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THE POLITICS OF HEALTH CARE REFORM

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Abstract

We use multilevel modeling to estimate support for health-care reform by age, income, and state. Opposition to reform is concentrated among higher-income voters and those over 65. Attitudes do not vary much by state. Unfortunately, our poll data only go to 2004, but we suspect that much can be learned from the *relative* positions of different demographic groups and different states, despite swings in national opinion. We speculate on the political implications of these findings.

KEYWORDS: public opinion, health care, multilevel regression, poststratification

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American politics in 2009 was dominated by debate over emergency financial legislation, economic stimulus, and health-care reform. President Obama and congressional Democrats were quickly successful in passing legislation addressing the first two concerns, while the health-care bill struggled in limbo for a much longer time. This hold-up on health-care reform had surprised many observers, even before the Massachusetts election that reduced the Democrats to 59 votes in the Senate.

The most direct contribution to the hold-up arose from legislative procedure: the Senate's 41 Republicans were willing to use the filibuster, sharply limiting the maneuver room of the chamber's Democrats. The Congressional Budget Office had previously scored the bill as reducing, not increasing, the deficit over the next ten years. Nonetheless, in the current economic crisis, some of the debate on health policy also shifted to a discussion of the financing of proposed reforms. In parallel with the legislative battles and associated coverage of health care as a partisan issue, public opinion also appeared to swing away from health care reform.

Thus Associated Press polls from September of 2009 through March of 2010 found a consistent plurality opposing the health care reform plans being discussed in Congress, with support varying between 40% and 50% of those expressing an opinion. This has come as a surprise, given that for many years, strong majorities of Americans have supported increased federal spending for people without health insurance. This shift in the polls has been interpreted variously as dissatisfaction with "Obamacare" in particular, as a more general realization that health care reform cannot be all things to all people, or as a reflection of general political polarization.

In the present article, we shall only briefly discuss changes in *aggregate* opinion, interesting and important as they are. Instead we focus on *relative* opinions: that is, which groups of people support heath care reform more than the national average, and which groups support it less. In particular, we shall focus on a breakdown of opinion by age, income, and state, to get a quick view of the demographic and geographic bases of potential support for health care reform.

Background

In pushing for a health care bill to cover the millions of uninsured Americans, the Obama administration consciously sought to avoid the failures of the last such attempt, that of Bill Clinton in 1993-1994. Rather than developing a health plan in secret, then, Obama and congressional Democrats deliberated openly in an attempt to fashion a bill which, they claimed, should be able to get broad support from both parties. Ultimately, though, this bipartisan backing did not materialize. Shapiro and Arrow (2009) provide some insight into this situation by looking at

18 survey questions on health policy, comparing average responses in 2009 to those in 1994. They define change in opinion as a shift of six percentage points in the balance of opinion in one direction or another. This is what they found:

- Five questions where opinion was more favorable to health care reform in 2009 than in 1994: Does the health care system need to be rebuilt? Do you think the president's reforms will decrease the amount you'll pay for medical care? Do you think the Democratic Party is more likely than the Republicans to improve the health care system? Do you approve of the way the president is handling health care policy? Do you favor the president's plan?
- Five questions where opinion was less favorable in 2009 than in 1994: Do you favor national health insurance, which would be financed by tax money? Would you be willing to pay higher taxes so that everyone can have health insurance? Would you be willing to pay more—either in higher health insurance premiums or higher taxes—in order to guarantee health insurance coverage for all Americans? Do you think the federal government should guarantee health care for all Americans?
- One question with a change whose direction is ambiguous: More people think that the country spends too much on health care, which is either in favor of Obama's plan (national health care as a cost-saving move) or against it (national health care as an additional public expenditure).
- Eight questions where public opinion was essentially unchanged.

On balance, then, Obama has faced a public opinion climate similar to Clinton's in 1994. Opinion is notoriously volatile on issues that are poorly defined in the public mind, and support of health care reform does not necessarily translate to support for any particular policy.[1] A lot has depended on Congress, where Democratic majorities have a strong interest in seeing their party succeed. When translating opinion to policy, though, Shapiro and Arrow seem to have had a good point when they wrote:

> "While the reports in the press of public support for major changes have been accurate (though varying from opinion poll to opinion poll, depending on how the survey questions were asked), they did not examine fully how current public opinion compares to what Bill Clinton faced in 1993-1994."

