). MRP involves first estimating a multilevel model of the measure in question (ideological distance) using both individual-level demographics and district-level characteristics as predictors (the "multilevel" stage).[15] We then generate predictions from the model and weight those predictions by the district's demographic profile in the Census (the "poststratification" stage). The demographic predictors in our multilevel model of ideological distance include age, education, home ownership, marital status, gender, race (non-Hispanic white and other), and an interaction between race and gender. The level-two predictors include the district presidential vote in 2004 and 2008 and the incumbent's party and DW-NOMINATE score. Finally, in addition to the standard district intercept, the model also includes a random intercept for states. The results of the model, which was estimated using `lmer` for R (Bates, Maechler, and Bolker 2011), are available upon request.[16]

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[15] Specifically, we use MRP district-level estimates of the average recoded ideological distance measure used in Table 2. However, they are virtually identical if we instead use the original ideological distance measure from Table 1. These results are available upon request.

[16] See Lax and Phillips (2009), Gelman and Hill (2007), and Kastellec, Lax, and Phillips (2010) for further details about the MRP method. The R script files for the MRP analysis used in this paper are available from the authors upon request, and are derived largely from the examples offered in Kastellec, Lax, and Phillips (2010).

An advantage of the multilevel model is that it weights the predictions according to the amount of information available for each district. Districts with smaller sample sizes or greater diversity of opinion within the district are generally pulled toward the global prediction from the model, while districts with larger samples or more uniform opinion are pulled toward the simple disaggregated estimate. At the extremes, a district with no respondents would receive an imputed value from the model, while a district with a very large number of respondents would be indistinguishable from simple disaggregation. In this way, the model makes more efficient use of the information in the data, producing highly accurate estimates of opinion even when the number of respondents is small (Lax and Phillips 2009).[17]

Robustness to previous ideological perceptions in 2008

A key component of our argument is that roll call votes created a shift in ideological perceptions. The obvious rejoinder is that the causal arrow points the other way: incumbent legislators may have based their roll call votes on how their constituents already perceived them or even on how they believed those perceptions would change as a consequence of voting a particular way. We can address this possibility in several ways.

[17] Obtaining individual-level census data for weighting purposes was one of the biggest challenges to applying MRP to congressional districts. Such individual-level data are only available for Public Use Microdata Areas (PUMAs). To convert the PUMA data to congressional districts, we used block-level equivalency files from the Missouri Census Data Center (Blodgett 2010) for a proportional overlay conversion. Such a conversion assumes that the demographic characteristics being converted are uniformly distributed across the geographic unit in question, an assumption that is problematic for certain characteristics. To validate the conversion, we used the same conversion file on aggregate-level 2000 census data, which is available for both PUMAs and districts. To best approximate the fine-grained weighting categories used in MRP, we converted age by race by gender (for a total of 12 categories). Race is particularly likely to violate the uniform distribution assumption, so it offers a tough test case of the conversion process. When we regressed the converted numbers on the actual numbers for each of the 12 categories, it suggested a very good fit: the slope estimate was never smaller than 0.90, and the R^2 never fell below 0.96. Scatter plots also suggested no serious outliers or non-linear relationships. Thus, we feel confident in the quality of the demographic estimates. The details of this validation procedure are available from the authors upon request.

First, as Table 3 shows, supporters of these roll call votes were perceived as more liberal than opponents even among a set of representatives who are matched on their roll call voting record (as measured by their first dimension DW-NOMINATE scores), their level of party unity, and the partisanship of their districts. This approach is not foolproof since it may fail to account for other confounding factors (particularly those that are unobservable), but it does account for several important factors that affect perceived ideologies.

Second, we can draw on a measure of perceived ideologies that *precedes* the treatment. The 2008 CCES also asked respondents to place their representative on an ideological scale that ranged from 0-100 (which we rescaled to 0-10). This scale differs from the seven-point scale included in the 2010 CCES, but that should not compromise the types of conclusions we draw here. As we did in 2010, we create district-level estimates—via multilevel regression and poststratification—of mean perceived ideology in 2008 for 225 of the 240 Democratic incumbents in our 2010 sample. This measure allows us to perform several auxiliary analyses.[18]

As a placebo test, we begin by comparing the perceived ideologies in 2008 for our matched set of health care supporters and opponents (see the description of the procedure used to generate this dataset in Appendix A). We find very little difference in how they were perceived in 2008. The mean perceived ideological locations of supporters and opponents of health care reform in the matched sample were nearly identical (3.2 and 3.3, respectively, on the 0-10 scale). This result suggests that our matching procedure identified a treatment and control group who were perceived relatively similarly before the health care reform vote.

