

Economic Inequality and Political Representation

Larry M. Bartels

Department of Politics and
Woodrow Wilson School of Public and International Affairs,
Princeton University

bartels@princeton.edu

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I examine the differential responsiveness of U.S. senators to the preferences of wealthy, middle-class, and poor constituents. My analysis includes broad summary measures of senators' voting behavior as well as specific votes on the minimum wage, civil rights, government spending, and abortion. In almost every instance, senators appear to be considerably more responsive to the opinions of affluent constituents than to the opinions of middle-class constituents, while the opinions of constituents in the bottom third of the income distribution have *no* apparent statistical effect on their senators' roll call votes. Disparities in representation are especially pronounced for Republican senators, who were more than twice as responsive as Democratic senators to the ideological views of affluent constituents. These income-based disparities in representation appear to be unrelated to disparities in turnout and political knowledge and only weakly related to disparities in the extent of constituents' contact with senators and their staffs.

Economic Inequality and Political Representation¹

One of the most basic principles of democracy is the notion that every citizen's preferences should count equally in the realm of politics and government. As Robert Dahl (1971, 1) put it, "a key characteristic of a democracy is the continued responsiveness of the government to the preferences of its citizens, considered as political equals." But there are a variety of good reasons to believe that citizens are *not* considered as political equals by policy-makers in real political systems. Wealthier and better-educated citizens are more likely than the poor and less-educated to have well-formulated and well-informed preferences, significantly more likely to turn out to vote, much more likely to have direct contact with public officials, and much more likely to contribute money and energy to political campaigns. These disparities in political resources and action raise a profound question posed by Dahl (1961) on the first page of another classic study: "In a political system where nearly every adult may vote but where knowledge, wealth, social position, access to officials, and other resources are unequally distributed, who actually governs?"

The significance of Dahl's question has been magnified by economic and political developments in the United States in the decades since he posed it. On one hand, the shape of

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the U.S. income distribution has changed markedly, with substantial gains in real income at the top outpacing much more modest gains among middle- and low-income earners. For example, the average real income of the top quintile of American households increased by more than \$57,000 (64 percent) between 1975 and 2003, while the average real income of the middle quintile increased by about \$8,000 (23 percent) and the average real income of the poorest quintile increased by \$853 (less than 10 percent).² The increasingly unequal distribution of income – and the even more unequal distribution of wealth – are problematic for a democratic system to the extent that economic inequality engenders political inequality.

At the same time, the political process has evolved in ways that may be detrimental to the interests of citizens of modest means. Political campaigns have become dramatically more expensive since the 1950s, increasing the reliance of elected officials on people who can afford to help finance their bids for re-election. Lobbying activities by corporations and business and professional organizations have accelerated greatly, outpacing the growth of public interest groups. And membership in labor unions has declined substantially, eroding the primary mechanism for organized representation of blue collar workers in the governmental process. An APSA task force recently concluded that political scientists know “astonishingly little” about the “cumulative effects on American democracy” of these and other developments, but worried “that rising economic inequality will solidify longstanding disparities in political voice and influence, and perhaps exacerbate such disparities” (Task Force on Inequality and American Democracy 2004, 662).

² The real incomes of households in the top 5% of the income distribution increased even faster, by more than 90 percent. These figures, expressed in 2003 dollars, are calculated from the historical income data available at the U.S. Census Bureau’s website, <http://www.census.gov/income/>, Table H-3.

One aspect of political inequality that has been unusually well-documented (for example, by Verba, Nie, and Kim 1978; Wolfinger and Rosenstone 1980; Verba, Schlozman, and Brady 1995) is the disparity between rich and poor citizens in political participation. Studies of participatory inequality seem to be inspired in significant part by the presumption that participation has important consequences for representation. As Verba, Schlozman, and Brady (1995, 14) put it, “inequalities in activity are likely to be associated with inequalities in governmental responsiveness.” It is striking, though, how little political scientists have done to *test* that presumption. For the most part, scholars of political participation have treated actual patterns of governmental responsiveness as someone else’s problem.

Meanwhile, statistical studies of political representation dating back to the classic analysis of Miller and Stokes (1963) have found strong connections between constituents’ policy preferences and their representatives’ policy choices (for example, Page and Shapiro 1983; Bartels 1991; Stimson, MackKuen, and Erikson 1995). However, those studies have almost invariably treated constituents in an undifferentiated way, using simple averages of opinions in a given district, on a given issue, or at a given time to account for representatives’ policy choices.³ Thus, they shed little or no light on the fundamental issue of political equality.

My aim here is to provide a more nuanced analysis of political representation in which the weight attached to constituents’ views in the policy-making process is allowed to depend on those constituents’ politically relevant resources and behavior – primarily on their incomes, and

³ A pioneering exception was Rivers’ (n.d.) unpublished analysis of differential responsiveness to the views of political independents by comparison with incumbent- or opposition-party identifiers. More recent studies of differential responsiveness include Jacobs and Page (2005), Griffin and Newman (2005), and Gilens (2004).

secondarily on a variety of other resources and behaviors that might mediate the relationship between income and political representation, including electoral turnout, political information, and contact with public officials.

For incidental reasons of data availability, my research focuses on representation by U.S. senators in the late 1980s and early 1990s. Using both summary measures of senators' voting patterns and specific roll call votes on the minimum wage, civil rights, government spending, and abortion, I find that senators in this period were vastly more responsive to the views of affluent constituents than to constituents of modest means. Indeed, my analyses suggest that the views of constituents in the upper third of the income distribution received about 50% more weight than those in the middle third (with even larger disparities on specific salient roll call votes), while the views of constituents in the bottom third of the income distribution received no weight at all in the voting decisions of their senators.

Model, Data, and Estimation

Empirical analyses of representation are typically grounded in a simple statistical model relating elite policy choices to mass preferences. Variation in mass preferences and policy choices may be observed in a cross-section of districts or other geographical units (e.g., Miller and Stokes 1963), across issues (e.g., Page and Shapiro 1983), or over time (e.g., Stimson, MackKuen, and Erikson 1995). In the context of the present study, the basic model takes the form

$$\{1\} \quad Y_k = \alpha + (\sum_{i \in k} \beta X_i) / N_k + \gamma Z_k + \varepsilon_k,$$

where Y_k is an observed roll call vote (or summary of roll call votes) cast by senator k , X_i represents the opinion of a specific survey respondent i in senator k 's state, N_k is the number of survey respondents from senator k 's state for whom opinion data are available, Z_k is a dummy variable indicating senator k 's party affiliation, ε_k is a stochastic term representing other influences on representative k 's legislative behavior, and α , β , and γ are constant parameters to be estimated.

The key parameter of the representative relationship in equation {1} is β , which captures the responsiveness of senators to the opinions of their constituents.⁴ The fact that β is a single, constant parameter reflects the usual (implicit) assumption that elected officials are equally responsive to the views of all their constituents. Here, however, I relax that assumption to allow for the possibility that senators respond unequally to the views of rich, middle-class, and poor constituents.

The elaborated model takes the form

$$\{2\} \quad Y_k = \alpha + (\sum_{i \in kL} \beta_L X_i) / N_k + (\sum_{i \in kM} \beta_M X_i) / N_k + (\sum_{i \in kH} \beta_H X_i) / N_k + \gamma Z_k + \varepsilon_k,$$

where the additional subscripts L , M , and H partition the sample of constituents within each state into low-, middle-, and high-income groups. The fact that these groups have separate responsiveness parameters β_L , β_M , and β_H allows for the possibility that senators respond differentially to their respective views. However, nothing in the model prevents these separate

⁴ On “responsiveness” as one important aspect of the relationship between representatives and their constituents, see Achen (1978).

responsiveness parameters from turning out to be equal, in which case equation {2} is mathematically equivalent to the simpler equation {1}.

While the model in equation {2} is clearly more flexible than the basic model in equation {1}, it still falls far short of being a realistic causal model of legislative behavior. Obviously, a good many factors may influence senators' roll call votes in addition to the senators' own partisanship and the policy preferences of their constituents. Equally obviously, "responsiveness" in the statistical sense captured by these models may or may not reflect a direct causal impact of constituents' preferences on their senators' behavior. Nevertheless, the relationship between constituency opinion and legislative behavior in reduced-form models of this sort is an important descriptive feature of the policy-making process in any democratic political system, regardless of whether that relationship is produced by conscious political responsiveness on the part of legislators, selective retention of like-minded legislators by voters, shared backgrounds and life experiences, or other factors.

My empirical analysis of representation employs data on constituency opinions from the Senate Election Study conducted in 1988, 1990, and 1992 by the National Election Studies (NES) research team.⁵ The Senate Election Study was a national survey of 9,253 U.S. citizens of voting age interviewed by telephone in the weeks just after the November 1988, 1990, and 1992 general elections. Although some details of the sample design and questionnaire varied across the three election years, the basic design remained unchanged and a substantial core of questions was repeated in similar form in all three years. In the absence of any marked changes in

⁵ Data, codebooks, and a more detailed description of the study design are available from the NES website, <http://www.umich.edu/~nes>.

constituency opinion across the three election years, I combined the responses from all three years to produce more precise estimates of public opinion in each state.

An important virtue of the Senate Election Study design, for my purpose here, is that the sample was stratified to produce roughly equal numbers of respondents in each of the 50 U.S. states. Thus, whereas most national surveys include large numbers of respondents in populous states but too few respondents to produce reliable readings of opinion in less populous states, the Senate Election Study included at least 150 (and an average of 185) respondents in each of the 50 states. In addition, whereas most commercial surveys include very few questions about specific political issues, the Senate Election Study included questions on general ideology and a variety of more specific issues. It also included a good deal of information about characteristics of respondents that might account for differences in their political influence, including not only income but also turnout and other forms of political participation, knowledge of senators and Senate candidates, and the like.