[1] To take an example close at hand, none of the authors of the present article actually has a clear view of what exactly is *in* Obama's health plan. We could argue that, in sharing this state of uncertainty with the majority of Americans, we are well qualified to study public opinion on the topic.

The background, then, is that when health care reform returned to the legislative agenda in 2009, the apparent, broad, national consensus for a comprehensive plan was less reliable once the policy surface was scratched, perhaps partly as a consequence of the differing positions of candidates McCain and Obama on health policy during the 2008 election campaign. With the public sharply divided beneath that surface, it makes sense to go beyond the aggregate numbers and look to see which groups of people support or oppose reform, compared to the national average.

Breaking down public opinion by demography and geography

There is a tendency for social scientists to study opinion based on demographic predictors, typically using regression analysis of survey data, in explicit contrast to political journalists, who focus on geographic patterns using maps of election returns and comparisons of state polls. Here we use some recently developed statistical methods to visualize demographic and geographic variation simultaneously. We perform all our analyses using the 2000 and 2004 National Annenberg Election Surveys. These were rolling panel surveys with about 50,000 respondents each (counting just those who were asked the relevant health care questions), a sample size which allows relatively fine-grained inferences compared to what could be obtained from a single poll. Our outcome for both years is a question on increasing federal support on health care for the uninsured.[2]

We begin by giving a sense of the importance of many different factors in predicting health care opinions. Figure 1 shows correlations (from univariate analyses) and coefficients from a logistic regression predicting opposition to health care reform (as defined above), given one geographic variable (state-level vote for George W. Bush) and several demographic variables. Across the years, we find a similar pattern for both the correlation and the coefficients of the demographic variables and the geographic variable, showing that these factors are consistent, at least between 2000 and 2004. Unsurprisingly, seen in this crude way and given what we know about American politics in general, rich, white men appear to oppose health care reform. (It would be interesting to see how these differences interact with political ideology, party identification, and issue

[2] The exact question wording is, "Providing health insurance for people who do not already have it—should the federal government spend more on it, the same as now, less, or no money at all?" When we refer to respondents as opposing health care reform, we are speaking of those who respond "the same as now," "less," or "none" to this question, a set of answers that were given by 33% of respondents in the 2000 Annenberg survey and 27% in 2004.

attitudes, and to see how these interactions have changed in recent years as health care has become a more politicized issue.)