[18] To be clear, the analysis of perceived ideological difference that we report in the main text is at the individual level (Table 1). To leverage the 2008 measure of perceived ideology, we estimate district-level perceptions from the separate cross-sections surveyed in the 2008 and 2010 CCES. Thus, while we do not have 2008 and 2010 measures for the same set of individual respondents, we do have district-level estimates for most Democratic incumbents in the data.

We can then estimate models predicting the perceived ideology of these 225 Democrats in 2010 using the key roll call votes we have identified. This model controls for their perceived ideology in 2008 as well as their overall voting record (as measured by their first-dimension DW-NOMINATE and CQ party unity scores). As Table B-1 shows, the inclusion of the 2008 measure does not change any of our inferences, including the finding that health care supporters are perceived as more liberal than heath care opponents ($p<.01$). Most importantly, unlike 2008, supporters of health care reform in the matched sample were perceived as more liberal than those Democrats who opposed it.

Aggregate-level mediation model

Table B-2 shows that our aggregate-level mediation results are consistent with the individual-level mediation results presented in Appendix A and that they hold among our matched set of comparable Democratic incumbents. In particular, we again find that most of the apparent effect of health care reform on vote share is mediated by perceived ideological difference: the mediation effect (-4.39 points) constitutes 75% of the total effect (-5.87). We again gauged the sensitivity of our results using the method of Keele, Imai, and Yamamoto (2010a). The mediation effect appears to be relatively robust. In the matched sample, the correlation in the errors between the mediator and outcome equations would have to equal -0.4 for the effect of health care reform to be zero.

By contrast, the apparent effects of support for the stimulus and cap and trade are again weaker and less consistent. The estimated mediated, direct, and total effects of the stimulus on vote share are null. The total effect of cap and trade on vote share is negative and significant, but this result is not robust to matching, suggesting that the significant finding in the full sample may be an artifact of the differing set of districts represented by supporters and opponents.

Table B-1. Models of Perceived Ideologies of Incumbents in 2010 Conditional on 2008 Ideological Perceptions

		Matched		
	All	HCR	Stimulus	Cap/trade
2008 ideological perception	0.30*	0.20*	0.44*	0.38*
	(0.04)	(0.06)	(0.06)	(0.06)
Party unity	0.00	0.00	-0.01	-0.02*
	(0.00)	(0.00)	(0.01)	(0.01)
DW-NOM 1st dim.	0.09	0.49	0.52	0.07
	(0.18)	(0.33)	(0.34)	(0.36)
Health care reform	-0.54*	-0.98*		
	(0.08)	(0.15)		
Stimulus	-0.24*		0.02	
	(0.11)		(0.16)	
Cap and trade	-0.06			-0.23*
	(0.07)			(0.10)
Constant	2.44*	3.00*	2.33*	3.29*
	(0.23)	(0.40)	(0.53)	(0.53)
R^2	0.61	0.71	0.59	0.58
N	225	83	97	84

Cell entries are ordinary least squares regression coefficients with robust standard errors in parentheses. Columns 2-4 include matched samples of bill supporters in competitive districts and their most comparable opponents and include weights to maximize balance. Democrats who did not face a Republican challenger or who were first elected in the 2008 election are excluded from all models. *p<0.05.

Table B-2. Mediated and Direct Effect Estimates of Roll Calls on Democratic Vote Share

Health care reform (mediator: perceived ideological difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-4.28*	(-5.97, -2.89)	-4.39*	(-6.39, -2.46)
Direct effect	-4.57*	(-7.28, -1.81)	-1.48	(-4.43, 1.35)
Total effect	-8.85*	(-11.59, -5.97)	-5.87*	(-8.41, -3.22)
N	230		85	

Stimulus (mediator: ideological perceived difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-1.60	(-3.37, 0.04)	-0.73	(-3.18, 0.99)
Direct effect	-0.31	(-2.61, 2.87)	1.65	(-4.23, 5.17)
Total effect	-1.29	(-5.08, 2.13)	0.92	(-7.20, 5.79)
N	230		99	

Cap and trade (mediator: ideological perceived difference)

	All		Matched	
	Estimate	95% CI	Estimate	95% CI
Mediation effect	-1.16	(-2.64, 0.13)	-1.67	(-3.22, 0.25)
Direct effect	-1.73	(-3.64, 0.05)	-1.19	(-3.75, 1.49)
Total effect	-2.89*	(-5.34, -0.72)	-2.85	(-5.89, 0.74)
N	230		86	

Cell entries are linear effect estimates from the `mediation` package for R (Tingley et al. 2011). Matched samples of bill supporters in competitive districts and their most comparable opponents include weights to maximize balance. Democrats who did not face a GOP challenger are excluded from all models. *p<0.05.