As is commonly the case with telephone surveys, the Senate Election Study sample significantly underrepresented young people, racial and ethnic minority groups, and people with little formal education. Since these sample biases are especially problematic in a study of economic inequality, I post-stratified the sample within each state on the basis of education, race, age, sex, and work status. The post-stratification is described in the Appendix, and the resulting sample weights are employed in all my subsequent calculations.

Previous statistical analyses of legislative representation have often been plagued by measurement error in constituency opinions due to small survey samples in specific states or congressional districts. Because the Senate Election Study included at least 150 respondents in each state, measurement error is likely to be a less serious problem in my analysis than in most

analogous studies.⁶ Nevertheless, in order to gauge the effect of measurement error on the results reported here, I repeated the main regression analyses using an instrumental variables estimator, which is less efficient than ordinary regression analysis but produces consistent parameter estimates in spite of measurement errors in the explanatory variables. The results of the instrumental variables estimation are reported in the Appendix. In general, these results are consistent with the results of the corresponding ordinary regression analyses – but a good deal less precise.⁷ Thus, I rely here on ordinary regression and probit analyses, but with the caveat that some modest biases due to measurement error remain unaccounted for in my analysis.

Ideological Representation

I begin by relating the voting behavior of senators to the general ideological views of their constituents as measured by the conservatism scale in the NES Senate Election Study survey.⁸

⁶ For example, the average state sample in the Senate Election Study is about 15 times as large as the average congressional district sample in Miller and Stokes's (1963) pioneering analysis of congressional representation. On the implications of measurement error in Miller and Stokes's analysis see Achen (1978; 1985).

⁷ On average, the instrumental variables estimates of responsiveness for the Senate as a whole are 27% larger than the corresponding ordinary least squares estimates – but their standard errors are three times as large. The instrumental variables estimates from separate analyses of Republican and Democratic senators are in even closer agreement with the corresponding ordinary least squares estimates.

⁸ “We hear a lot of talk these days about liberals and conservatives. Think about a ruler for measuring political views that people might hold, from liberal to conservative. On this ruler, which goes from one to seven, a measurement of one means very liberal political views, and a measurement of seven would be very conservative. Just like a regular ruler, it has points in between, at 2, 3, 4, 5, or 6. Where would you place yourself on this ruler, remembering that 1 is very liberal and 7 is very conservative, or haven't you

The 7-point conservatism scale is recoded to range from -1 to $+1$, with negative values reflecting liberal opinion and positive values reflecting conservative opinion. The balance of opinion is at least slightly conservative in every state, ranging from .012 in Massachusetts and .034 in California to .320 in Alabama and .333 in Arkansas.

I use the resulting data on constituents' opinions to account for the roll call votes of senators on issues that reached the Senate floor during the period covered by the Senate Election Study: the 101st (1989-90), 102nd (1991-92) and 103rd (1993-94) Congresses. Poole and Rosenthal's (1997) first-dimension W-NOMINATE scores provide a convenient summary measure of senators' ideological positions based on all the votes they cast in each Congress.⁹ (Later, I also examine individual votes on specific salient roll calls related to the constituency opinions tapped in the Senate Election Study.) The W-NOMINATE scores are normalized to

thought much about this?" Respondents who "haven't thought much about this" were asked a follow-up question: "If you had to choose, would you consider yourself a liberal or a conservative?" I coded respondents who answered "liberal," volunteered "moderate" or "middle of the road," or answered "conservative" to the follow-up question at 1.5, 4, and 6.5, respectively, on the original 7-point scale. I omitted respondents (7.5% of the total sample) who refused to place themselves on either the original question or the follow-up question.

⁹ Data and documentation are available from the Voteview website, <http://voteview.com/>. I use W-NOMINATE scores rather than the more familiar D-NOMINATE or DW-NOMINATE scores because the W-NOMINATE scores are estimated separately for each Congress, avoiding any danger of artificial consistency or redundancy in the results of my separate analyses of voting patterns in three successive Congresses. In practice, however, the various NOMINATE scales are very highly intercorrelated (and, for that matter, highly correlated with other general measures of legislative voting patterns). On the calculation and specific properties of the W-NOMINATE scores, see Poole and Rosenthal (1997, 249-251).

range from -1 for the most liberal member of each Senate to +1 for the most conservative member.

The overall relationship between constituency opinion and the ideological tenor of senators' voting records is summarized in Figure 1. The figure shows separate points for each senator in each of the three Congresses covered by my analysis, as well as regression lines summarizing the relationship between constituency opinion and senators' conservatism for each party's senators in each Congress. It is clear from the positive slopes of the regression lines that, as expected, more conservative states tended to get more conservative representation in the Senate.¹⁰ The responsiveness of senators to constituency opinion was roughly similar for both parties and for each of the three Congresses, except that Democrats representing conservative states were somewhat more liberal in the 103rd Congress (the first two years of Bill Clinton's presidency) than in the 101st and 102nd Congresses (with George H. W. Bush in the White House).¹¹

***** Figure 1 *****

It is also clear from Figure 1 that there is a marked ideological difference in the voting behavior of Republican and Democratic senators even when they represent constituents with similar ideological views. Indeed, since each state has two senators, we sometimes observe markedly different ideological behavior from Republican and Democratic senators representing

¹⁰ The *t*-statistics for the six slope coefficients range from 2.2 to 5.8.

¹¹ The estimated slope for Democratic senators in the 103rd Congress is 1.03 (with a standard error of .20). The other five estimated slopes range from 1.50 to 2.07.

exactly the same constituents. These differences were somewhat smaller 15 years ago than they are now, but even then they were larger than the differences between senators of the same party representing liberal and conservative states. For example, the Republican senators representing California in the 101st and 102nd Congresses were a great deal closer in their voting patterns to their Republican colleagues from Texas and Mississippi than to their Democratic colleague from California.¹²

Unequal Responsiveness

The next step in my analysis is to examine whether the overall pattern of ideological representation depicted in Figure 1 reflects differential responsiveness to the views of senators' affluent constituents. I operationalize the model of unequal responsiveness in equation {2} by separating respondents in the Senate Election Study survey into three income groups: a low-income group with family incomes below \$20,000, a middle-income group with family incomes ranging from \$20,000 to \$40,000, and a high-income group with family incomes above \$40,000.¹³ Averaging across states, these groups constitute 30.7%, 40.2%, and 29.1% of the

¹² The average first-dimension W-NOMINATE score for Senators Wilson (R-CA) and Seymour (R-CA) was .29. The average score for Senator Cranston (D-CA) in these two Congresses was $-.87$, while the average score for Senators Gramm (R-TX), Cochrane (R-MS), and Lott (R-MS) was .51. When Cranston retired and Seymour was defeated, they were replaced by two new Democratic senators, Boxer and Feinstein, whose average score in the 103rd Congress was $-.78$.

¹³ These thresholds are chosen to make the three income groups as similar as possible in size, given the categorization of family incomes in the Senate Election Study survey. The survey recorded respondents' family incomes in six categories in 1988 and 1990 and seven categories in 1992. Income levels were ascertained using a series of branching questions. Partial responses (for example, "Less than \$30,000 (DK or NA if under or over \$20,000)") were recorded for 307 respondents who opted out before being

(weighted) Senate Election Study sample, respectively. I then compute the average ideology of survey respondents in each state within each income group, multiplied by the proportion of that state's sample with incomes in the relevant range.¹⁴

Table 1 reports the results of a series of regression analyses in which senators' roll call votes, as summarized by their W-NOMINATE scores in the 101st, 102nd, and 103rd Congresses, are related to these income-specific constituency opinion measures and to the senators' own party affiliations. The first three columns of the table report separate regression

placed in one of the six or seven final income categories; I include partially reported incomes of less than \$30,000 in the "low income" category and partially reported incomes of more than \$30,000 in the "high income" category. An additional 697 respondents (8% of the weighted sample) did not supply even partial income information; I imputed these missing data on the basis of demographic variables plus fixed effects for years and states. (Of these 8.0%, 3.2% are classified as "low income," 4.0% as "middle income," and 0.8% as "high income.")

¹⁴ In the notation of equation {2}, the average ideology of the low-income group within each state is $(\sum_{i \in kL} X_i)/N_{kL}$, where N_{kL} is the number of low-income constituents in that state's survey sample. Multiplying that average ideology by N_{kL}/N_k , the proportion of low-income constituents in the state, reproduces the income-specific summation $(\sum_{i \in kL} X_i)/N_k$ in equation {2} (and similarly for the middle- and high-income groups). The parameters attached to these weighted averages of constituency opinion reflect the responsiveness of senators to an entire constituency made up of each income group (or, equivalently, the relative responsiveness to a single constituent in each income group), *not* the aggregate responsiveness to each income group given its actual share of the state's constituency, which varies somewhat from state to state. I have also explored versions of the analysis in which survey respondents in each state are grouped on the basis of their place in the state income distribution rather than the national income distribution; the empirical results are generally quite similar.

results for each Congress, while the final column reports the results of a pooled regression analysis employing the roll call data from all three Congresses.¹⁵

***** Table 1 *****

In each case, senators' voting patterns are strongly and consistently related to their party affiliations, as one would expect from the partisan differences in voting behavior summarized graphically in Figure 1. As in Figure 1, the expected difference in voting behavior between Republican and Democratic senators representing the same constituency amounts to about half of the total ideological distance between the most conservative senator and the most liberal senator in each Congress.