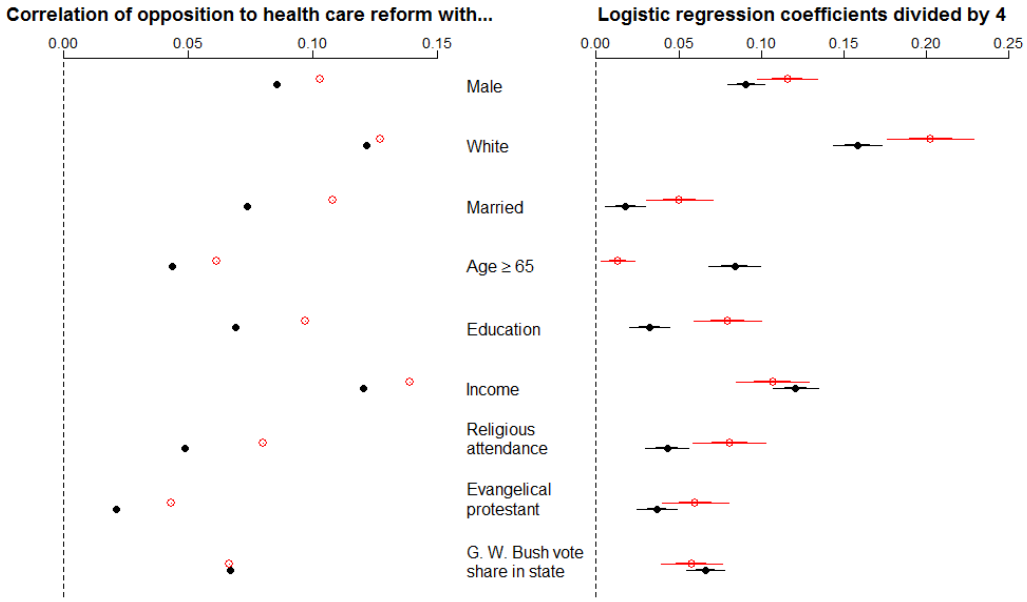

Figure 1. Correlations and logistic regression coefficients for predicting opposition to health care reform. The black closed circles are estimates for 2000 and the red open circles correspond to 2004. Logistic regression coefficients have been divided by 4 to correspond to approximate changes on the probability scale (e.g., Gelman and Hill, 2007), and the continuous inputs in the regression have been scaled by dividing by two standard deviations so that their coefficients are comparable to those of binary predictors (Gelman, 2008). Unsurprisingly, variables that are strongly associated with conservative views and Republican voting also tend to be predictive of opposition to health care reform. We see more complexity when studying demographic-geographic interactions; see Figures 2 and 3.

Now that we have a sense of the general contours of public opinion on health care, we will break it down by subgroups of the population. Gelman et al. (2009) show how multilevel modeling can be used to study geographic variation in the correlations between demographics and public opinion. They look at income, religion, and voting behavior, showing, for example, that differences in voting between rich and poor are largest in lower-income states and among frequent church attenders, and are lowest in higher-income states and among non-

churchgoers. Inspired by these successes, we decided to apply the same multilevel regression and post-stratification approach to study opinions on health care.

In addition to studying a different outcome, our method goes beyond that of Gelman et al. (2009) by allowing a more complicated dependence of the outcome on the predictors. The earlier work assumed a logistic form (more specifically, a varying-intercept, varying-slope logistic regression in which coefficients were allowed to vary by state), whereas the new approach takes the logistic model as a starting point but allows departures from that functional form, a generalization that turns out to be particularly important for the "age" variable in our health-care analysis. Details of our method appear in Gelman and Ghitza (2010).

We began our study of health care opinions by following our earlier work on voting and mapping opinion by ethnicity, income, and state. We also looked at other variables including education and religion, and finally settled on age, income, and state as our key factors.[3] We use the method of multilevel regression and post-stratification (Gelman and Little, 1997, Park, Gelman, and Bafumi, 2004, Lax and Phillips, 2008, 2009) to estimate an average survey response in specified cross-sections of the population.[4] More specifically, we classify likely voters by age (18-29, 30-44, 45-64, and 65+), household income (under $25,000, between $25,000 and $50,000, between $50,000 and $75,000, between $75,000 and $150,000, and over $150,000), and state (except for Alaska and Hawaii, which are not included in the surveys).

We averaged over these categories (the post-stratification step) using the Census Public Use Microdata Sample (PUMS) to determine proportions of people

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[3] Ultimately we would like to display more information, but our current method is limited to studying three variables at a time. One can of course study many variables at once using logistic regression (see Figure 1), but our focus here is on estimation within fully-defined subgroups, for which we need to fit a multilevel model including all interactions.

[4] We implement our computations in the "mrp" package in R (Lee and Gelman, 2010), with the fitting of the multilevel model being done by the "lmer" function (Bates, 2005). The lmer code for our model looks something like this:

glmer (data.v ~ z.age*z.income*z.stateInc + z.age*z.income*z.state.Rvote + (1 + z.age*z.income | region) + (1 + z.age*z.income | state) + (1 | age:region) + (1 + z.age| income) + (1 | age:income) + (1 + z.income | age:state) + (1 | income:region) + (1 | income:state) + (1 + z.income | age) , family=quasibinomial (link="logit"))

The variables age, income, region, and state represent indexes for these factors, whereas the variables whose names begin with z correspond to continuous predictors (in this case, age on a 1/2/3/4 scale, income on a 1/2/3/4/5 scale, and continuous variables for state income and Bush's vote in the state), scaled to have zero mean. The terms of the form (1 | b) correspond to varying intercepts, and those of the form (1 + a | b) represent varying intercepts and slopes. The quasibinomial error term allows for extra variation at the cell level (in this example, age*income*state interactions).

represented in each state by age and income for 2000 and 2004. We present our results as a two-way grid of maps and also make a series of graphs to show marginal patterns. For comparison, we replicate our analysis with other survey questions to compare our findings with general patterns of ideology, partisanship, and voting.

Figures 2 and 3 show the estimates obtained for support of increased government spending for health care for each state, age, and income group through multilevel regression.

