

# Approaches to Studying Policy Representation\*

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## Abstract

Some studies of policy representation test hypotheses about the relationship between citizens' views and elites' positions on multiple issues, proceeding issue-by-issue. Others first summarize citizens' and elites' policy preferences with "ideology scores" and test hypotheses with these scores. I show the latter approach is crucially flawed. It misinterprets 'ideology scores' as summaries of policy preferences, but they typically measure consistency: how often one's ideal policies are somewhere left of the status quo. I elaborate two examples. Contrary to what ideological scales suggest, legislators appear similarly moderate as citizens; but, politically engaged citizens appear especially moderate. Methodological implications are discussed.

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Scholars typically employ one of two approaches when studying political elites' representation of public opinion. A first approach tests a hypothesis about the relationship between citizens' opinions and elites' positions on one issue at a time on each of many issues, and then examines how well the hypothesis held across issues. For example, Lax and Phillips (2012) examine how likely policies are to become law at various levels of public support. Gilens (2012) compares how likely policies are to become law depending on levels of public support among those of various incomes. And Lenz (2012) examines whether citizens tend to adopt politicians' views on a variety of issues.<sup>1</sup>

A second approach first computes measures of individual citizens' and individual politicians' overall 'ideologies' based on their positions on many policies and tests a hypothesis with these ideology scores. In such analyses, citizens' and elites' policy views are both summarized by a point on a liberal-conservative index and their locations on this index are then compared. For example, in their influential analysis, Bafumi and Herron (2010) estimate individual-level 'ideal points' for both survey respondents and their Members of Congress. Bafumi and Herron (2010) use these estimates to assess correspondence between representatives' policy decisions and their constituents' policy preferences, finding that over 90% of voters are more moderate than legislators, but that donors and primary voters are similarly extreme.

Research employing this latter ideological approach has long been conducted (e.g., Enelow and Hinich, 1984) but has burgeoned in recent years (Barber, 2014; Barberá, 2014; Bonica, 2013; Caughey and Warshaw, 2014; Caughey, 2014; Clinton, 2006; Ellis and Stimson, 2012; Erikson, MacKuen and Stimson, 2002; Gerber and Lewis, 2004; Griffin and Newman, 2005, 2007; Masket and Noel, 2012; Peress, 2013; Rogowski and Tucker, 2014; Stone and Simas, 2010; Shor, Berry and McCarty, 2010; Shor, 2013; Tausanovitch and Warshaw, 2014*a,b*; Tausanovitch, 2014). Expressing a growing sentiment regarding the superiority of the ideological approach for studying citizens' policy preferences, Lo, Proksch and Gschwend (2014) write that "research on elections and party competition is unthinkable without measures of the ideological positions of voters."

This paper argues that this ideological approach has crucial and under-appreciated flaws.

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<sup>1</sup>See also Canes-Wrone and Shotts (2004), Hill (2015), and Gilens and Page (2014) in recent literature on representation and Kinder and Kam (2009) and Tesler (2014) in recent literature on public opinion.

The key issue I explore is that ideological scales tend to capture citizens' degree of ideological consistency across policy domains ('this citizen has liberal views on two-thirds of issues') but say little about citizens' views within domains, on issues themselves ('this citizen supports state-sponsored healthcare').

To appreciate this distinction between consistency across domains and views within domains, consider a common use of ideological scales: comparing how 'extreme' legislators' policy positions are relative to citizens' views. In studies that employ ideological scales for this task, individual voters' or politicians' 'extremity' is typically based on the extremism of their score on an ideological index estimated from responses to many binary survey items (for citizens) or votes across many roll calls (for legislators) (e.g., Bafumi and Herron, 2010; Barber, 2014; Masket and Noel, 2012; Peress, 2013; Rogowski, 2014; Shor, 2013). With this methodology in mind, examine the political preferences and survey responses given by one voter and one legislator in two issue areas shown in Table 1. The legislator in Table 1 has consistently conservative but fairly moderate positions in both issue areas. However, because the legislator comes down on the conservative side of both issues, the legislator would appear as conservative as possible on an ideological index created from these two votes. On the other hand, the voter has extreme views in both policy areas. Nevertheless, one liberal response and one conservative response earns her a score at the middle of the index. Literature on this topic would thus deem the voter moderate despite her thoroughly extreme views and the legislator an extremist despite his moderate positions. But this voter is not really ideologically *moderate*, she is ideologically *mixed*; and the legislator is not ideologically *extreme*, he is ideologically *consistent*. Interpreting ideological scales as measuring views on issues themselves rather than ideological consistency can thus mislead even simple descriptions of individual's policy preferences.

This distinction has more general consequences for the study of congruence between voters and their representatives with ideological scales, questions such as "how well [a politician] represents" his or her constituency on policy matters (e.g., Bafumi and Herron, 2010) or which constituents a politician represents best (e.g., Griffin and Newman, 2007; Tausanovitch, 2014).

Table 1: Example: Studying Extremism with Ideological Scales

	Voter	Legislator
Ideal Gay Rights Policy	Do not allow gays to teach in public schools (Extremely conservative)	Civil unions only, no same-sex marriage (Moderately conservative)
Answer to survey question / Roll call vote: “Should gay marriage be illegal?”	Yes	Yes
Ideal Immigration Policy	Open borders; unlimited immigration (Extremely liberal)	Limit low-skilled immigration with border protections (Moderately conservative)
Answer to survey question / Roll call vote: “Should immigration be restricted?”	No	Yes
<b>One-Dimensional Ideology Estimated From Survey Responses / Votes</b>	<b>Moderate</b>	<b>Extreme Conservative</b>

A second hypothetical illustrates these implications. Suppose you are a Member of Congress representing a district with five voters. In the upcoming session of Congress, you will be asked to cast a roll call vote on five issues. Imagine that, wanting to maintain congruence with district opinion, you conduct a poll of the five voters in your district on these five issues. The results appear in Table 2. In each cell in Table 2, a 0 corresponds to a conservative view on a policy and a 1 corresponds to a liberal view.

