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Redistricting, Responsiveness, and Issue Attention

We explored the extent to which legislators respond to redistricting-induced demographic shifts in their constituencies. Our analyses focused on the behavior of members of the House of Representatives who served in the terms preceding and following the redistricting that took place in the early 2000s (namely, the 107th and 108th Congresses). We investigated how demographic shifts relate to the content of legislators' subsequent agendas (the legislation that members introduce and cosponsor) and the nature of members' voting patterns (their interest group voting scores). Our results indicate that responsiveness is widespread, but important variation exists in the patterns for agenda activities and roll-call voting.

At the center of almost all prescriptions for a healthy and legitimate democracy is the idea that representation should be a dynamic process. High-quality representation requires that legislators demonstrate *responsiveness*, adjusting their behavior in office to reflect the changing needs of their districts and the shifting policy preferences of their constituents. Yet in the large and varied literature on legislative representation, empirical studies that focus explicitly on responsiveness are quite rare, and those examining the dyadic level (that is, the relationship between individual representatives and their districts) are particularly uncommon. Instead, scholars have concentrated on "policy congruence," or the extent to which legislators' positions on issues align with those of their constituents. Congruence is a crucial component of representation, but because it can arise in a number of ways, its existence does not provide direct evidence of responsive behavior on the part of legislators.[1]

To evaluate and understand the strength of representational links more fully, we must explore how legislators respond to changes in their districts. How can we identify when such changes have occurred? Congressional redistricting provides a unique and underutilized opportunity to do so. The redrawing of district boundaries every decade

leads nearly all members of Congress to face new constituencies that differ at least slightly from their previous ones in partisan leanings and demographic profiles. Thus, we can compare representative behavior before and after redistricting to investigate how shifts in the nature of the constituency relate to representatives' policy activity in office.

Our analyses focused on members of the House of Representatives who served during the terms preceding and following the redistricting that took place in the early 2000s. For each of these Congresses (the 107th and 108th), we collected detailed information about legislators' districts, including demographic characteristics (for example, distribution of age, race/ethnicity, median income, occupation, rural versus urban distribution, and so forth) and partisanship (percentage of the presidential vote for Gore). Our data regarding legislators' behavior in office include the content of legislation the representatives introduced and cosponsored and the members' roll-call voting records on issues of concern to particular groups, as measured by their scores on a variety of interest group scorecards.

We sought to answer three fundamental questions. First, do members of Congress respond to changes in district demographics or partisanship? For example, if a member's redistricted constituency is more rural than the previous one, does the member introduce and cosponsor more bills about agriculture, or vote more in line with the preferences of the National Farmers' Union, or both? Second, are there different dynamics across types of legislative activities? Is responsiveness more prevalent in roll-call voting or in introductions or cosponsorships? Finally, how do contextual factors like electoral vulnerability shape legislators' attentiveness to shifts in their constituencies?

Our approach makes a number of contributions to the literature. By taking a broader view of what constitutes responsive legislative behavior, we extend research on redistricting and responsiveness. Past analysis has focused solely on ideological or partisan shifts and, hence, on general patterns in roll-call voting. Thus, scholars have asked whether legislators' Americans for Democratic Action (ADA), Conservative Coalition, or NOMINATE scores tend to shift to the right or left if their districts become more liberal or conservative (see, for example, Glazer and Robbins 1985, LeVeaux-Sharpe 2001, and Stratmann 2000). In contrast, we examine not only shifts in legislators' issue *positions* but also shifts in their issue *agendas*, asking both whether or not legislators' votes align with the preferences of their districts AND if the legislators actively pursue matters of interest to their constituents. Relatedly, we examine the influence of district changes within particular issue domains, rather than simply aggregating across all of a legislator's

votes or activities. Recent work on agenda-based representation has demonstrated that it is a meaningful, although often overlooked, dimension of responsiveness and at least occasionally yields conclusions that differ from those we might draw from position-based models of policy congruence (Burden 2007; Jones, Larsen-Price, and Wilkerson 2009; Sulkin 2005). Our results should therefore offer a deeper understanding of the effects of redistricting.

Studying patterns of responsiveness across different categories of activities can also provide new insights into the nuances of legislators' decision-making processes. Legislators often experience tension between the need to demonstrate responsiveness and the need to appear consistent and avoid charges of flip-flopping. Yet we know little about how legislators balance these needs, particularly as they attempt to negotiate the interests of the various subgroups that make up their constituencies. Understanding these dynamics may enable political scientists to formulate richer theories of legislative behavior.

Electoral Change and Legislative Responsiveness

How responsive should we expect representatives to be to changes in their constituencies? On one hand, there is clear evidence that legislators are sensitive to shifts in their political environment and adapt their behavior accordingly to promote their electoral goals. In addition to the work on redistricting and roll-call voting already discussed, a number of studies of the relationship between election proximity and voting patterns have shown that legislators moderate their positions as the next election grows nearer, to appeal to a broader constituency (see, for example, Elling 1982, Kuklinski 1978, Thomas 1985, and Wright and Berkman 1986). Similarly, research on progressive ambition has demonstrated that representatives who expect to run for the Senate often shift their behavior to approximate more closely the interests of their states (Francis and Kenny 1996; Hibbing 1986). And representatives who have decided to retire display different patterns of behavior than those who know they will face reelection (Herrick, Moore, and Hibbing 1994; Rothenberg and Sanders 2000; Zupan 1990; but see Carson et al. 2004).

Although the long-term effect of redistricting may be to increase the safety of all incumbents—or at least those of the majority party (see, for example, Abramowitz 1983, Cox and Katz 2002, and Mayhew 1971)—the short-term effect is often to heighten competition. Stronger, higher-quality challengers are more likely to emerge in the elections immediately following the redrawing of district boundaries (Herrnson

2008). Uncertainty about electoral prospects should encourage incumbents to be attentive to potential changes in the interests of their districts and to respond to those changes in the hopes of warding off strong challenges.