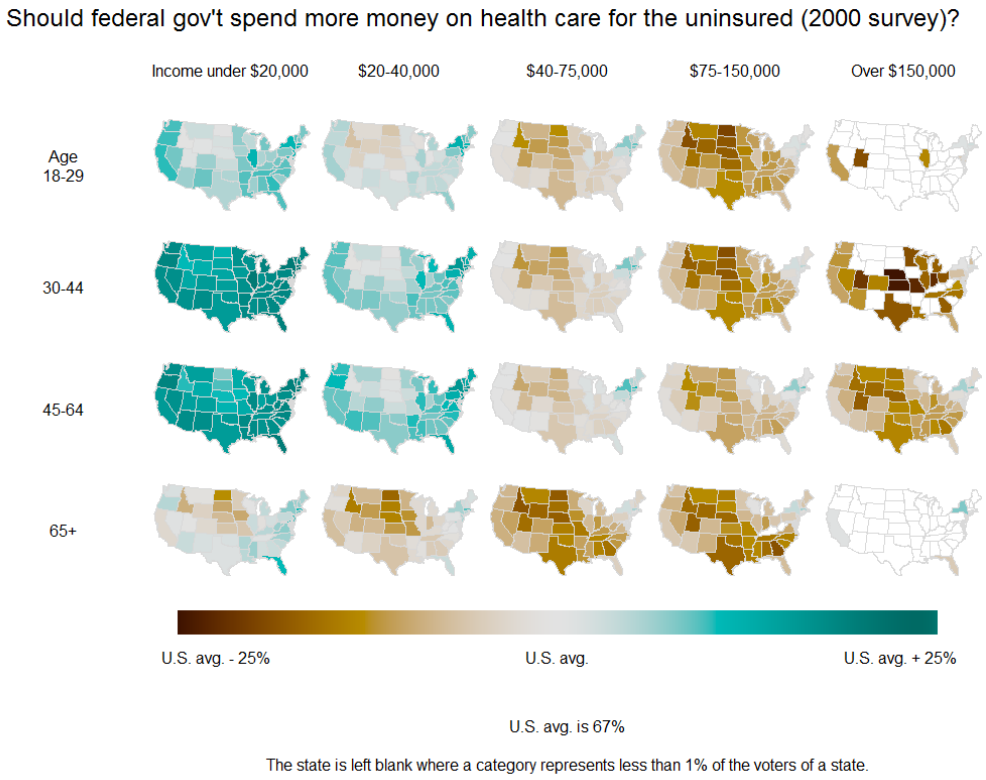

Figure 2. Attitudes on health care subsidies by age, income, and state, as estimated using multilevel regression and post-stratification applied to the 2000 Annenberg survey. Opposition is concentrated among higher-income voters and those over 65 years of age.