In addition, senators seem to have been quite responsive to the ideological views of their middle- and high-income constituents – though, strikingly, *not* to the views of their low-income constituents. Whether we consider the three Congresses separately or together, the data are quite consistent in suggesting that the opinions of constituents in the bottom third of the income distribution had *no* discernible impact on the voting behavior of their senators. (The point estimates are actually negative, but in every case the standard error is large enough to make it quite plausible that the true effect is zero.)

In contrast, middle-income constituents enjoyed a good deal of apparent responsiveness; for example, the pooled parameter estimate of 2.66 in the right-most column of Table 1 implies

¹⁵ Since unmeasured influences on the roll call votes cast by each senator in three successive Congresses seem very unlikely to be statistically independent, the standard errors reported in the right-most column of Table 1 (and in my subsequent pooled regression analyses) allow for arbitrary patterns of correlation in the disturbances for each senator. These standard errors were calculated using the *CLUSTER* option in the STATA statistical software package.

enough responsiveness to move a senator's W-NOMINATE score by .34 (on the -1 to +1 scale) in response to a shift in middle-income constituency opinion from the liberal extreme to the conservative extreme in Figure 1 (that is, from the ideological climate of Massachusetts to that of Arkansas).¹⁶ The apparent responsiveness of senators to the views of high-income constituents was even greater, despite their somewhat smaller numbers; the pooled parameter estimate of 4.15 implies a shift of .39 in a senator's W-NOMINATE score in response to an equivalent shift in high-income constituency opinion.

These results imply that responsiveness to the views of middle- and high-income constituents account for significant variation in senators' voting behavior – but that the views of low-income constituents were utterly irrelevant. These patterns of differential responsiveness are illustrated in Figure 2, which shows the estimated weights attached to the ideological views of low-, middle-, and high-income constituents in each of the three Congresses covered by my analysis. The roughly linear increase in apparent responsiveness across the three income groups, with those in the bottom third getting no weight and those in the middle and top thirds getting substantial weight, suggests that the modern Senate comes a good deal closer to equal representation of *incomes* than to equal representation of *citizens*.¹⁷

¹⁶ I assume here, for purposes of exposition, that middle-income constituents constitute 40.2% of the public (the average in the sample as a whole) and that their views shift by .321 (the ideological distance between Massachusetts and Arkansas in Figure 1), so that the net effect is $.402 \times .321 \times 2.66 = .34$. Analogous calculations, but with different percentages (30.7% for low-income constituents, 29.1% for high-income constituents) and parameter estimates, are the basis for the subsequent reports of total responsiveness in the text.

¹⁷ In an earlier version of the analysis reported here I included direct measures of average constituency opinion and income-weighted constituency opinion in each state, rather than separate measures of opinion

*** Figure 2 ***

The last row of Table 1 presents the difference in estimated responsiveness to high- and low-income groups for each regression analysis. The t -statistics for these differences range from 3.1 (for the 103rd Congress) to 4.3 (for the pooled analysis including all three Congresses). Thus, we can reject with a great deal of confidence the hypothesis that senators were equally sensitive to the views of rich and poor constituents. Indeed, even the differences in responsiveness between the middle- and low-income groups are much too large to be coincidental, with t -statistics (not shown) ranging from 2.0 to 3.0.

The W-NOMINATE scores analyzed in Table 1 are summary measures of senators' ideological postures on the whole range of issues brought to the Senate floor in each two-year period. Table 2 presents parallel analyses of four specific roll call votes on salient issues that reached the Senate floor during the period covered by my analysis: a 1989 vote to increase the federal minimum wage, a 1990 cloture vote on an amendment strengthening the Civil Rights Act, a 1991 vote on a Budget Act waiver to shift \$3.15 billion in budget authority from the Defense Department to domestic programs, and a 1992 cloture vote on removing the "firewall" between defense and domestic appropriations. (More detailed descriptions of these roll call votes are presented in Table A4 in the Appendix.) As it happens, a "yea" vote on each of these

among low-, middle-, and high-income constituents. That linear specification of differential responsiveness produced results quite consistent with those reported here. Pooling the data from all three Congresses, the parameter estimate for unweighted constituency opinion was $-.20$ (with a standard error of $.62$), while the parameter estimate for income-weighted constituency opinion (with family incomes measured in thousands of dollars) was $.062$ (with a standard error of $.021$). Thus, even more literally than here, the results of that analysis suggested that senators represent *income* rather than *constituents*.

roll calls represented a liberal ideological position; however, I reverse the coding of the votes so that, as before, the expected signs on the parameter estimates for Republican senators and conservative constituencies are positive.¹⁸

***** Table 2 *****

Since the dependent variable in each column of Table 2 – a “nay” or “yea” vote on a specific roll call – is dichotomous, I use probit analysis rather than ordinary regression. Since the scale on which probit coefficients are estimated is essentially arbitrary, I normalize the results for each roll call to produce a coefficient of 1.0 on Republican party affiliation.¹⁹ This normalization is intended to make the probit results more nearly comparable across roll calls, and also at least roughly comparable to the ordinary regression results reported in Table 1 (where the coefficients for Republican party affiliation ranged from .91 to .99).

By that comparative standard, the magnitude of unequal responsiveness on the specific salient roll call votes in Table 2 is even more striking than for senators’ overall ideological postures in Table 1. On one hand, low-income constituents fared no better; only one of the four estimates of responsiveness to their views is positive, and none of the estimates is statistically distinguishable from zero. On the other hand, senators seem to have been a good deal more sensitive to the views of high-income constituents on three of these four roll calls than on the

¹⁸ Senate support for the conservative position on these four roll calls ranged from 37 votes on the minimum wage to 69 votes on the 1991 budget waiver.

¹⁹ Conventional probit results can be recovered simply by dividing each of the parameter estimates and standard errors in Table 2 by the estimated value of σ (the standard deviation of the stochastic disturbances in the underlying probit relationship) in the same column of the table.

day-to-day business summarized in the W-NOMINATE scores. In the case of the civil rights and budget waiver votes, the parameter estimates imply that the effect of a senator's own party affiliation would be entirely neutralized by a shift in the views of his most affluent constituents from one extreme to the other of the distribution of state opinion shown in Figure 1. For the minimum wage vote an even smaller shift in opinion among high-income constituents – say, from the average opinion in California to the average opinion in West Virginia – would be sufficient to counteract the effect of a senator's own partisanship.²⁰

The results for the vote on raising the minimum wage reflect the political plight of poor constituents in especially poignant form. Those results suggest that senators attached no weight at all to the views of constituents in the bottom third of the income distribution – the constituents whose economic interests were obviously most directly at stake – even as they voted to approve a minimum wage increase. The views of middle-income constituents seem to have been only slightly more influential. On this issue, even more than the others considered in Table 2, senators' voting decisions were largely driven by the ideological predilections of their affluent constituents and by their own partisan inclinations.²¹

²⁰ In the latter case, $.291$ (the average proportion of high-income constituents) \times $.232$ (the ideological difference between California's $.034$ and West Virginia's $.266$ on the NES conservatism scale) \times 14.63 (the estimated responsiveness to high-income opinion in the Minimum Wage column of Table 2) = $.99$, exactly balancing the normalized difference between Democratic and Republican senators. In the former cases, parallel calculations substituting the slightly larger ideological difference between Massachusetts and Arkansas and the slightly smaller estimated responsiveness parameters in Table 2 again match the normalized impact of the senators' own partisanship.

²¹ Democratic senators were very likely to support raising the minimum wage regardless of their affluent constituents' ideological views; they voted 53-2 in favor. For Republicans, who split 10-35, the probit results presented in Table 2 suggest that the predicted probability of voting to raise the minimum wage

Differential Responsiveness on Social Issues: The Case of Abortion

The results presented in Tables 1 and 2 provide strong evidence of differential responsiveness by senators to the views of rich and poor constituents. However, there is some reason to wonder whether economic inequality might be less consequential in the domain of social issues, which tend to be “easier” than ideological issues (in the sense of Carmines and Stimson 1980) and less directly tied to economic interests.²² The civil rights vote analyzed in Table 2 is something of a hybrid in this respect, since it clearly taps both general ideology (the federal government’s role in preventing discrimination) and the partially distinct issue of race.²³ However, a more extensive analysis of representation in the domain of social issues requires focusing on an issue that figured more prominently on the congressional agenda than civil rights did in the late 1980s and early 1990s. The obvious choice is abortion.

In this section I examine four key roll call votes touching on various controversial aspects of abortion policy: requiring parental notification prior to abortions performed on minors, overturning the Bush administration’s “gag rule” on abortion counseling, prohibiting federal

increased from less than .02 in a state whose affluent constituents were one standard deviation more conservative than average to .45 in a state whose affluent constituents were one standard deviation more liberal than average.

²² More prosaically, it is also possible that the results presented in Tables 1 and 2 might reflect some idiosyncratic feature of the NES conservatism scale, which I use to measure constituency ideology.

²³ On the relationship between racial issues and general ideology, see Carmines and Stimson (1989) and Poole and Rosenthal (1997, 109-112).

funding of most abortions, and criminalizing efforts to obstruct access to abortion clinics. (More detailed descriptions of these roll calls are presented in Table A4 in the Appendix.)