On the other hand, as we will demonstrate in more detail, post-redistricting changes in the composition of legislators' constituencies are often quite slight. For example, when district lines are redrawn, the percentage of senior citizens in a district typically increases or decreases by a couple of percentage points; the range of change for this variable from legislators' districts in the 107th Congress to those in the 108th was only –6% to +6%. Is this difference enough to induce a representative to become more or less active on Medicare and Social Security policy? Also, few legislators recognize and actively represent all of the subconstituencies that make up their districts (Bishin 2000; Fenno 1978; Miler 2007), so a change in the size of a group that legislators do not usually attend to or do not view as a part of their reelection constituency (or some combination thereof) should be unlikely to have a large impact on their behavior. In fact, despite considerable debate among political scientists regarding the effects of majority-minority districts, one of the major motivations underlying the creation of such districts is the belief that the interests of minority groups will only be fully represented when those minorities constitute the majority in a district (see, for instance, Davidson and Grofman 1994).

Thus, there are competing expectations about whether or not one will observe systematic evidence of responsiveness, particularly in analyses that aggregate across all legislators. A shift in district lines often brings about multiple demographic changes, and because different legislators may respond to different changes at different rates (that is, if legislators pick and choose which changes to respond to), this variability should dampen the size of the effects when one examines shifts on an issue-by-issue basis. Equally important, we have reason to believe that some legislators may be more responsive to district changes than others. The conventional wisdom derived from electoral connection theories is that vulnerable members, those who most need to shore up their reelection prospects, should be the most attentive to constituency changes. But if representation is a skill learned over time and is rewarded by constituents, then safety may itself be a manifestation of past responsiveness (Canes-Wrone, Brady, and Cogan 2002; Sulkin 2005). From a cross-sectional perspective, one might therefore observe safer, more-senior members demonstrating the highest level of responsiveness to changes in their constituencies. Or there might be no effect of objective vulnerability, since legislators often overreact,

"see[ing] electoral uncertainty where outsiders would fail to unearth a single objective indicator of it" (Fenno 1978, 11) and behaving *as if* their activity in office mattered for reelection, even if, in reality, legislative activity would be inconsequential to the outcome.

Finally, variation in the opportunities and constraints presented by roll-call voting versus introductions and cosponsorships may lead to differences in the degree of responsiveness across these activities. Roll-call votes are perhaps most visible to constituents and other interested observers, and these votes provide legislators with a venue for taking positions that requires very little initiative, which should provide clear incentive for members to demonstrate responsiveness. At the same time, though, votes consist of a series of dichotomous choices that usually break out along partisan or ideological lines, which may leave relatively little variation to be explained by demographic shifts. In contrast, introductions and cosponsorships are the focus of less partisan pressure (both formal and informal) and offer considerable individual freedom over the volume and content of activity. Thus, there is more opportunity to adjust behavior in response to constituency changes, and we could see more evidence of responsiveness for these activities.

Data and Methods

Investigating these possibilities requires detailed information on the nature of legislators' constituencies and the content of the legislators' policy activity, both before and after a given redistricting plan is implemented. Thus, we focused on the behavior of legislators in office preceding and following the 2001–02 redistricting cycle (the 107th and 108th Congresses), using census data to measure district demographics and using representatives' introductions, cosponsorships, and interest group voting scores to measure their policy activity.

The starting point in our data-collection efforts was legislators' policy agendas. The 344 legislators in our sample[2] engaged in a total of 86,297 activities in the 107th Congress (4,647 introductions and 81,650 cosponsorships)[3] and 85,492 activities in the 108th (4,538 introductions and 80,954 cosponsorships). We coded these legislative measures using a scheme adapted from Adler and Wilkerson's 2001–04 "Congressional Bills Project." The data were originally collected to study congressional promise-keeping (Sulkin and Swigger 2008; Sulkin 2009). To accommodate the needs of this project, we made slight adjustments so we could develop 14 categories, each of which could be matched with a corresponding district characteristic, as shown in Table 1. These district demographics came from the 2000 census and

include the relative wealth of constituents (as measured by median income), their occupations (the percentage of the district employed in blue collar, white collar, and service jobs, as well as the percentage in health professions), their racial and ethnic makeup (the percentage of the district identifying as white/Caucasian, black/African American, and Latino), age (the percentage of district residents over age 64 and the percentage under age 18), and the proportion living in rural versus urban areas, as well as the presence or absence of a military base.

The U.S. Bureau of the Census's initial release of these data reported on legislators' constituencies as they existed during the 107th Congress (2001–02). After district lines were redrawn, the data were updated for the 108th Congress to reflect changes in demographic profiles. By calculating the difference in the values of a given variable across these two time periods, one can measure how much legislators' constituencies changed with respect to that characteristic.

Table 1 presents our expectations regarding the direction of the relationships between district changes and post-redistricting activity levels. Note that the matches between issue categories and district characteristics are more natural for some issues than for others. For instance, there are clearly recognizable demographic constituencies for agriculture and Medicare & Social Security. As a district becomes more rural or urban, older or younger, it seems reasonable to expect that there could be differences in the legislator's attention to these issues. It is less clear how a particular demographic change would influence activity levels on campaign finance or the environment, so it is unlikely we would find similarly strong links across all issues. Nonetheless, we selected the closest available demographic match for each issue. For all but the percentage of white residents and the median income variables, we predicted that an increase in the demographic variable would be associated with higher volumes of activity on the corresponding issue. In contrast, we predicted that a decrease in the number of white residents (and hence an increase in the number of nonwhite constituents) would result in an increase in attention to civil rights. We expected the effects of shifts in median income to vary depending on the issue. As districts become wealthier, legislators may become more active on legislation related to the budget and taxes, since wealthier citizens have more to lose from high taxes and government waste. Although a priori expectations are less obvious for campaign finance and crime, we thought it most likely that attention to these issues would be negatively related to district wealth.