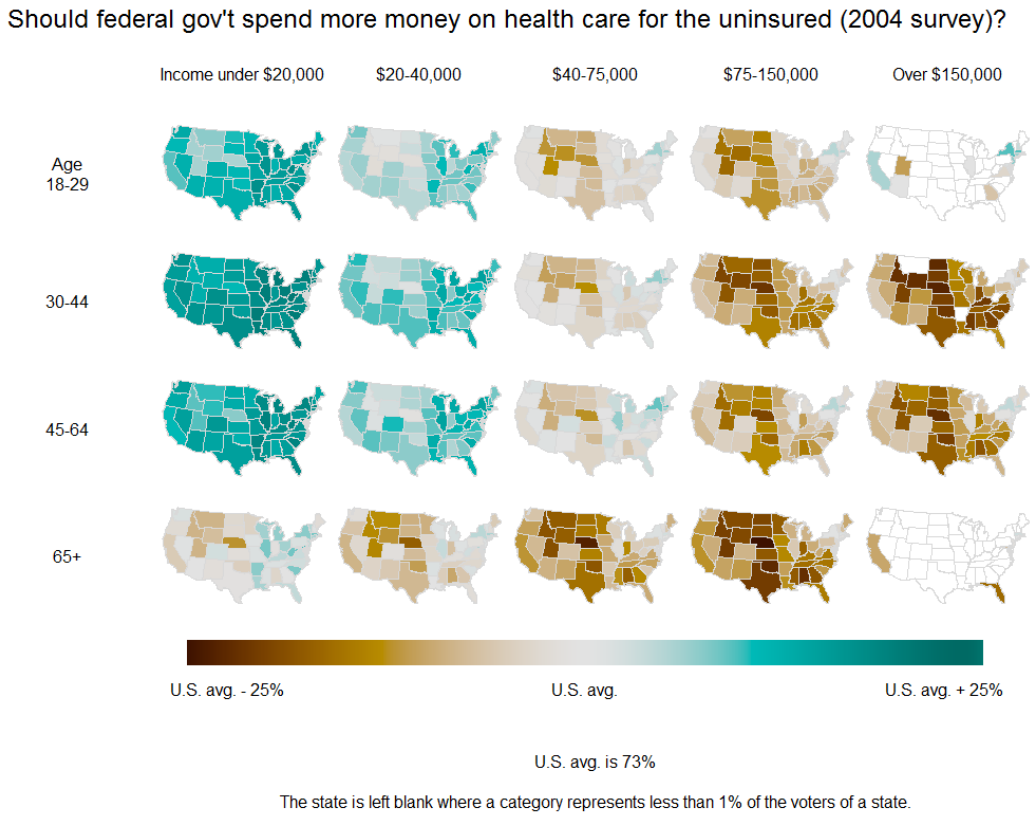

Figure 3. Attitudes on health care subsidies by age, income, and state, as estimated using multilevel regression and poststratification applied to the 2004 Annenberg survey. The estimates are similar to those in 2000, giving us confidence that we are seeing real patterns.

The estimates are normalized to the post-stratified mean for each year. In general, there is more support for increased spending on health care in the coastal states and less support in the south and center of the country. Mindful of the importance of sex and race (see Figure 1), we also replicated our analyses just on white men and on white women and found patterns of relative opinion by age, income, and state that were similar to those shown here for the general population.

But the most striking pattern has nothing to do with geography: age and income are the dominant factors predicting attitudes on health care. The trend for income is fairly steady, with people from higher-income households showing more opposition to health care. For age, attitudes are fairly stable up to the age of 60, after which opposition increases strongly with age. Figure 4 shows the age gradient in detail. This pattern is somewhat of a surprise: senior citizens have

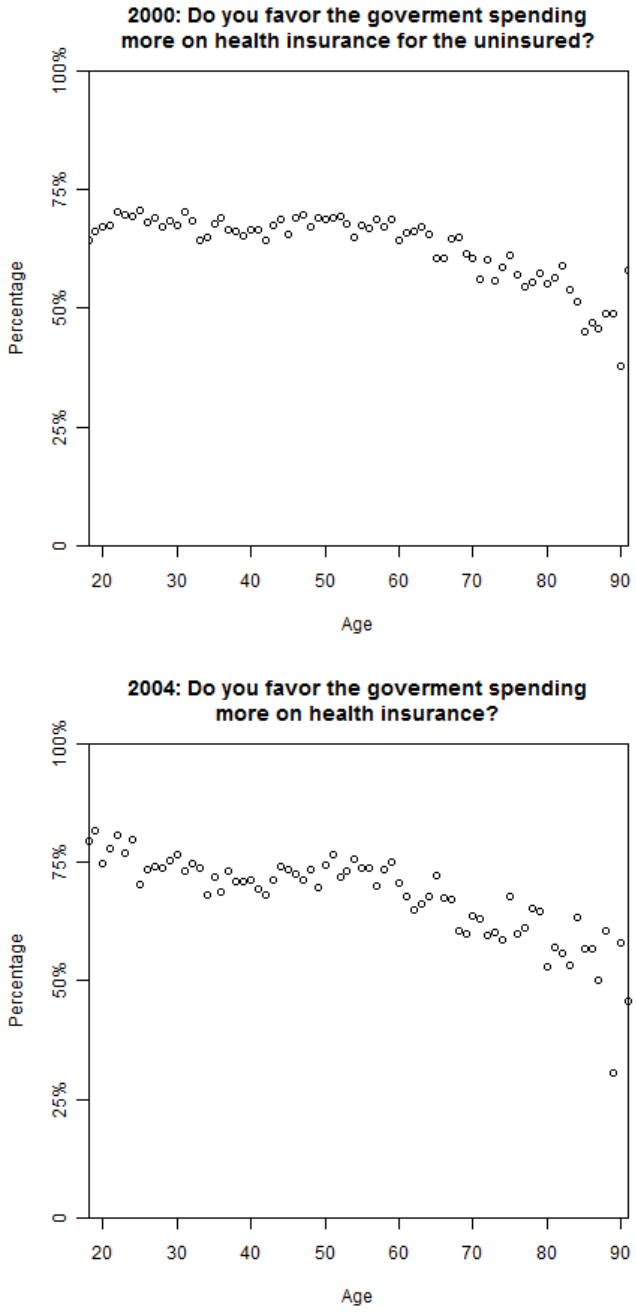

Figure 4. In both 2000 and 2004, support for health care reform was steady up to about the age of 60 and then declined rapidly with age.