I measure constituency opinion in each state using the abortion question in the NES Senate Election Study survey.²⁴ The 3-point scale is coded to range from -1 to $+1$, with negative values reflecting pro-life opinion and positive values reflecting pro-choice opinion.²⁵ The probit parameter estimates relating individual senators' votes on the four abortion roll calls to their constituents' views about abortion are shown in Table 3. Because a "yea" vote represented the pro-choice position on each of these roll calls, both the abortion opinion variables and the control variable for Democratic partisan affiliation are expected to have positive effects on the probability of casting a "yea" vote.²⁶

²⁴ "Do you think abortions should be legal under *all* circumstances, only legal under *certain* circumstances, or *never* legal under any circumstance?" I code these responses $+1$, 0 , and -1 , respectively. I omit respondents (4.8% of the sample) who answered "don't know" or refused to answer. In 1990 and 1992 (but not in 1988), the Senate Election Study also included questions on two narrower aspects of abortion policy related to the specific roll call votes analyzed here, parental consent and public funding of abortions; however, senators' votes were less closely related to their constituents' responses to those more specific questions than to constituency opinion as measured by the general question about circumstances in which abortions should be legal.

²⁵ Given my coding of the response options in the NES abortion question, the estimated balance of opinion is pro-choice in all but four states (Kentucky, Mississippi, West Virginia, and Louisiana). The correlation between conservatism and pro-choice opinion at the individual level is $-.25$, and the corresponding correlation between state-level conservatism and pro-choice opinion is $-.69$.

²⁶ Senate support for the pro-choice position on these four roll calls ranged from 40 votes in support of public funding to 73 votes in favor of overturning the abortion counseling ban.

***** Table 3 *****

Each of the four abortion roll call votes analyzed in Table 3 provides additional evidence of differential responsiveness by senators to the views of affluent constituents. In general, the disparities are smaller in magnitude than for the ideological roll call votes considered in Table 2; moreover, for two of the four votes the parameter estimate for middle-income opinion is larger than the corresponding parameter estimate for high-income opinion (though these estimates are far too imprecise for the differences to be statistically reliable). Thus, the overall pattern of responsiveness is somewhat more egalitarian in Table 3 than in Table 2. However, the political irrelevance of constituents in the bottom third of the income distribution is just as striking for abortion votes as for economic issues (the one parameter estimate for low-income opinion that is larger than its standard error is perversely negative); and the estimated responsiveness gaps (in the last row of Table 3) provide strong, consistent evidence of affluent advantage. These results make it clear that differential responsiveness is not limited to ideological issues or to the specific measure of general ideological opinion in the Senate Election Study. Even on abortion – a social issue with little or no specifically economic content – economic inequality produces significant inequality in political representation.

Partisan Differences in Representation

My analysis thus far provides a good deal of evidence that senators are more responsive to the opinions of affluent constituents than of middle-class constituents – and totally unresponsive to the opinions of poor constituents. In this section, I examine whether there are different patterns of responsiveness for Republican and Democratic senators. Given the distinct class bases of the parties' electoral coalitions, one might expect Republican senators to be especially

sensitive to the opinions of affluent constituents and Democrats to attach more weight to the opinions of poor constituents. On the other hand, votes, campaign contributions, and the various other political resources associated with higher income are presumably equally valuable to politicians of both parties; thus, Democrats as well as Republicans may be especially responsive to the views of resource-rich constituents, notwithstanding the historical association of the Democratic Party with the political interests of the working class and poor.

I look for partisan differences in responsiveness by repeating the analyses of differential responsiveness reported in Table 1 separately for senators in each party. The results are summarized in Table 4. Not surprisingly, the intra-party parameter estimates – especially for Republicans – are a good deal less precise than those for the entire Senate.²⁷ Despite that imprecision, three facts emerge clearly. First, the roughly linear increase in apparent responsiveness from one income group to the next in Figure 2 overstates the gap in influence between the middle and upper classes for Democratic senators while understating the gap for Republican senators. Second, Republicans were about twice as responsive as Democrats to the views of high-income constituents. And third, there is no evidence of any responsiveness to the views of constituents in the bottom third of the income distribution, even from Democrats.

²⁷ The greater imprecision for Republicans is not only due to the fact that there were fewer Republicans than Democrats in the Senate during the period covered by my analysis. An additional problem is evident from the data presented in Figure 1: the observed variance in constituency opinion is considerably less for Republicans than for Democrats or for the Senate as a whole – a reflection of the fact that very conservative voters in states like Alabama, Arkansas, Georgia, and West Virginia were still routinely electing Democratic senators in this period. For both these reasons my estimates of the impact of constituency ideology on senators' voting behavior are much less precise for Republican senators than for Democrats, with standard errors about twice as large.

***** Table 4 *****

The patterns of differential responsiveness implied by these parameter estimates are presented in Figure 3, which shows separate estimates of responsiveness for senators in each party (pooled across all three Congresses) comparable to the overall estimates presented in Figure 2. The figure makes clear both the similarity in responsiveness of Republican and Democratic senators to low- and middle-income constituents and the divergence in their responsiveness to high-income constituents. (The *t*-statistic for the estimated partisan difference in responsiveness to high-income constituents is 1.78, suggesting that the true difference is more than 95% likely to be positive.)

***** Figure 3 *****

Table 5 reports estimates of responsiveness for the entire Senate and separately for Republican and Democratic senators on the four salient ideological roll call votes analyzed in Table 2. Table 6 does the same for the four abortion roll call votes analyzed in Table 3. In each table, I pool votes on all four issues in order to generate enough variance in senators' behavior to facilitate separate analysis of each party's Senate delegation.²⁸

²⁸ As with the issue-by-issue analyses presented in Tables 2 and 3, I normalize the probit coefficients to produce a coefficient of 1.00 on party affiliation. I apply the same normalization to the separate analyses for Republican and Democratic senators. Thus, I assume that the same scale factor σ represents the magnitude of unobserved stochastic influences on the voting behavior of Republicans and Democrats on all four roll calls in each table. (Allowing distinct scale factors for each roll call would make party-specific estimation untenable in cases where either party's delegation was nearly unanimous.) However, I allow for the possibility of different choice thresholds (that is, probit intercepts) for each roll call (and, in the party-specific analyses, for each party).

***** Tables 5 and 6 *****

The results presented in Table 5 are qualitatively similar to those presented in Table 4, but even more striking in magnitude. For Republican senators there is no evidence of responsiveness to middle-income constituents, much less low-income constituents. On the other hand, the views of high-income constituents seem to have received a great deal of weight from Republican senators on these four issues – almost three times as much as in Table 4, and more than four times as much as for Democrats in the right-most column of Table 5. Meanwhile, Democrats seem to have responded at least as strongly to the views of middle-income constituents as to the views of high-income constituents – though, once again, there is no evidence of any responsiveness to the views of low-income constituents.

The results for abortion votes presented in Table 6 suggest a generally similar pattern, albeit with a good deal less overall responsiveness to constituency opinion and more muted differences between the two parties. Again, Democrats seem to have been somewhat more responsive to the views of middle-income constituents, while Republicans were somewhat more responsive to the views of upper-income constituents. Again, neither party's senators seem to have attached any weight to the views of low-income constituents.

The intra-party analyses presented in Tables 4, 5, and 6 suggest that upper-income constituents got a good deal less responsiveness from Democratic senators than from Republican senators. It seems natural to wonder whether they also got less responsiveness from Democrats than from Republicans in the White House. The fortuitous fact that the roll call votes analyzed here spanned the partisan turnover from the first President Bush to President Clinton allows for a rudimentary test of that possibility. Returning to the right-most panel of Figure 2, senators seem

to have been a good deal more responsive to upper-income constituents when a Republican was in the White House (during the 101st and 102nd Congresses) than they were with a Democrat in the White House (during the 103rd Congress). The parameter estimates presented in Table 1 suggest that constituents in the upper third of the income distribution got 52 and 91 percent more weight than those in the middle third in the two Congresses of the Bush administration, but only 25 percent more under Clinton. The results for individual roll call votes are generally consistent with this pattern. The only two votes on which estimated responsiveness to the middle class exceeded estimated responsiveness to the upper class by more than 11 percent were the two from Clinton's presidency, the abortion funding vote in 1993 and the clinic access vote in 1994. On the other hand, for the six roll call votes selected from the Bush administration, senators' average responsiveness to upper-income constituents was more than three times their average responsiveness to middle-income constituents. While these comparisons are obviously far from definitive, they suggest that differential responsiveness may stem not only from the partisan values of senators themselves, but also from the partisan values of presidents whose agenda-setting and lobbying activities may mitigate or exacerbate economic biases in congressional representation.

Why are Affluent Constituents Better Represented?

Having found that senators are significantly more responsive to the views of affluent constituents than of those with lower incomes, I turn in this section to a brief consideration of the bases of that disparity. Are the affluent better represented because they are more likely to vote? Because they are more knowledgeable about politics? Because they are more likely to communicate their views to elected officials?

To test these possibilities, I used survey questions in the NES Senate Election Study to measure inequalities in turnout, political knowledge, and contacting. Turnout should matter to the extent that representatives are disciplined by a specific desire to get reelected (Key 1949; Bartels 1998). Contact with elected officials and their staffs provides potentially important signals regarding both the content and the intensity of constituents' political views (Verba, Schlozman, and Brady 1995). And political knowledge is potentially relevant because better-informed constituents are more likely to have crystallized preferences on specific political issues and more likely to be able to monitor the behavior of their representatives (Delli Carpini and Keeter 1996).²⁹

For each of these characteristics I constructed weighted versions of the constituency opinions tapped in the Senate Election Study and estimated the effects of these weighted opinions using an elaborated version of the regression model in equation {2}. If the apparent disparities in responsiveness evident in Tables 1, 2, and 3 are attributable to differences between rich and poor constituents in these specific political resources, including direct measures of constituency preferences weighted by turnout, information, and contacting in my analyses should capture those effects. For example, if senators are more responsive to the views of affluent constituents because affluent constituents are more likely to vote, including turnout-weighted constituency opinion in analyses paralleling those presented in Tables 1, 2, and 3 should drive the remaining disparities in responsiveness to different income groups to zero. On the other

²⁹ The specific measure of political knowledge employed here is based on the ability of survey respondents to recall the names and party affiliations of their incumbent senators and senate candidates. The construction of the turnout, knowledge, and contact variables, their distribution in the Senate Election Study sample, and their relationship with income are described in more detail in the Appendix.

hand, if we continue to find disparities in responsiveness to rich and poor constituents even after controlling for differences in political participation, the implication is that the effect of income works through mechanisms other than differential participation – or perhaps that money matters in its own right (for example, through responsiveness of elected officials to potential campaign contributors).