The same logic applies to interest group voting scores. To determine representatives' records on particular issues, we obtained scorecards from the Voter Information Service (VIS) and supplemented

TABLE 1
Agenda Categories, Voting Scorecards,
and Demographic Characteristics

Legislative Activity Category	Interest Group Voting Scorecard	Demographic Characteristic (Expected Effect)
Agriculture	National Farmers' Union (NFU)	% Rural (+)
Budget	Citizens against Government Waste (CAGW)	Median Income (+)
Campaign Finance	none	Median Income (–)
Civil Rights	National Association for the Advancement of Colored People & National Hispanic Leadership Agenda (NAACP & NHLA)	% White (–)
Crime	none	Median Income (–)
Defense & Foreign Policy	Center for Security Policy (CSP)	Military Base (+)
Education	National Education Association (NEA)	% Kids (+)
Environment	Sierra Club	% Rural (+)
Health	American Public Health Association (APHA)	% in Health Professions (+)
Jobs & Economy	American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)	% Blue Collar/Service Occupations (+)
Medicare & Social Security	Alliance for Retired Americans (ARA)	% Senior Citizens (+)
Moral Issues	Family Research Council (FRC)	% Kids (+)
Taxes	Americans for Tax Reform (ATR)	Median Income (+)
Welfare	National Association of Social Workers (NASW)	% Blue Collar/Service Occupations (+)

Note: "Expected Effect" refers to the direction of effect for an increase in the district characteristic.

these with data from Project Vote Smart. Many of the groups these organizations track have a general liberal or conservative focus (for instance, Americans for Democratic Action) or represent interests for which there is not a clearly measurable subconstituency (such as the Humane Society), so we focused only on groups that could be connected to one of the issues and corresponding demographic characteristics of

TABLE 2
Shifts in Legislators' Constituencies Post-Redistricting

Characteristic	Range	Mean	Std. Deviation
Median Income[a]	–13,108 to 19,274	305	3,943
% Blue Collar/Service Occupations	–16 to 11	–.32	3.19
% in Health Professions	–7 to 5	.29	1.30
% Rural	–25 to 20	.07	5.17
% White	–32 to 24	.94	5.64
% Kids	–5 to 9	–.06	1.16
% Seniors	–6 to 6	–.03	1.20
Gain/Loss of Military Base	–1 to 1	0	.27
% Gore Vote	–16 to 20	–.27	3.75

Note: The table reports the range of demographic changes in the sampled legislators' districts from the legislators' 107th Congress constituencies (pre-redistricting) to their 108th Congress constituencies (post-redistricting).
[a]For ease of presentation, we used median income in thousands for all analyses of responsiveness.

interest to us. As Table 1 shows, we identified groups for 12 of the 14 categories.[4] To the extent that an interest group's score is an accurate gauge of legislator support or opposition to the policies that the group tracks, responsive legislators' scores should be associated with changes in district demographic characteristics.

Of course, the magnitude of the potential effects of redistricting is linked to the size of the shifts in legislators' constituencies. Table 2 presents some descriptive statistics regarding the changes in demographic characteristics for all of the variables listed in Table 1, as well as changes in district partisanship (the percentage of voters who cast their ballots for Gore in the 2000 presidential election). The results indicate that there is considerable variation in the amount of change triggered by redistricting. At one end of the spectrum are representatives from states with only a single representative; these members were not subject to any redistricting-induced changes in their districts. At the other end are representatives from states that gained or lost seats in reapportionment; this shuffling often led to the most substantial changes in district lines.[5] Even states with seat counts that remained constant, however, adjusted district boundaries, sometimes producing major changes in constituencies.

Do Legislators Respond?

We began our analyses with the most basic question: do legislators demonstrate responsiveness to changes in the demographic composition of their districts? To answer this question, we first estimated a series of models in which the dependent variables were either (1) a count of the number of legislative activities (introductions + cosponsorships)[6] on an issue by each of the sampled legislators in the 108th Congress, or (2) the legislators' scores on each interest group scorecard during that Congress. The independent variables in all models included the amount of change in the relevant constituency characteristic (namely, the value for the district in the 107th Congress subtracted from the value in the 108th, such that positive scores indicate an increase in that particular characteristic post-redistricting), the value of that characteristic for the legislator's 108th Congress constituency, and either the legislator's count of activities on the issue or a voting score from the relevant interest group in the 107th Congress.[7] We thus created a strict test of responsiveness, since we asked if the amount of change in a district characteristic is a significant predictor of post-redistricting behavior after one takes into account legislators' pre-redistricting behavior and the value of the district characteristic for their post-redistricting constituencies.

Table 3A presents the results for the analyses of agenda activities. For nearly two-thirds of the issues (9 of 14), there are significant links between changes in district characteristics and legislators' subsequent activity levels. Legislators whose constituencies became more rural demonstrated more activity on agriculture, and those whose redistricted constituencies included a higher proportion of people of color became more active on civil rights. The gain (or loss) of a military base relates to the subsequent volume of activity on defense. An increase in the proportion of senior citizens is associated with greater activity on Medicare & Social Security, an increase in the proportion of blue collar and service workers corresponds to high activity on jobs and welfare, and a change in district wealth affects a member's activity on budget, crime, and taxes.[8]

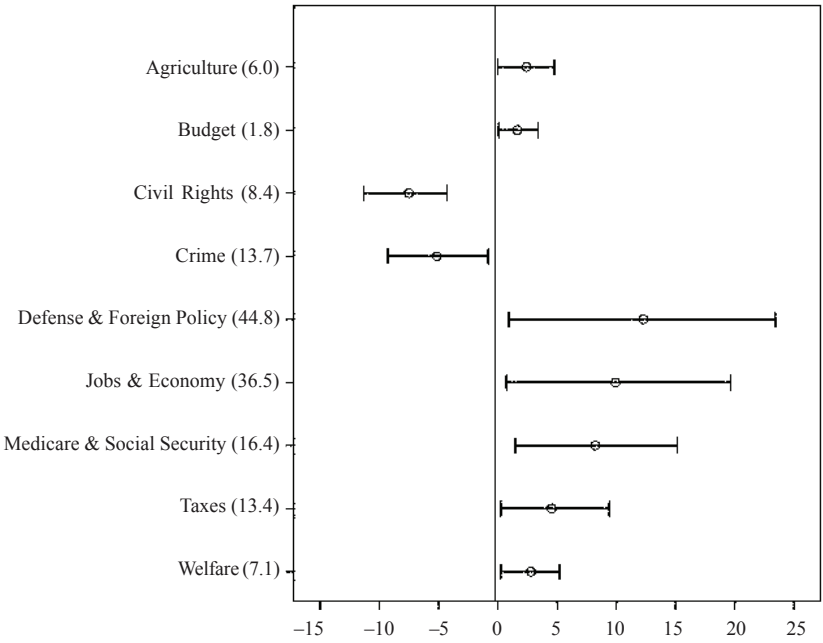
These post-redistricting shifts in activity are often substantial in magnitude. To determine the size of the effects, we calculated expected values for activity on each issue in the 108th Congress across the actual range of the change in the corresponding demographic variable (holding other variables at their means).[9] These results are presented in Figure 1. The dots represent the expected value of the difference in activity on each issue for those legislators at the high and low ends of the demographic shift, and the accompanying lines represent the corresponding 90% confidence intervals. At first glance, some of the