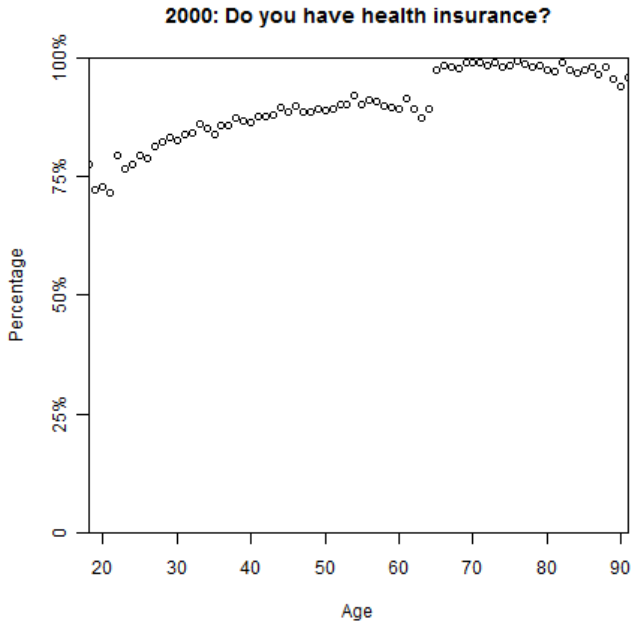

Figure 5. Proportion of people who reported having health insurance coverage, by age.

Medicare, which is a government plan, so one might think they would support public health care provision in principle. It is possible that some Medicare subscribers are suspicious of expanded government involvement in health care because they see it as competing with Medicare for scarce dollars (thus the much remarked-upon stereotype of people wanting to "keep the government's hands off my Medicare"). Figure 5 displays the rate of health insurance coverage by age, as estimated from the 2000 Annenberg survey.

Beyond the main effects of age, income, and state, our maps show some fascinating interactions which, for now, we merely present, leaving the job of interpretation for future researchers. (One of the virtues of multi-level regression and post-stratification is that it allows us to estimate and display interactions beyond our current level of subject-matter understanding.) For example, consider the columns of maps in Figures 2 and 3 corresponding to voters in different income categories. Among low-income voters, support for federal involvement in health care is weakest in the most Republican-voting states in the mountain west. Higher income voters are generally more opposed to federal involvement, but this opposition is just as prevalent in the upper midwest and south as well. This is not merely a national shift but represents a different geographic pattern of opposition. This sort of income-based difference can be important, given the evidence that

members of Congress are more responsive to the opinions of their richer constituents (Bartels, 2008).

From these findings, one might conclude that, yes, older and richer Americans oppose health care reform, but that this is no surprise. Yet consider this statement made on the BBC by a political scientist from Cambridge University:

> "It is striking that the people who most dislike the whole idea of healthcare reform—the ones who think it is socialist, godless, a step on the road to a police state—are often the ones it seems designed to help."

Striking indeed—but not supported by the evidence we have seen.[5] Low-income people are less likely to have insurance, and younger people are not covered by Medicare. In the most direct sense, legislation to cover the uninsured would thus benefit young, poor Americans, and these are exactly the people who most support federal intervention.

This sort of earnest but misinformed reporting indicated by the above quotation is a strong motivation for us to continue our work to model, understand, and present public opinion, not just as isolated facts—Old people oppose health care reform! Rich people oppose health care reform!—but as part of a larger picture relating public opinion on this issue to partisanship and policy.

Political implications

The patterns in the 2000 survey repeated themselves in 2004, which gives us some confidence that what we saw was not a fluke. What has been happening since? Firm conclusions must wait until analysis of more recent data, but public opinion swings tend to be approximately uniform at a national level (see Page and Shapiro, 1992, for much evidence and discussion of this point), and so it seems reasonable to take our 2000 and 2004 maps as a starting point for understanding relative opinion on health care reform among different groups. However, on this issue we expect swings to have been far from uniform, but rather more strongly tied to support for the president.