The results of my elaborated analyses of the bases of differential responsiveness are presented in Table 7. With all three weighted opinion variables included in these analyses, the only one that has a consistent positive effect (with an average *t*-statistic of 1.9) is the contact-weighted opinion variable.³⁰ The coefficients for this variable suggest that each reported contact with a senator or his staff increased the weight attached to the contacting constituent's views by from 1% to 21% of the original estimated gap between high- and low-income respondents – an effect of modest political significance in light of the fact that the average constituent reported about one contact, and most constituents reported none at all.³¹ Meanwhile, neither turnout nor

³⁰ The corresponding average *t*-statistic for turnout-weighted opinion is 0.5, and for knowledge-weighted opinion –0.9. These variables consistently get positive coefficients when they are included in the analyses separately, but the results presented in Table 7 strongly suggest that those apparent effects are an artifact of the positive correlations among the three distinct resource-weighted opinion measures.

³¹ Since the zero-to-one contact variable I use to weight constituents' opinions is based on six potential contacts with senators or their staffs, the mean value of .184 reported in Table A2 translates into an average of 1.1 contacts per respondent. Dividing the implied effect of a single contact in each column of Table 7 by the corresponding estimated responsiveness gap in Table 1, 5, or 6 produces normalized effects of .15 for W-NOMINATE scores, .21 for salient ideological votes, and .01 for abortion votes.

political knowledge seems to have increased the influence of constituents' views on their senators' roll call votes.³²

***** Table 7 *****

The other important point to note about the results presented in Table 7 is that they continue to suggest substantial disparities in responsiveness to the views of rich and poor constituents, even with three distinct measures of differential political resources included in the analyses. Comparing the parameter estimates in the first column of Table 7 with those in the fourth column of Table 1 suggests that accounting for differences in turnout, knowledge, and contacting reduces the gap in representation between high-income and low-income constituents by only 24% (from 4.48 to 3.41). Similar comparisons between the parameter estimates in the second and third columns of Table 7 and those in the first columns of Tables 5 and 6 suggest that differences in turnout, knowledge, and contacting account for only 32% of the original disparity in responsiveness on ideological roll call votes and only 3% of the original disparity in responsiveness on abortion votes. In each case the disparities in responsiveness are statistically significant (with *t*-statistics ranging from 2.2 to 3) despite the inclusion of three additional (and

³² The non-effect of turnout in Table 7 contrasts with Griffin and Newman's (2005) finding that voters are better represented than non-voters. However, their analysis did not take account of the income-based disparities in responsiveness considered here, or of alternative resource-based explanations for differential responsiveness. Omitting contact-weighted opinion from the analyses reported in Table 7 generally produces positive but statistically insignificant coefficients on turnout-weighted opinion; omitting contact-weighted opinion and replacing the income-specific opinion variables with undifferentiated statewide opinion measures generally produces positive and statistically significant coefficients on turnout-weighted opinion. Thus, it appears that voters get more representation because they are affluent, not because they vote.

strongly correlated) measures of constituency opinion in the analysis. These results provide surprisingly strong and consistent evidence that the biases I have identified in senators' responsiveness to rich and poor constituents are *not* primarily due to differences between rich and poor constituents in turnout, political knowledge, or contacting.

A tempting alternative hypothesis is that the disproportional influence of affluent constituents reflects their disproportional propensity to contribute money to political campaigns. It is impossible to investigate that possibility directly here, since the Senate Election Study did not include questions on political giving. As it happens, however, a contemporaneous survey focusing in detail on various forms of political participation provides the data necessary for a very rough test of the hypothesis. Verba, Schlozman, and Brady (1995, 194, 565) reported that citizens in the top quarter of the income distribution (with 1989 family incomes exceeding \$50,000) provided almost three quarters of the total campaign contributions in their sample. Citizens in the broad middle of the income distribution (with family incomes between \$15,000 and \$50,000) accounted for almost all of the rest; citizens in the bottom quintile (with family incomes below \$15,000) accounted for only 2% of total campaign contributions.

These figures suggest that if senators *only* responded to campaign contributions they would attach about six times as much importance to the views of a typical affluent constituent as to the views of a typical middle-income constituent – and virtually none to the views of low-income constituents. All of the disparities in representation documented here are consistent with the latter implication; regardless of how the data are sliced, there is no discernible evidence that the views of low-income constituents had any effect on their senators' voting behavior. On the other hand, the estimated gaps in representation between high-income and middle-income constituents are generally less extreme than the disparity in their campaign contributions would suggest,

especially for the day-to-day Senate business reflected in the Poole-Rosenthal W-NOMINATE scores. Nevertheless, it is striking that two of the eight salient roll call votes considered here (raising the minimum wage and overturning limitations on abortion counseling) produced estimated disparities in representation between high-income and middle-income constituents large enough to match or exceed the disparities in campaign giving reported by Verba, Schlozman, and Brady. For these specific issues, at least, the data are consistent with the hypothesis that senators represented their campaign contributors to the exclusion of other constituents.

Conclusion

My analysis suggests that senators are vastly more responsive to the views of affluent constituents than to constituents of modest means. The magnitude of this difference varies from issue to issue, and some of the separate estimates fail to satisfy conventional standards of “statistical significance.” Nevertheless, the consistency of the difference across a variety of political contexts, issues, opinion measures, and model specifications is impressive, and the magnitude of the disparities in responsiveness to rich and poor constituents implied by my results is even more impressive.

It is important to reiterate that I have been using the terms “responsiveness” and “representation” loosely to refer to the statistical association between constituents’ opinions and their senators’ behavior. Whether senators behave the way they do *because* their constituents have the opinions they do is impossible to gauge using the research design employed here. It is certainly plausible to imagine that senators consciously and intentionally strive to represent the views of (especially) affluent constituents. However, it might also be the case, as Jacobs and

Page (2005) have suggested in the context of national foreign policy-making, that public opinion *seems* to be influential only because it happens to be correlated with the opinion of influential elites, organized interest groups, or the policy-makers themselves.

The correlation between public opinion and elite opinion, in turn, might reflect conscious efforts by elites, interest groups, or policy-makers to shape public opinion in support of their views, or it might reflect the patterns of political recruitment and advancement that put some kinds of people rather than others in positions of influence in the first place. In the present context, it seems unlikely that affluent constituents are sufficiently sensitive to the policy views of their senators, specifically, for the problem to be one of reverse causation. On the other hand, the fact that senators are themselves affluent, and in many cases extremely wealthy, hardly seems irrelevant to understanding the strong empirical connection between their voting behavior and the preferences of their affluent constituents.³³

There is clearly a great deal more work to be done investigating the mechanisms by which economic inequality gets reproduced in the political realm. The simple assumption that the rich are more influential than the poor because they are more likely to vote receives no support in my analysis. The idea that they are more influential because they are better informed about politics and government fares equally poorly. The notion that they are more influential because they are more likely to contact government officials receives some modest support, but is clearly far from

³³ The salary of U.S. senators increased during the period covered by my analysis from \$89,500 to \$133,600. The cutoff for the top 5% of the family income distribution over the same period ranged from \$99,000 to \$120,000. The Senate's financial disclosure forms do not allow for precise estimates of senators' overall financial status, much less their economic backgrounds. However, CNN reported on the basis of 2003 disclosure forms that "at least 40" members of that year's Senate were millionaires, while "[a]t least 10 senators reported net worths of less than \$100,000" (Loughlin and Yoon 2003).

being the whole story. The even simpler assumption that the rich are more influential than the poor because they provide the contributions that fuel contemporary campaigning and lobbying activities receives somewhat stronger support; but that support is quite indirect, and the role of money in shaping public policy clearly deserves much more careful empirical examination (Hall and Wayman 1990; Ansolabehere, de Figueiredo, and Snyder 2003).

In the meantime, despite the significant limitations of my data and the crudeness of my analysis, the sheer magnitude of the disparities in representation documented here must be troubling to anyone who accepts Dahl's (1971, 1) stipulation that "a key characteristic of a democracy is the continued responsiveness of the government to the preferences of its citizens, considered as political equals." These disparities are especially troubling because they suggest the potential for a debilitating feedback cycle linking the economic and political realms: increasing economic inequality may produce increasing inequality in political responsiveness, which in turn produces public policies increasingly detrimental to the interests of poor citizens, which in turn produces even greater economic inequality, and so on. If that is the case, shifts in the income distribution triggered by exogenous technological forces may in time become augmented, entrenched, and immutable. Obviously, much additional research is warranted to explore the impact of unequal representation on the contours of actual public policy and on the subsequent political capacities of affluent and disadvantaged citizens.