TABLE 3A
Demographic Shifts and Issue Attention

Issue (Demographic Variable)	Change in Demographic Characteristic	Demographic Characteristic in 108th	Activity on Issue in 107th	Constant
Agriculture (% Rural)	**.010***	.004***	.092***	1.043
Chi^2 = 196.44	**(.006)**	(.001)	(.006)	(.059)
Budget (Median Income, in thousands)	**.028***	–.000	.304***	–.187
Chi^2 = 83.42	**(.016)**	(.006)	(.034)	(.270)
Campaign Finance (Median Income, in thousands)	.003	.001	.271***	–.770
Chi^2 = 119.73	(.014)	(.005)	(.022)	(.240)
Civil Rights (% White)	**–.019*****	–.003*	.115***	1.218
Chi^2 = 461.99	**(.005)**	(.001)	(.005)	(.127)
Crime (Median Income, in thousands)	**–.011****	.003*	.037***	2.036
Chi^2 = 264.63	**(.005)**	(.001)	(.002)	(.089)
Defense & Foreign Policy (presence of Military Base)	**.157***	.004	.019***	2.832
Chi^2 = 333.83	**(.087)**	(.053)	(.001)	(.050)
Education (% Kids)	–.010	–.014	.051***	2.111
Chi^2 = 271.73	(.029)	(.010)	(.003)	(.268)
Environment (% Rural)	–.001	–.005***	.036***	2.057
Chi^2 = 375.75	(.005)	(.001)	(.002)	(.055)
Health (% in Health Professions)	–.003	.011	.026***	2.337
Chi^2 = 360.32	(.021)	(.012)	(.001)	(.081)
Jobs & Economy (% Blue Collar/Service Occupations)	**.011***	–.003	.017***	2.948
Chi^2 = 277.81	**(.006)**	(.002)	(.001)	(.105)
Medicare & Social Security (% Senior Citizens)	**.048****	–.013	.046***	1.893
Chi^2 = 327.46	**(.023)**	(.009)	(.002)	(.118)
Moral Issues (% Kids)	–.016	.010	.114***	.965
Chi^2 = 325.57	(.026)	(.010)	(.005)	(.259)
Taxes (Median Income, in thousands)	**.011***	–.002	.043***	1.957
Chi^2 = 265.15	**(.006)**	(.002)	(.002)	(.104)
Welfare (% Blue Collar/Service Occupations)	**.018***	–.006	.098***	1.377
Chi^2 = 274.81	**(.010)**	(.004)	(.005)	(.163)

Note: The table reports negative binomial regression coefficients, with standard errors in parentheses. The dependent variable for each model is a count of legislators' activities on a particular issue in the 108th Congress. For all models, N = 344. For Change in Demographic Characteristic, **boldface** indicates that the difference is in the expected direction. There are no significant results that defy expectations.
***$p < .01$; **$p < .05$; *$p < .10$.

FIGURE 1
The Magnitude of Post-Redistricting Shifts in Agendas



Note: The figure presents the expected value of the difference in legislators' levels of activity on each issue in the 108th Congress (i.e., a count of their introductions and cosponsorships) for those whose constituencies experienced the greatest decrease and the greatest increase in the corresponding demographic variable after redistricting. The dots reflect the expected value and the lines reflect 90% confidence intervals. These estimates are derived from the full negative binomial regression results presented in Table 3, where the dependent variables are counts of the number of activities engaged in by each legislator on each issue in the 108th Congress and independent variables include the change in the corresponding demographic variable, the value of that demographic variable for the legislator's 108th Congress constituency, and his or her volume of activity on the issue in the 107th Congress. The numbers in parentheses next to the issues are the average number of activities on each issue undertaken by all members of the sample.

raw differences may seem small, but because the average volume of activity on any given issue (provided in parentheses next to the issue category) is quite low, a difference of a handful of activities reflects a meaningful effect. For example, in the 108th Congress, the typical legislator introduced and cosponsored approximately 16 measures on Medicare & Social Security, but members whose districts experienced the greatest percentage loss in senior-citizen residents engaged in about 8 fewer activities than members whose districts experienced the greatest

TABLE 3B
Demographic Shifts and Interest Group Voting Scores

Voting Scorecard (Demographic Variable)	Change in Demographic Characteristic	Demographic Characteristic in 108th	Votes on Issue in 107th
National Farmers' Union (% Rural)	–.031	.004***	.760***
Chi^2 = 287.44	(.019)	(.005)	(.055)
Citizens against Government Waste	**.221****	–.022	1.270***
(Median Income, in thousands)	**(.109)**	(.038)	(.026)
Adj. R^2 =.88, Constant = .76			
NAACP (% White)	–.001	–.010*	.910***
Chi^2 = 564.96	(.018)	(.005)	(.068)
National Hispanic Leadership Agenda (% White)	**–.037***	.011*	.780***
Chi^2 = 521.01	**(.019)**	(.006)	(.057)
Center for Security Policy (presence of Military Base)	–.155	–.387*	.951***
Chi^2 = 440.47	(.357)	(.222)	(.060)
National Education Association (% Kids)	–.037	–.022	1.055***
Chi^2 = 470.55	(.092)	(.032)	(.071)
Sierra Club (% Rural)	–.032	–.017***	.688***
Chi^2 = 551.49	(.021)	(.006)	(.044)
American Public Health Association	–.080	.041	.836***
(% in Health Professions)	(.078)	(.042)	(.056)
Chi^2 = 566.11			
AFL-CIO (% Blue Collar/Service Occupations)	**.107*****	.012	.919***
Chi^2 = 674.64	**(.033)**	(.012)	(.066)
Alliance for Retired Americans (% Senior Citizens)	***–.198****	.115***	.722***
Chi^2 = 574.29	***(.093)***	(.039)	(.064)
Family Research Council (% Kids)	–.036	–.035	.683***
Chi^2 = 739.80	(.087)	(.034)	(.042)
Americans for Tax Reform (Median Income, in thousands)	.034	.008	.589***
Chi^2 = 699.69	(.024)	(.009)	(.042)
National Association of Social Workers	.060	–.050***	1.580***
(% Blue Collar/Service Occupations)	(.037)	(.010)	(.116)
Chi^2 = 549.57			