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[5] The present article considers opinions on health-care reform. Other data support the claim that it is Americans in the upper half of the income distribution—those less likely to be concerned about their own health insurance—who are most likely to be passionate opponents of Obama's plans. For example, a February 2010, CNN poll finds, "of this core group of Tea Party activists, 6 of 10 are male and half live in rural areas. Nearly three quarters of Tea Party activists attended college, compared to 54 percent of all Americans . . . Sixty-six percent of the tea party activists reported an income higher than $50,000 per year. Among the overall sample in the poll, that figure was 42%" (McMorris-Santoro, 2010).

Thus a survey from March of 2010 showed attitudes on health care also to be extremely partisan. In the aggregate, 46% support the proposed health-care reform and 48% opposed it, but Obama voters supported it by 81%-11% while McCain voters opposed it by 90%-7%. These numbers exactly mirror Obama approval among the same groups: 83%-10% approval among Obama voters and 90%-8% disapproval among McCain voters (Public Policy Polling, 2010), and represent a much higher level of partisan polarization than, for example, opinions about abortion or Iraq during the George W. Bush presidency.

When the health care bill began to run into problems in the summer of 2009, some swing Democratic senators expressed concern about supporting a bill that was unpopular in their conservative states. For example, Blanche Lincoln of Arkansas said, "I am responsible to the people of Arkansas, and that is where I will take my direction." Yet according to our estimates, voters in her state supported health care subsidies six percentage points more than the national average. (Our estimates are from old surveys, and we accept that Sen. Lincoln may have access to more relevant recent information in her state, but as discussed above, we think our estimates of the relative positions of the states from 2000 and 2004 are a good place to start.)

Figure 6 shows the full picture, with estimated support for health care subsidies among the voters in the states of each swing senator. Health care spending was a bit more popular in states represented by Democratic senators than those represented by Republican senators, but overall there is only a very weak correlation between senators' positions and state-level opinions. What this suggests to us is that senators' positions on this issue were driven not so much by their constituents' views on health policy but rather by more general partisan concerns. A linear regression on senators' positions on the health care bill on state-level attitudes and state-level Obama support finds that only the latter matters. This holds whether or not one takes into account a senator's political party (Gelman, Silver, and Lee, 2009). Perhaps public opinion is complex enough that it can be used to justify a wide range of political stances. And, it turns out, opinion on this particular issue does not vary much by state.

In contrast, age and income are highly predictive of individual attitudes on this issue. The strong age gradient in health-care opinion leads us to conjecture that the Obama administration and congressional Democrats might have made a mistake by taking public opinion for granted and trying so hard to create a compromise plan to achieve broad bipartisan support. The very features that potentially made the so-called Obamacare plan palatable to wavering moderates in Congress might have made it harder to sell to the general public, especially those over 65, who were already less sure that the nation's health care system needed fixing. It might have been a more effective political strategy to try at the