In a broader sense, what to make of these findings is a problem for democratic theorists and for democratic citizens. Perhaps, as Dahl (1989, 324) has suggested, "In an advanced democratic country the economic order would be understood as instrumental not merely to the production and distribution of goods and services but to a much larger range of values, including

democratic values.” However that may be, the economic order of the contemporary United States poses a clear and profound obstacle to realizing the democratic value of political equality.

Appendix

This Appendix provides descriptions of my post-stratification of the Senate Election Study survey data; an assessment of the impact of measurement error in state opinions on the results of my analysis; my procedure for weighting opinions by turnout, knowledge, and contact; and the specific roll call votes employed in my examination of differential responsiveness to constituency opinion.

Post-Stratification

The telephone sample generated for the NES Senate Election Study significantly underrepresented young people, racial and ethnic minority groups, and the less-educated. For example, the average state sample (weighted by state population) had 13.5% without high school diplomas and 6.9% blacks in the survey; the corresponding averages derived from 1990 Census Bureau figures were 23.7% and 9.6%, respectively. In order to mitigate the impact of these problems on my analysis of representation, I post-stratified the sample within each state to reproduce Census Bureau figures on the population distributions of education, race and ethnicity, age, sex, and work status.

The strata employed in my post-stratification are shown in Table A1, along with the national average weights for each stratum. (The actual weights applied to the data were calculated separately for respondents in each state.) Because published state-level census data consist of marginal distributions for each characteristic rather than their joint distribution, I stratified the Senate Election Study data successively on the basis of each characteristic in the order shown. That is, I first stratified the survey data on the basis of education (bolstering the sample proportions of relatively uneducated respondents), then checked to see whether the resulting weighted data accurately reflected the census distribution of race and ethnicity in each state. Since they did not, I stratified the weighted data on the basis of race and ethnicity (bolstering the sample proportions of blacks and Hispanics), then checked to see whether the resulting weighted data accurately reflected the census distribution of age in each state, and so on. The

weights employed in my subsequent analysis reflect the product of these four successive conditional post-stratifications.

*** Table A1 ***

Effects of Measurement Error

In order to assess the potential effects of measurement error in the constituency opinion measures employed here I repeated the key regression analyses reported in Tables 1 and 4 using an instrumental variables estimation strategy.³⁴ This approach is facilitated by the availability of independent measures of state ideology generated from separate, roughly contemporaneous surveys by Erikson, Wright, and McIver (1993) and Park, Gelman, and Bafumi (2002; Park 2004).³⁵ Since the Erikson-Wright-McIver and Park-Gelman-Bafumi estimates are presumably strongly correlated with true constituency opinion – but uncorrelated with the sampling error in the specific estimates derived from the Senate Election Study – they are well-suited to serve as instrumental variables.

Table A2 reports instrumental variables parameter estimates corresponding to the ordinary least squares parameter estimates in the right-most columns of Tables 1 and 4. The instruments employed in these regressions include the Erikson-Wright-McIver and Park-Gelman-Bafumi estimates of state ideology, an indicator variable for southern states, the average income of each state's respondents in the

³⁴ Most standard econometrics textbooks address the use of instrumental variables to estimate regression models with measurement error in explanatory variables. Fuller (1987, 50-59, 148-163) provides a more detailed treatment.

³⁵ Erikson, Wright, and McIver cumulated data from 122 CBS News/*New York Times* surveys conducted between 1976 and 1988. Park, Gelman, and Bafumi employed seven CBS News/*New York Times* surveys conducted in the nine days preceding the 1988 presidential election. Their respective estimates of state conservatism are strongly correlated with each other ($R=.49$), and even more strongly correlated with the estimates derived from the Senate Election Study ($R=.61$ in the case of Erikson, Wright, and McIver's estimates; $R=.58$ in the case of Park, Gelman, and Bafumi's estimates).

Senate Election Study survey, and interactions between average income and each of the other three instruments.

***** Table A2 *****

The most obvious difference between the ordinary least squares results and the instrumental variables results is that the latter are much less precise. For the full sample, the standard errors attached to the estimates of constituency responsiveness in Table A2 are two to three times as large as the corresponding standard errors in Table 1. For the separate regressions including Republican and Democratic senators, the standard errors in Table A2 are about 50% larger and 130% larger, respectively, than the corresponding standard errors in Table 4.

Within the limits imposed by that imprecision, the instrumental variables parameter estimates are in fairly close agreement with the ordinary least squares results. For the full sample, the gap in responsiveness to high- and low-income groups is 45% larger in Table A2 than in Table 1. However, that difference is not large enough to reach conventional standards of statistical significance; and the party-specific results are in closer agreement – the estimated responsiveness gap for Republican senators in Table A2 differs from the one in Table 4 by less than 20%, while the two estimates for Democratic senators are virtually identical. These results suggest that measurement error in constituency opinion probably has only a modest effect on the estimates of responsiveness reported in the text, and that attempting to circumvent that measurement error through the use of instrumental variables would almost certainly hurt (by increasing the imprecision of the estimates) more than it would help (by reducing bias).

Turnout, Knowledge, and Contact

The analyses presented in Table 7 include measures of constituency opinion weighted by turnout, contact, and knowledge in addition to the opinions of income groups included in Tables 1 through 6.

Turnout is coded 1 for respondents who reported voting in the current election and zero for those who reported not voting or did not answer. **Knowledge** is a four-point scale measuring respondents' ability to name their senators (or Senate candidates) and identify which party they represent.³⁶ **Contact** is a six-point scale derived from respondents' reports of having met with senators or members of their staffs.³⁷ The turnout, knowledge, and contact variables are all rescaled to range from zero to one. Descriptive statistics for these variables, both for the sample as a whole and for low-, middle-, and high-income respondents, are presented in Table A3.

*** Table A3 ***

Not surprisingly, turnout, contact, and knowledge are all clearly related to income. More than 80% of the high-income respondents claim to have voted in the current election, as compared with 60% of the low-income respondents. The corresponding differences in knowledge are smaller in absolute terms but larger in proportional terms. The differences in self-reported contact with senators and their staffs are even smaller in absolute terms but even larger in proportional terms; high-income respondents reported twice as many contacts as low-income respondents did. Thus, the apparent sensitivity of senators to

³⁶ "And how about the two U.S. Senators from your state. Do you happen to remember what their names were? . . . What is [NAME]'s party affiliation?" I assign one point for knowing each senator's name and one point for knowing each senator's party affiliation. In states with just-concluded Senate elections I average the knowledge ratings for both candidates.

³⁷ "U.S. Senators can have contact with the people from their state in many ways. I will read a list of some of these ways. Think of [NAME], who has been a U.S. Senator in Washington. Have you met [him/her] personally? ... Have you talked to a member of [his/her] staff or to someone in [his/her] office? ... Do you know anyone, any of your family, friends, or people at work, who have had some contact with [him/her]?" I assign one point for a positive response to each of these three questions for each senator. Since the questions were not asked about retiring senators, in those cases I count a positive response for *either* candidate in the just-concluded campaign.

contact-weighted constituency opinion in Table 7 reflects particular responsiveness to a small, markedly affluent stratum of their constituencies.

Roll Call Votes

The analyses in Tables 2, 3, 5, 6, and 7 are based on senators' votes on eight salient issues that reached the Senate floor during the 101st, 102nd, or 103rd Congresses. I selected these votes from among the "key votes" featured in *Congressional Quarterly* and the *Almanac of American Politics*; my selection was made primarily on the basis of subject matter, but I avoided lopsided roll calls and those on which either party was unanimous. For each roll call, I counted senators who paired or announced in favor as "yea" votes and those who paired or announced against as "nay" votes; senators who paired without taking a position, voted "present," or did not vote are excluded from my analysis. Descriptions of the eight votes are presented in Table A4.

***** Table A4 *****

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Table 1: Differential Responsiveness of Senators to Constituency Opinion

Ordinary least squares regression coefficients (with standard errors in parentheses)
for Poole-Rosenthal W-NOMINATE scores

	101st Congress	102nd Congress	103rd Congress	1989-1994 (Pooled)
Low-Income Constituency Opinion	-.11 (.61)	-.50 (.59)	-.39 (.55)	-.33 (.44)
Middle-Income Constituency Opinion	2.47 (.72)	2.91 (.71)	2.58 (.65)	2.66 (.60)
High-Income Constituency Opinion	4.73 (1.03)	4.43 (.99)	3.22 (.92)	4.15 (.85)
Republican Senator	.91 (.04)	.95 (.04)	.99 (.04)	.95 (.04)
Intercept	-.87 (.06)	-.96 (.06)	-.92 (.05)	Congress-specific intercepts; observations clustered by senator
std error of regression	.216	.213	.195	.207
adjusted R²	.83	.84	.88	.85
N	100	102	101	303
High- vs. Low-Income Responsiveness Gap	4.84 (1.30)	4.92 (1.25)	3.61 (1.17)	4.48 (1.04)

Table 2: Differential Responsiveness on Salient Ideological Roll Call Votes

Rescaled probit coefficients (with standard errors in parentheses)
for conservative positions on roll call votes

	Minimum Wage	Civil Rights	Budget Waiver	Budget Cloture
Low-Income Constituency Opinion	-.70 (1.61)	-1.64 (1.52)	1.54 (2.99)	-1.67 (1.77)
Middle-Income Constituency Opinion	.95 (1.77)	2.22 (1.96)	7.43 (3.75)	4.42 (2.31)
High-Income Constituency Opinion	14.63 (4.40)	10.52 (4.04)	10.71 (4.86)	3.98 (3.09)
Republican Senator	1.00 (.20)	1.00 (.19)	1.00 (.25)	1.00 (.15)
Intercept	-1.29 (.34)	-1.15 (.32)	-.87 (.30)	-.78 (.20)
σ	.252	.254	.689	.362
log likelihood	-22.97	-20.57	-41.51	-30.70
pseudo-R²	.65	.69	.29	.55
N	100	100	97	99
High- vs. Low-Income Responsiveness Gap	15.33 (4.72)	12.16 (4.46)	9.17 (6.19)	5.65 (3.95)