Note: The table reports ordered logit coefficients, with standard errors in parentheses. Because of the large number of votes in the Citizens against Government Waste scorecard, that model was estimated using OLS. The dependent variable for each model is legislators' scores from each interest group in the 108th Congress. For all models, N = 344. For Change in Demographic Characteristic, **boldface** indicates that the difference is in the expected direction and ***boldface italic*** indicates that the effect negates expectations (demonstrating a lack of responsiveness).
***$p < .01$; **$p < .05$; *$p < .10$.

increase. Redistricting can have a significant influence on the content of legislators' agendas.

In contrast, the results for voting scores provide less evidence of a link between demographic shifts and legislative behavior. As Table 3B shows, there are significant relationships for only one-third of issue areas (4 of 12). Consistent with the patterns we found for legislative agendas, an increase in district wealth is associated with high scores from Citizens against Government Waste (many of whose key votes relate to budget matters) and an increase in blue collar and service workers is associated with high scores from the AFL-CIO. For civil rights, we found a negative relationship between change in the percentage of white residents in a district and National Hispanic Leadership Agenda (NHLA) scores; legislators whose redistricted constituencies include more people of color voted more in line with the NHLA. No such relationship exists, however, for the other civil rights scorecard, compiled by the NAACP.[10] For Medicare & Social Security, the relationship is actually negative—an increase in the proportion of senior citizens in a district is associated with *lower* scores from the Alliance for Retired Americans.[11]

What explains the weaker relationship for voting patterns than for agenda activities? We hypothesize that the difference results from variation in the constraints presented by the two legislative measures. The patterns in Tables 3A and 3B suggest that agenda activities may indeed provide legislators with more opportunities to respond to demographic changes, a conclusion supported by additional analyses. For instance, an examination of the data reveals clear ceiling effects for voting on scorecards. As one example, consider that Louise Slaughter's (D-NY) redistricted constituency was 5% more rural than her 107th Congress district. Because she voted in line with the National Farmers' Union key votes 100% of the time in the 107th Congress, there was no way for Slaughter to increase that support in the 108th (where she again received a 100% score). Yet Slaughter was able to increase her activity on agriculture, and she did so, introducing and cosponsoring 14 measures in the 108th Congress, compared to 6 in the 107th.

Thus, even though scorecards are issue-specific, legislators' voting patterns on them appear to be more a function of general ideology than a response to the specific demographic characteristics of their constituencies. We found further evidence to support this claim when we correlated legislators' NOMINATE scores with their voting scores from each group and with their activity levels on the corresponding issue category. There are considerably higher correlations for NOMINATE and voting scores (in the .85–.95 range) than for NOMINATE scores and activity levels (in the .40–.60 range). Moreover, many of the

demographic changes we studied are only weakly correlated with changes in district partisanship, so a district might change demographically without becoming more liberal or conservative.[12] We argue that demographic shifts are less likely to affect legislator voting behavior because a shift in district demographics does not necessarily entail a broader shift in partisanship or ideology. In fact, the few scorecards that indicate a link between demographic changes and voting are those regarding the demographic changes (median income, percentage of blue collar/service workers, and percentage of white residents) most highly correlated with change in partisanship.

Other factors may weaken the relationship between demographic change and roll-call voting. For instance, legislators who substantially change their voting patterns are liable to be criticized for inconsistency and flip-flopping, even if those shifts are good-faith responses to changes in the makeup of the district (and if the district has not shifted ideologically, then such changes in voting could expose these legislators to primary challenges from the left or right). Also, roll-call votes are a fairly blunt instrument for assessing responsiveness, because they do not necessarily map on to the particular concerns of a legislator's district or address the dimensions of the issues that the legislator cares about the most.

In contrast, by introducing and cosponsoring bills, legislators may respond with action specific to district interests, without sacrificing ideological consistency. Because these activities are proactive in nature, they also provide more opportunity for credit claiming, an advantage recognized by legislators and their staffs (Koger 2003; Schiller 1995). And bill introductions and cosponsorships do not present artificial constraints on activity—legislators make their own decisions about how active to be on any given issue.

This is not to say that these activities are less policy relevant or more "symbolic" than roll-call voting. Legislators are still quite selective in their activity, with the average member introducing approximately 13 bills per two-year Congress and cosponsoring less than 4% of the total measures introduced. We found no aggregate differences in activity levels across the 107th and 108th Congresses, so legislators do not simply increase their overall volume of introductions and cosponsorships to accommodate the interests of new constituents. In addition, although the vast majority of the literature in legislative behavior has focused on roll-call voting, much recent research has demonstrated that introductions and cosponsorships are an important avenue for expressing policy commitments (see, for example, Burden 2007, Hall 1996, Schiller 1995, Sulkin 2005, 2009, and Woon 2009) and that even measures that

fail to become law can affect policy in a variety of ways (Kingdon 1984; Koger 2003). Moreover, as is also the case with roll-call voting, the feature of interest when we assess dyadic representation is legislators' overall patterns of activity, not whether or not a single action is pivotal in determining an outcome. As such, the content of legislators' agendas should serve as a meaningful measure of responsiveness.

A corollary of this logic about roll-call voting and agenda activities is that while demographic changes may be more strongly associated with legislators' agendas than their voting, the opposite pattern should hold for changes in district partisanship. To investigate this possibility, we replicated our analyses but used as our independent variables the vote share for Gore in each legislator's 108th Congress constituency and the change in this vote from each legislator's 107th Congress constituency. The results, presented in Table 4A, indicate that Change in Gore Vote is a significant predictor of voting scores in the 108th Congress in 6 of the 12 issue areas. All else being equal, even after we control for the actual vote for Gore in the 108th Congress, an increase in Gore Vote from the 107th to the 108th is associated with higher support for the preferences of the National Farmers' Union (agriculture), the National Hispanic Leadership Agenda (civil rights), the AFL-CIO (jobs), and the Family Research Council (a conservative social/moral issues group). An increase in Gore Vote corresponds with lower support for the preferences of the groups Citizens against Government Waste (budget) and the Center for Security Policy (defense).