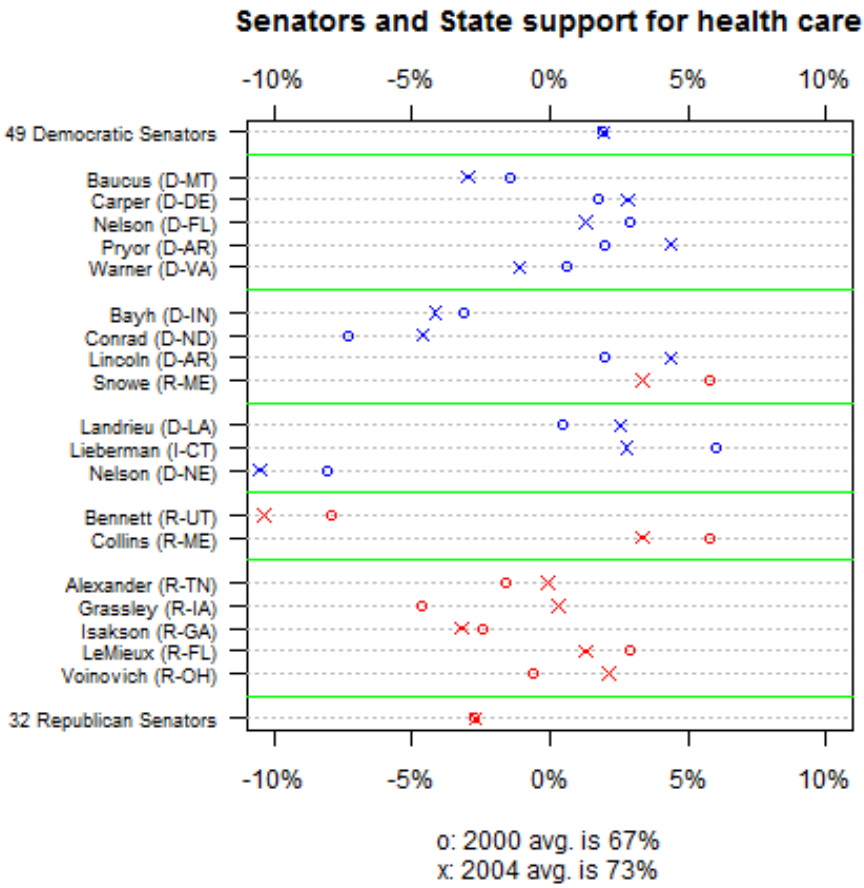

Figure 6. Average state support for increased federal spending on the uninsured (in 2000 and 2004), plotted for senators listed in approximate order of their position on health care reform as of late 2009. Health care spending was a bit more popular in states represented by Democratic senators than those represented by Republican senators, but overall there was only a very weak correlation between senators' positions and state-level opinions.

start to shore up public opinion among older Americans, perhaps by proposing a plan explicitly based on extending Medicare.

The above paragraph is completely speculative—we are experts in statistics and public opinion, not in practical politics—but it suggests some ways in which a fine-grained analysis of demographic and geographic variation in the polls can give some insight into the political process. As public opinion researchers, we tend to agree with George Gallup that accurate polling is a useful

part of the modern democratic process. As Jacobs and Shapiro (2000) put it, it is desirable for politicians to "respond to strong, sustained public preferences."

We hope that, beyond the direct interest in our poll snapshots from 2000 and 2004, the methods illustrated in the present article will be helpful to political scientists and political practitioners who perform more conclusive analyses on health care, using more recent survey data and further studying the interplay between public opinion and congressional voting.

References

Bartels, L. M. (2008). *Unequal Democracy: The Political Economy of the New Gilded Age*. Princeton University Press

Gelman, A. (2008). Scaling regression inputs by dividing by two standard deviations. *Statistics in Medicine* 27: 2865-2873.

Gelman, A., and Ghitza, Y. (2010). Who votes? How did they vote? And what were they thinking? Technical report, Department of Political Science, Columbia University.

Gelman, A., and Hill, J. (2007). *Data Analysis Using Regression and Multilevel (Hierarchical) Models.* Cambridge University Press.

Gelman, A., Park, D., Shor, B., and Cortina, J. (2009). *Red State, Blue State, Rich State, Poor State: Why Americans Vote the Way They Do,* second edition. Princeton University Press.

Gelman, A., Silver, N., and Lee, D. (2009). The Senate's health care calculations. *New York Times*, 18 November, page A35.

Jacobs, L. R., and R. Y. Shapiro (2000). *Politicians Don't Pander: Political Manipulation and the Loss of Democratic Responsiveness*. University of Chicago Press.

McMorris-Santoro, E. (2010). Meet the tea partiers: Male, rich and college educated. Talking Points Memo, 17 February. http://tpmdc.talkingpointsmemo.com/2010/02/meet-the-tea-partiers-male-rich-and-college-educated.php

Page, B. I., and Shapiro, R. Y. (1992). *The Rational Public: Fifty Years of Trends in Americans' Policy Preferences.* University of Chicago Press.

Public Policy Polling (2010). Country divided on Obama, Congress. Raleigh, N.C.: Public Policy Polling. http://www.publicpolicypolling.com/pdf/PPP_Release_National_317.pdf

Runciman, D. (2010). Why do people vote against their best interests? BBC News, 30 January. http://news.bbc.co.uk/2/hi/americas/8474611.stm

Shapiro, R. Y., and Arrow, S. A. (2009). Support for health care reform: Is public opinion more favorable for Obama than it was for Clinton in 1994? Technical Report, Department of Political Science, Columbia University.