Table 3: Differential Responsiveness on Abortion Roll Call Votes

Rescaled probit coefficients (with standard errors in parentheses)
for pro-choice positions on roll call votes

	Parental Notification	Counseling Ban	Public Funding	Clinic Access
Low-Income Constituency Opinion	-.20 (2.04)	1.09 (1.69)	-1.24 (2.32)	-2.14 (1.74)
Middle-Income Constituency Opinion	1.94 (2.29)	-.75 (2.51)	5.13 (2.47)	2.85 (2.29)
High-Income Constituency Opinion	4.79 (1.85)	6.35 (2.40)	3.48 (1.83)	2.23 (1.74)
Democratic Senator	1.00 (.18)	1.00 (.20)	1.00 (.20)	1.00 (.18)
Intercept	-1.08 (.22)	-.53 (.16)	-1.39 (.26)	-.49 (.17)
σ	.545	.432	.603	.488
log likelihood	-42.30	-31.94	-44.67	-37.55
pseudo-R²	.36	.44	.33	.38
N	96	99	99	99
High- vs. Low-Income Responsiveness Gap	4.99 (2.87)	5.26 (2.66)	4.72 (3.15)	4.38 (2.51)

Table 4: Differential Responsiveness by Party

Ordinary least squares regression coefficients (with standard errors in parentheses)
for Poole-Rosenthal W-NOMINATE scores

	101st Congress	102nd Congress	103rd Congress	1989-1994 (Pooled)
REPUBLICANS				
Low-Income Constituency Opinion	-.36 (1.07)	-.52 (1.07)	.19 (1.11)	-.24 (.75)
Middle-Income Constituency Opinion	2.78 (1.45)	2.95 (1.45)	2.45 (1.37)	2.72 (1.26)
High-Income Constituency Opinion	6.59 (2.22)	6.91 (2.21)	6.79 (2.24)	6.77 (2.02)
Intercept	-.04 (.13)	-.10 (.13)	-.10 (.12)	Congress-specific intercepts; observations clustered by senator
std error of regression	.263	.262	.257	.255
adjusted R²	.20	.22	.23	.24
N	45	44	44	133
High- vs. Low-Income Responsiveness Gap	6.95 (2.50)	7.43 (2.50)	6.59 (2.57)	7.01 (2.20)
DEMOCRATS				
Low-Income Constituency Opinion	.32 (.68)	-.28 (.65)	-.55 (.44)	-.18 (.44)
Middle-Income Constituency Opinion	2.20 (.75)	2.85 (.73)	2.69 (.51)	2.59 (.63)
High-Income Constituency Opinion	3.76 (1.01)	3.33 (.96)	1.84 (.66)	2.98 (.66)
Intercept	-.84 (.05)	-.93 (.05)	-.87 (.03)	Congress-specific intercepts; observations clustered by senator
std error of regression	.173	.170	.116	.155
adjusted R²	.42	.40	.47	.44
N	55	58	57	170
High- vs. Low-Income Responsiveness Gap	3.44 (1.38)	3.62 (1.30)	2.39 (.89)	3.16 (.83)

Table 5: Responsiveness on Salient Ideological Votes, by Party

Rescaled probit coefficients (with standard errors in parentheses) for conservative positions on minimum wage, civil rights, budget waiver, and budget cloture votes (pooled)

	ALL SENATORS	REPUBLICANS	DEMOCRATS
Low-Income Constituency Opinion	−.92 (1.30)	−.36 (2.19)	−1.28 (1.44)
Middle-Income Constituency Opinion	2.87 (1.23)	−.37 (2.23)	5.98 (1.64)
High-Income Constituency Opinion	7.91 (2.53)	18.90 (4.34)	4.18 (2.54)
Republican Senator	1.00 (.13)	---	---
Intercept	roll call-specific intercepts; observations clustered by senator		
σ	.374		
log likelihood	−129.42	−50.01	−62.81
pseudo-R²	.53	.29	.41
N	396	175	221
High- vs. Low-Income Responsiveness Gap	8.84 (2.93)	19.26 (5.05)	5.46 (2.84)

Table 6: Responsiveness on Abortion Votes, by Party

Rescaled probit coefficients (with standard errors in parentheses) for pro-choice positions on parental notification, counseling ban, public funding, and clinic access votes (pooled)

	ALL SENATORS	REPUBLICANS	DEMOCRATS
Low-Income Constituency Opinion	-.77 (1.28)	-1.00 (1.49)	-.45 (2.04)
Middle-Income Constituency Opinion	2.61 (1.59)	1.19 (2.34)	4.44 (2.28)
High-Income Constituency Opinion	3.93 (1.19)	4.34 (1.77)	3.27 (1.46)
Democratic Senator	1.00 (.13)	---	---
Intercept	roll call-specific intercepts; observations clustered by senator		
σ	.526		
log likelihood	-160.32	-85.20	-72.62
pseudo-R²	.40	.19	.31
N	393	173	220
High- vs. Low-Income Responsiveness Gap	4.70 (1.71)	5.33 (2.20)	3.71 (2.39)

Table 7: Income, Political Resources, and Differential Responsiveness

Ordinary least squares regression coefficients (with standard errors in parentheses) for Poole-Rosenthal W-NOMINATE scores in 101st, 102nd, and 103rd Congresses (pooled); rescaled probit coefficients (with standard errors in parentheses) for conservative positions on minimum wage, civil rights, budget waiver, and budget cloture votes (pooled); rescaled probit coefficients (with standard errors in parentheses) for pro-choice positions on parental notification, counseling ban, public funding, and clinic access votes (pooled).

	W-NOMINATE SCORES	IDEOLOGICAL VOTES	ABORTION VOTES
Low-Income Constituency Opinion	-.74 (.65)	-.98 (1.72)	-2.15 (1.48)
Middle-Income Constituency Opinion	2.04 (.67)	2.13 (1.66)	1.23 (1.77)
High-Income Constituency Opinion	2.66 (1.31)	5.03 (3.24)	2.44 (1.42)
Turnout-Weighted Constituency Opinion	.25 (.82)	-.96 (1.75)	2.50 (1.53)
Knowledge-Weighted Constituency Opinion	-1.30 (1.13)	-2.84 (2.52)	-.98 (2.62)
Contact-Weighted Constituency Opinion	4.14 (1.51)	10.99 (3.72)	.32 (3.48)
Republican Senator	.94 (.04)	1.00 (.08)	1.00 (.12)
Intercept	Congress-specific intercepts; observations clustered by senator	roll call-specific intercepts; observations clustered by senator	roll call-specific intercepts; observations clustered by senator
σ	---	.364	.511
std error of regression	.201	---	---
log likelihood	---	-121.42	-158.36
adjusted R²	.86	---	---
pseudo-R²	---	.56	.41
N	303	396	393
High- vs. Low-Income Responsiveness Gap	3.41 (1.13)	6.00 (2.74)	4.58 (1.74)

Table A1: Sample Post-Stratification

Strata and (national average) weights for successive post-stratifications of NES Senate Election Study survey data

	Strata and Average Weights				
Education	No High School <u>Diploma</u> 1.759		High School <u>Graduate</u> .901		College <u>Graduate</u> .831
Race/Ethnicity	<u>Black</u> 1.401		<u>Hispanic</u> 1.373		<u>White; Other</u> .953
Age	<u>18-24</u> 1.280	<u>25-34</u> .904	<u>35-44</u> .981	<u>45-64</u> 1.062	<u>65 and older</u> .881
Sex and Work Status	Female, <u>Working</u> 1.075		Female, <u>Not Working</u> .762		Male, <u>Working</u> 1.140
					Male, <u>Not Working</u> .958

Table A2: Sensitivity of Estimated Responsiveness to Measurement Error in Constituency Opinion

Instrumental variables regression coefficients (with standard errors in parentheses) for Poole-Rosenthal W-NOMINATE scores in 101st, 102nd, and 103rd Congresses (pooled)

	ALL SENATORS	REPUBLICANS	DEMOCRATS
Low-Income Constituency Opinion	-.28 (.84)	-.26 (1.21)	.07 (.78)
Middle-Income Constituency Opinion	2.27 (1.79)	4.65 (1.92)	2.58 (1.20)
High-Income Constituency Opinion	6.23 (2.64)	5.41 (2.56)	3.23 (2.05)
Republican Senator	.94 (.04)	---	---
Intercept	Congress-specific intercepts; observations clustered by senator		
std error of regression	.212	.261	.155
adjusted R²	.84	.20	.44
N	303	133	170
High- vs. Low-Income Responsiveness Gap	6.50 (2.57)	5.67 (3.20)	3.15 (2.33)
High- vs. Low- Gap (Ordinary Least Squares)	4.48 (1.04)	7.01 (2.20)	3.16 (.83)

Table A3: Turnout, Knowledge, and Contact

Mean (with standard error in parentheses) and standard deviation of turnout, knowledge, and contact in NES Senate Election Study, by income groups; sample post-stratified within states by education, race, age, sex, and work status