In contrast, as shown in Table 4B, Change in Gore Vote is a predictor of activity levels for only 3 of the 14 agenda categories. An increase in Gore Vote is associated with a higher volume of activity on civil rights and lower volumes of activity on the budget and campaign finance. Although there are some surprises (namely, the positive relationship between Change in Gore Vote and Family Research Council scores), most of these findings are in line with issue ownership expectations: Republicans have traditionally been viewed as strong on national defense and cutting government spending, and Democrats on issues of civil rights and jobs (Petrocik 1996).

Our results thus indicate that legislators do indeed respond to shifts in the composition of their districts, but this responsiveness varies across issue area and type of legislative activity. Most important, when we aggregate across all legislators, we find that the content of legislators' agendas reflect more responsiveness to district *demographic* changes, while their roll-call voting decisions reflect more responsiveness to district *partisan* changes. Of course, demographic and partisan shifts are not independent of one another (for example, an increase in

TABLE 4A
Partisan Shifts and Interest Group Voting Scores

Voting Scorecard	Change in Gore Vote	Gore Vote in 108th	Votes on Issue in 107th
National Farmers' Union	.071***	.036***	.656***
$Chi^2 = 289.15$	(.026)	(.010)	(.061)
Citizens against Government Waste	–.250**	–.119***	1.194***
Adj. $R^2 = .88$; Constant = 7.66	(.111)	(.045)	(.038)
NAACP	–.037	.055***	.832***
$Chi^2 = 587.93$	(.027)	(.012)	(.069)
National Hispanic Leadership Agenda	.079***	.009	.745***
$Chi^2 = 519.90$	(.030)	(.013)	(.061)
Center for Security Policy	–.049*	–.077***	.807***
$Chi^2 = 485.86$	(.028)	(.012)	(.062)
National Education Association	.027	.017	1.013***
$Chi^2 = 473.28$	(.027)	(.010)	(.075)
Sierra Club	.041	.015	.680***
$Chi^2 = 544.71$	(.028)	(.011)	(.047)
American Public Health Association	–.022	.036***	.784***
$Chi^2 = 577.43$	(.026)	(.011)	(.058)
AFL-CIO	.051**	.019*	.884***
$Chi^2 = 668.69$	(.026)	(.011)	(.067)
Alliance for Retired Americans	–.009	.027**	.658***
$Chi^2 = 568.87$	(.032)	(.012)	(.064)
Family Research Council	.048*	–.035***	.651***
$Chi^2 = 750.52$	(.027)	(.012)	(.043)
Americans for Tax Reform	–.028	–.028**	.555***
$Chi^2 = 702.60$	(.027)	(.012)	(.042)
National Association of Social Workers	–.016	.032***	1.593***
$Chi^2 = 550.93$	(.028)	(.010)	(.116)

Note: The table reports ordered logit coefficients (with standard errors in parentheses). Because of the large number of votes in the Citizens against Government Waste scorecard, that model was estimated using OLS. The dependent variable for each model is legislators' scores from each interest group in the 108th Congress. For all models, N = 344. ***$p < .01$; **$p < .05$; *$p < .10$.

TABLE 4B
Partisan Shifts and Issue Attention

Issue	Change in Gore Vote	Gore Vote in 108th	Activity on Issue in 107th	Constant
Agriculture	.009	–.003	.095***	1.263
$Chi^2 = 187.20$	(.008)	(.002)	(.006)	(.119)
Budget	–.035**	–.032***	.246***	1.430
$Chi^2 = 132.44$	(.016)	(.005)	(.030)	(.252)
Campaign Finance	–.025*	.020***	.264***	–1.749
$Chi^2 = 151.82$	(.014)	(.004)	(.018)	(.212)
Civil Rights	.026***	.016***	.094***	.331
$Chi^2 = 483.57$	(.007)	(.003)	(.005)	(.136)
Crime	.009	.005***	.034***	1.983
$Chi^2 = 268.97$	(.005)	(.002)	(.002)	(.077)
Defense & Foreign Policy	.003	.012***	.016***	2.345
$Chi^2 = 375.04$	(.006)	(.002)	(.000)	(.083)
Education	.011	.016***	.041***	1.131
$Chi^2 = 311.39$	(.008)	(.002)	(.003)	(.114)
Environment	–.003	.011***	.034***	1.420
$Chi^2 = 401.61$	(.006)	(.002)	(.002)	(.086)
Health	.007	.012***	.021***	1.932
$Chi^2 = 387.79$	(.006)	(.002)	(.001)	(.098)
Jobs & Economy	.006	.003*	.016***	2.708
$Chi^2 = 278.01$	(.005)	(.002)	(.001)	(.071)
Medicare & Social Security	.002	.011***	.041***	1.297
$Chi^2 = 352.80$	(.006)	(.002)	(.002)	(.093)
Moral Issues	–.012	–.010***	.101***	1.796
$Chi^2 = 345.63$	(.008)	(.002)	(.006)	(.134)
Taxes	–.001	–.002	.042***	1.990
$Chi^2 = 265.15$	(.007)	(.002)	(.003)	(.117)
Welfare	.007	.015***	.075***	.482
$Chi^2 = 307.08$	(.007)	(.002)	(.006)	(.116)

Note: The table reports negative binomial regression coefficients, with standard errors in parentheses. The dependent variable for each model is a count of legislators' activities on a particular issue in the 108th Congress. For all models, N = 344.
***$p < .01$; **$p < .05$; *$p < .10$.

the district's median income is associated with a decrease in the Gore Vote), but, as we previously noted, neither are these shifts identical. In fact, if we include both the set of variables for demographics and that for partisan shifts in the models, we find that, in some cases, the demographic variable is the significant predictor of activity; in some cases, the partisan variable acts as predictor; and in still other cases, both variables exert independent influences. Thus, although some studies of redistricting and responsiveness use demographic changes as a proxy for partisanship (for example, Stratmann 2000), the former is only a noisy approximation of the latter. More generally, the patterns we uncovered suggest that to focus solely on overall ideological shifts in roll-call voting in these studies is likely to miss out on some important dynamics and understate levels of legislative responsiveness.

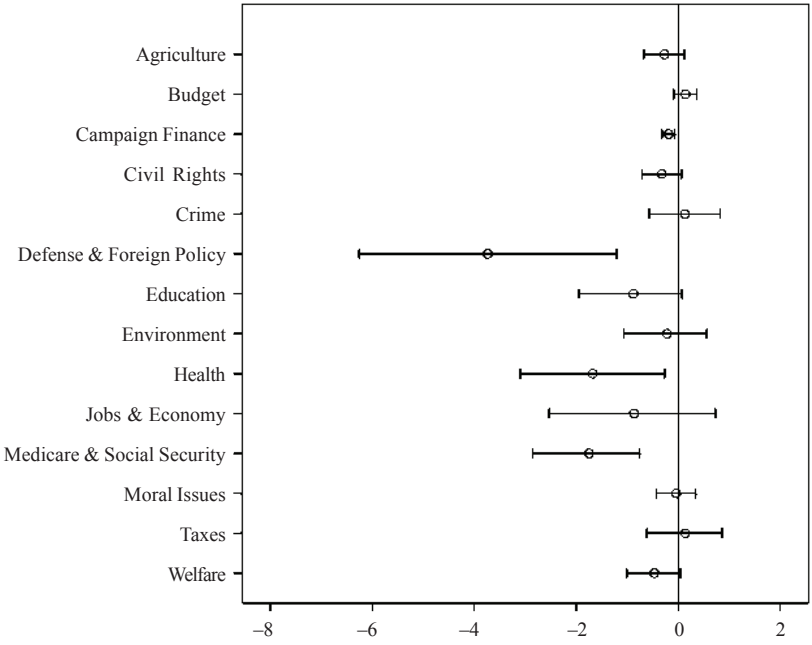
Explaining Variation in Responsiveness

To this point, our analyses have been aggregate in nature, examining responsiveness across all legislators. Yet an important question is whether or not responsiveness to redistricting is conditioned by factors like party, seniority, or vulnerability. In other words, are the patterns we detected driven by the behavior of one type of legislator? To investigate, we replicated the basic models for voting and activity but divided the sample by the characteristic of interest (such as Democrat or Republican, junior or senior, vulnerable or safe)[13] and ran separate analyses for each group. The overarching pattern to emerge from these analyses is the lack of a pattern. As shown in the full set of analyses presented in the Appendix (http://www.uiowa.edu/~lsq/Hayes_etal_Appendix.pdf), in the cases that differences between these pairs exist, there is no clear pattern to the direction of the differences. Thus, the effects we found are general in nature.

Normatively, this finding is perhaps most important for comparison of safe versus vulnerable legislators. A common concern about redistricting is that by making legislators safer, it reduces the incentives for responsiveness. While the finding that there are no differences in the dynamics of responsiveness for safer and more vulnerable legislators suggests strongly that this is not the case, it is still possible that redistricting-induced *changes* in vote share are related to subsequent behavior. Figure 2 summarizes the results of a set of analyses designed to investigate this possibility. The figure compares the post-redistricting activity levels on an issue for legislators who faced the same shifts in their constituencies but who were made either safer or more vulnerable by redistricting.

To create this figure, we first replicated the models in Table 3,

FIGURE 2
Do Legislators Demonstrate More Responsiveness When Redistricting Makes Them More Vulnerable?



Note: The figure presents the expected value of the difference in legislators' levels of activity on each issue in the 108th Congress (i.e., a count of their introductions and cosponsorships) for legislators who gained or lost ten points in vote share after redistricting. The dots reflect the expected value and the lines reflect 90% confidence intervals. These estimates are derived from the full negative binomial regression results presented in the web appendix (http://www.uiowa.edu/~lsq/Hayes_etal_Appendix.pdf), where the dependent variables are counts of the number of activities engaged in by each legislator on each issue in the 108th Congress and independent variables include the change in the corresponding demographic variable, the value of that demographic variable for the legislator's 108th Congress constituency, his or her volume of activity on the issue in the 107th Congress, and his or her change in vote share from the 2000 to 2002 election.

adding an additional independent variable: legislators' change in vote share from the 2000 election to the 2002 election. We then estimated the difference in the expected activity level on each issue in the 108th Congress for legislators who experienced identical changes in the demographic makeup of their districts (set at +5 for the measures of rural residents, white residents, kids, senior citizens, blue collar/service workers, and residents in health professions, set at one standard deviation above the mean for Median Income, and set at 1 for Military

Base), but who had experienced either a 10-point decrease in vote share after redistricting or a 10-point increase (with all other variables held constant at their means). In the figure, the dots represent the expected difference in activity between the two hypothetical legislators, and the lines represent 90% confidence intervals. Negative values indicate that the legislator who lost vote share engaged in a higher level of activity than the legislator who became safer. Although the changes reflect a substantial shift in the constituency and a very large swing in vote share, significant differences in legislator activity level are rare, occurring for only 4 of the 14 categories. Consistent with the conventional wisdom, in these four cases, legislators who are more vulnerable after redistricting do respond more to changes in constituencies. But such differences are the exception rather than the rule. Legislators' actual degree of electoral security, no matter how it is measured, has little relationship with their levels of responsiveness. This finding is likely another example of how legislators' risk aversion about reelection is enough to promote responsive legislative behavior.

Discussion and Conclusions

What, then, should we conclude about redistricting and responsiveness? First, legislators do indeed appear to respond to demographic and partisan changes in their districts. These changes are impressive when we consider that these shifts in district composition are often slight and that not all legislators should be expected to respond to a given change at the same rate. The sensitivity of legislators is especially notable because shifts in district demographics or partisanship must compete with a number of other potential influences, many of them more obvious than a small change in the makeup of a constituency.

Second, as we have described in detail, there are important differences in patterns for voting and for agenda activities. Overall, responsiveness to shifts in *demographic characteristics* manifests more in the content of legislators' *agendas*. Responsiveness to *partisan* shifts is more evident in their *roll-call voting patterns*. These results underscore that roll-call voting is not the only means by which legislators demonstrate responsiveness. We miss out on potentially important dynamics when we limit our analyses to legislators' issue *positions* and do not include their issue *priorities*.