		TURNOUT	KNOWLEDGE	CONTACT
Total Sample N = 9,253	Mean	.694 (.005)	.282 (.004)	.184 (.003)
	Std Deviation	.461	.365	.255
Low Income (< \$20,000) N = 2,628	Mean	.598 (.010)	.171 (.006)	.123 (.004)
	Std Deviation	.490	.293	.206
Middle Income (\$20,000-\$40,000) N = 3,738	Mean	.684 (.008)	.275 (.006)	.177 (.004)
	Std Deviation	.465	.360	.248
High Income (> \$40,000) N = 2,887	Mean	.810 (.007)	.409 (.007)	.256 (.005)
	Std Deviation	.392	.398	.292

Table A4: Descriptions of Roll Call Votes

<p>Minimum Wage. HR2. Minimum Wage Restoration Act. Vote on final passage. April 12, 1989. 63-37.</p>
<p>Civil Rights. S2104. Civil Rights Act of 1990. To invoke cloture on the Kennedy (D-MA) amendment restoring and strengthening civil rights laws banning discrimination in employment and for other purposes. July 17, 1990. 62-38 (60 required to invoke cloture).</p>
<p>Budget Waiver. HR2707. Fiscal 1992 Labor, Health and Human Services, and Education Appropriations. Harkin (D-IA) motion to waive the Budget Act, to rescind \$3.148 billion in budget authority from unobligated balances in Defense Department accounts and transfer the budget authority to domestic programs including Head Start, Low-Income Home Energy Assistance, State Legalization Impact Assistance Grants, and Pell Grants. September 10, 1991. 28-69 (60 required to waive).</p>

Budget Cloture. S2399. Eliminate Budget Firewalls/Cloture. To invoke cloture on the motion to proceed to the bill to modify the 1990 Budget Enforcement Act to knock down the walls that prohibit the shifting of funds between defense and domestic appropriations.

March 26, 1992. 51-48 (60 required to invoke cloture).

Parental Notification. HR5257. Fiscal 1991 Labor, Health and Human Services, Education, and Related Agencies Appropriations. Harkin (D-IA) motion to table the Armstrong (R-CO) amendment to the committee amendment to HR 5257 requiring notification of a parent or legal guardian prior to an abortion on a minor.

October 12, 1990. 48-48.

Counseling Ban. S323. Family Planning Amendments/Veto Override. Passage, over President Bush's veto, of the bill to reauthorize Title X of the Public Health Service Act for five years; the bill would overturn the administration's "gag rule" and thus allow abortion counseling at federally funded family planning clinics.

October 1, 1992. 73-26 (66 required to override).

Public Funding. HR2518. Fiscal 1994 Labor, Health and Human Services, and Education Appropriations. Committee amendment to strike the Hyde amendment provisions included in the House bill that prohibit federal funds from covering abortions except in cases of rape, incest or when the life of the woman is endangered.

September 28, 1993. 40-59.

Clinic Access. S636. Abortion Clinic Access/Conference Report. Adoption of the conference report to establish federal criminal and civil penalties for people who use force, the threat of force or physical obstruction to block access to abortion clinics.

May 12, 1994. 69-30.

Figure 1: Constituency Opinion and Senators' Roll Call Votes, by Party

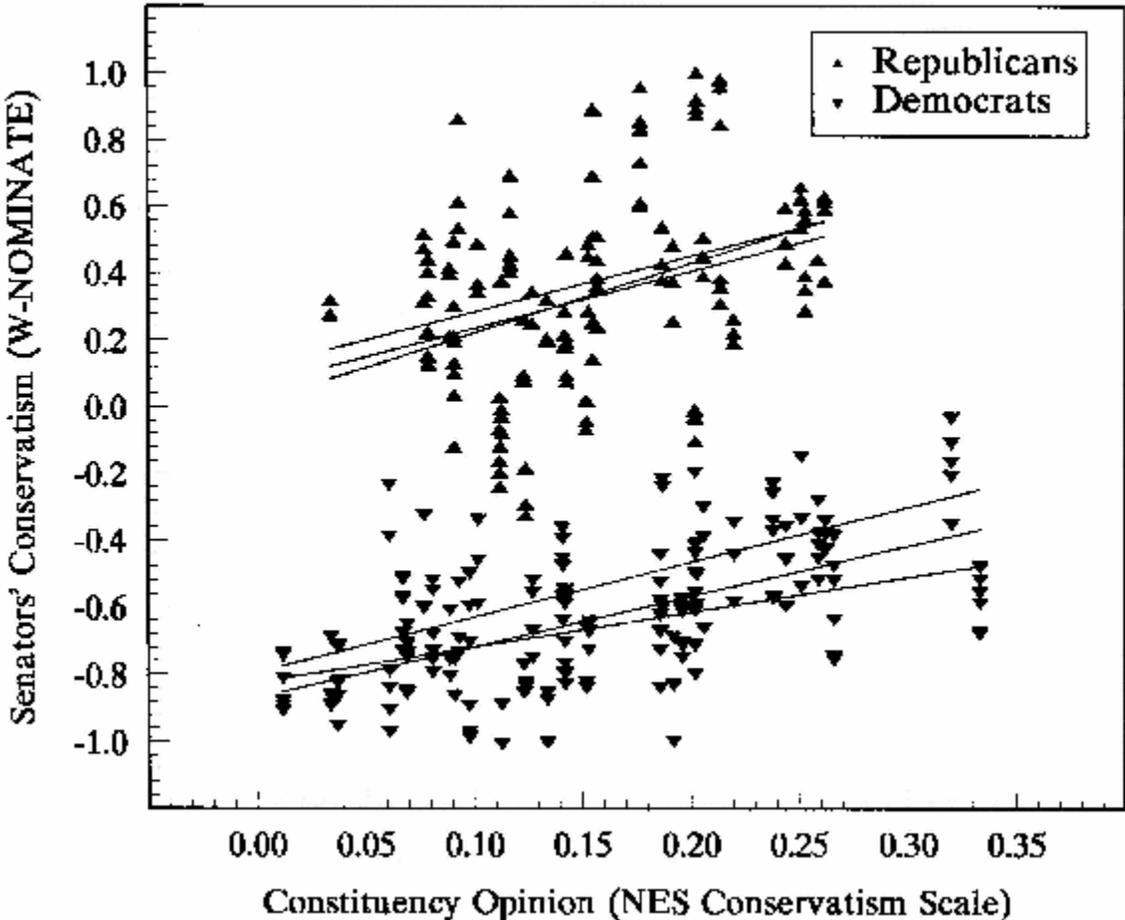


Figure 2: Senators' Responsiveness to Income Groups (W-NOMINATE Scores)

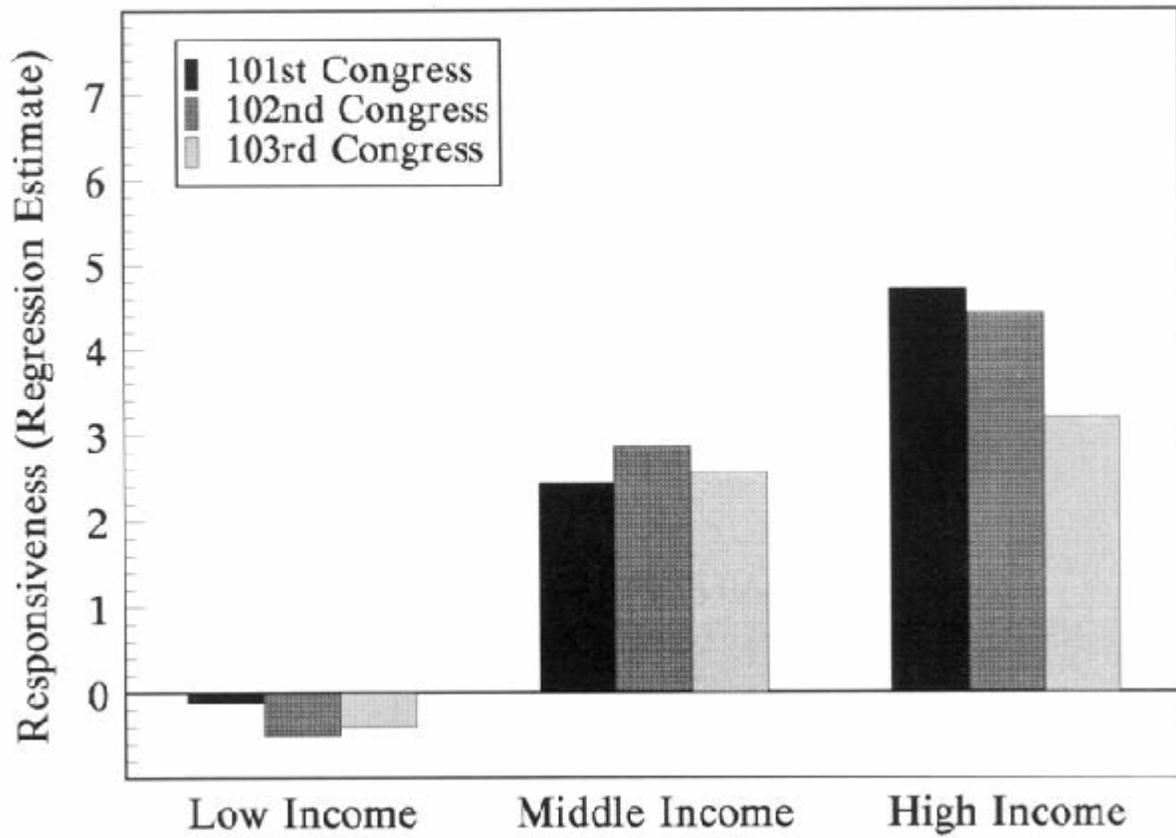


Figure 3: Democratic and Republican Senators' Responsiveness to Income Groups