These results are preliminary, of course, and a number of important questions remain. Perhaps most obviously, how do legislators come to recognize shifts in their districts and make the decision to act on these shifts? One possibility is that legislators observe these changes directly.

For example, when groups are geographically concentrated within a district, the gain or loss of certain neighborhoods offers an immediate indicator of changes. It is equally likely, however, that the information is mediated, coming via intelligence from interest groups or other observers, changes in contribution patterns, contact with constituents, advice from consultants, or coverage of the redistricting process itself. Although understanding how legislators learn about district shifts is not a necessary prerequisite for determining when and how legislators respond to the shifts, such analysis would be a useful extension of our work.

A second question relates to the potential effect of the rules that govern redistricting. Because each state manages its own process, there is considerable variation from state to state, with some states employing nonpartisan commissions and others giving control of the redistricting process to the majority party in the state legislature. Thus, it seems plausible, for instance, that legislators may be better able to predict the nature of their post-redistricting constituencies when district lines are drawn by partisans, and this information could shape the legislators' responsiveness. We compared overall rates of responsiveness for legislators from states with partisan plans and those with nonpartisan plans, and we found only a small handful of differences, with no clear pattern. Still, there are more nuances across types of plans and reasons to expect responses to certain rules to differ according to the characteristics of individual legislators. An investigation of the possible effects of various rules could add a new dimension to debates regarding the best system for redistricting.

Finally, there is an important normative question to be considered. We have argued that responsiveness exists because legislators shift their behavior when the composition of their constituency changes. However, in a broader sense, some might argue that if the effect of redistricting is to deliver to legislators districts that look more like what they would have chosen if given the chance, then this responsiveness is not as noble as it might seem at first glance. As Brunell (2008, 101) puts it, "critics of modern redistricting practices routinely refer to the process as one in which incumbents pick their voters rather than voters picking members of Congress." Such charges certainly should lead us to question the responsiveness of the system as a whole, since they undercut the impact of large-scale shifts in voter sentiment.

In any case, from the perspective of dyadic representation and of constituents, what is most important is whether or not individual legislators do indeed respond to changes in their districts, however those changes might arise. Our results provide evidence that this responsiveness exists and that legislator sensitivity to constituency changes appears

both in the content of the legislators' agendas and in the nature of their roll-call voting. Moreover, even if redistricting enables legislators to adopt their preferred patterns of legislative activity, the existence of post-redistricting changes in that activity indicates that the members were constrained by their constituencies *before* redistricting occurred, providing post hoc evidence of responsive behavior. Accordingly, these findings make clear that to fully understand the effects of redistricting and the dynamics of legislative responsiveness, we must extend our analyses beyond static views of representation.

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NOTES

1. For instance, if voters initially select a representative because that legislator's views are similar to their own or because he or she is "like them" on one or more salient dimensions, then it is likely that congruence will be high. This does not mean, though, that the legislator consciously takes constituency opinion into account when making decisions. As Burden (2007, 11) puts it, "much of the policy representation that happens in Washington can be thought of as coincidental, at least in the sense that the representative happens to act in a way that constituents condone, rather than being controlled by voters."

2. A total of 371 members of Congress served in both the 107th and 108th Congresses, but Texas went through a particularly complicated and protracted districting plan—it was redistricted in time for the 2002 election and then again after that election. The behavior of the Texas members may have differed because they knew that another redistricting was about to occur. In fact, we found that the patterns of responsiveness were indeed slightly different for these legislators. As such, we excluded the Texas legislators from our analyses.

3. We concentrated on the introduction and cosponsorship of bills and joint resolutions. These are the only types of measures that, if passed, have the force of law.

4. There were no scorecards dealing primarily with campaign finance reform or government ethics, and the only available scorecards for crime dealt with specific facets, such as the death penalty or gun control.

5. Of the 344 legislators in our sample, 63 represented a different district in the 108th Congress than in the 107th (i.e., the district number was changed). Change in district number is only a rough proxy, however, for the actual amount of change in a legislator's constituency.

6. Combining activities in this fashion gives more weight to cosponsorships, since legislators cosponsor more measures than they sponsor. But because of the low Ns for activity, the difference at the level of individual issues is typically not large. Behavior across the two legislative measures is also strongly related: for 12 of the 14 issues in the 107th Congress and for 10 of the 14 issues in the 108th, legislators who introduced a bill about an issue engaged in significantly more cosponsorships on that issue than members who did not introduce a bill. Nonetheless, we found a greater number of significant links between demographic changes and activity for cosponsorships than for introductions. Because activity levels at the issue-by-issue level are so low, however, the relationships are stronger when introductions and cosponsorships are combined than when we consider either separately.

7. This last independent variable obviates the need to include a large number of control variables; including previous activity or voting score captures many of the other factors that should influence the amount of attention a legislator devotes to an issue or a position on it (for example, party, seniority, or region).

8. We also investigated the possibility of nonlinearity in the relationship between demographic change and subsequent activity (by including a squared term for each change) and looked for asymmetries in effects (specifically, whether or not increases in a demographic characteristic were associated with larger changes than decreases). Our results revealed no evidence of nonlinearity and no systematic pattern to the direction of effects.

9. We calculated these values using Tomz, Wittenberg, and King's CLARIFY (2003).

10. These results hold if we use the percentage of Latino or African American constituents (instead of the overall percentage of nonwhite residents) as the independent variable.

11. To ensure that these findings were not driven by the behavior of a few outliers, we assessed the influence of each observation, first running ordinary least squares (OLS) versions of our models and computing Cook's Distance scores. We then reran the logit and negative binomial regression models, omitting those legislators who were more than two standard deviations above the mean level of Cook's Distance. Omitting these legislators did not affect our substantive conclusions.

12. The correlations between Change in Gore Vote and Change in Demographic Characteristics are highest for % White ($r = .70$), Median Income ($r = -.63$), % Blue Collar/Service Occupations ($r = .36$), and % Rural ($r = -.27$). For all other indicators (Military Base, % Kids, % Senior Citizens, and % in Health Professions), the correlation coefficient is less than .10.

13. In these models, "senior" legislators are those with more than two terms in office, and "safe" legislators are those with post-redistricting vote shares equal to or greater than 65%.

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