The results of the poll give clear guidance about how to vote congruently. On each of the five issues, a majority of your constituents say they would cast a liberal vote if they were in Congress. Suppose you accordingly cast a liberal vote on each of these issues. An issue-by-issue approach – the first main approach to studying policy representation – would reveal your congruence with

Table 2: Example: Studying Congruence with Ideological Scales

	Liberal Survey Response?					Liberal Vote?
	Voter 1	Voter 2	Voter 3	Voter 4	Voter 5	Legislator
Issue 1	1	0	1	1	0	1
Issue 2	0	1	1	0	1	1
Issue 3	1	1	1	0	0	1
Issue 4	0	1	0	1	1	1
Issue 5	1	0	0	1	1	1
<b>Estimated One-Dimensional Ideology</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>0.6</b>	<b>1</b>

*Notes: The majority of voters favor the liberal policy on each issue, as does the legislator. Despite voting congruently with majority opinion on every issue, the legislator appears ‘more extreme’ on one dimension.*

district opinion on these issues (e.g., Lax and Phillips, 2012; Krimmel, Lax and Phillips, 2012).

However, imagine a political scientist gains access to your polling data and attempts to assess your congruence with district opinion using an ideological scale. Since all your constituents hold some liberal views and some conservative views, they all earn middling scores on the ideological scale, shown in the last row. But you have taken the liberal position on every single issue. According to the ideological scale, you are therefore ‘more liberal’ than all of your constituents (e.g., Bafumi and Herron, 2010). The political scientist’s verdict? You are far out of step.

You may ask this expert: what can you do to be more congruent with constituency opinion? To appear more congruent on an ideological scale, the political scientist explains, you need to take a couple positions that a majority of your constituents disagree with so that you appear more ideologically similar to them. (Thankfully, it does not matter which two.) If your opponent were to take such a set of incongruent positions on issues, the political scientist warns, she would be a much more congruent representative overall.

Clearly the political scientist in this example is wrong. You were not actually out of step with your constituents’ policy preferences, just more consistently on the liberal side. When scholars mistake ideological scales for measures of citizens’ policy preferences instead of measures of their consistency, scholars can reach very different portraits of the relationship between politicians’ decisions and citizens’ views than actually exist at the level of every issue. Not only can ideological

scales mistake congruence for being out of step, they may negatively correlate with it.

It would be highly convenient if ideological scales did not exhibit such pathologies. Capturing data on citizens' views on the same issues that legislators have taken positions on and examining a hypothesis for each issue requires exceptional effort (e.g., Gilens, 2012; Lax and Phillips, 2012; Lloren and Wüest, 2014). Constructing a 'joint scale' that bridges politicians and voters may require only a few points of overlap (e.g., Bafumi and Herron, 2010; Barber, 2014; Jessee, 2009; Shor, 2013), or potentially none (Aldrich and McKelvey, 1977; Hare et al., 2014; Ramey, 2014).

The problem with all such ideological scaling approaches – no matter how many dimensions they estimate, or how they model the underlying dimension(s) being estimated – is their assumption that citizens do not have distinct views on distinct policies separate from what their ideologies dictate. This idea justifies inferences about citizens' views on issues from their scores on an ideological index (e.g., Ansolabehere, Rodden and Snyder, 2006; Bafumi and Herron, 2010; Jessee, 2009; Tausanovitch and Warshaw, 2013). This paper examines this idea in detail and shows how it fails in ways that can significantly distort the study of representation. I first introduce the data and develop further intuition about why studying representation with ideological scales yields different conclusions than studying issues. I then show that we should prefer the answers issue-by-issue approaches yield, underscoring that citizens do have views on individual policies that ideological scales cannot capture, contrary to what recent scholarship has asserted. I also show how ideological scales fail to accurately capture theoretically significant patterns in these views: citizens with more moderate scores on ideological scales are no more likely to support moderate policies, despite that scholars using ideological scales refer to such citizens as moderates. Two applications then illustrate how widely accepted findings based on ideological scales may be in need of revisiting. First, the policies citizens support appear no more moderate than legislators in many policy domains, contrary to what ideological scales imply. Second, the most educated and engaged citizens tend to have the most *moderate* policy views, even though they appear the most 'extreme' on ideological measures. I conclude by discussing the potential implications for other literatures of attending to the distinction between the concept ideological scales appear to measure,

citizens' ideological consistency across policy domains, and the concept to which most theories of representation concern, individual policy issues. Across a wide variety of research questions, ideological scales are likely to yield erroneous conclusions about citizens' policy preferences and how politicians represent them.

## **Comparing Strategies for Studying Policy Representation**

In this section I introduce the data and use it to further develop intuition about why issue-by-issue and ideological approaches to studying representation can provide different conclusions.

### **Data**

To help illustrate the differences between the conclusions about representation ideological approaches and issue-by-issue approaches yield, I conducted two national surveys with Survey Sampling International with unique items. (Sections A and B in the Supplementary Appendix respectively describe the survey questions and procedures.) The items spanned twelve issues: health care, gun control, immigration, taxes, abortion, the environment, Medicare, gay rights, affirmative action, unions, contraception, and education. Significantly, the items offered citizens the opportunity to voice support for policies more moderate and more extreme than the parties support within a variety of policy domains, with these policy alternatives described concretely (see the Supplementary Appendix for the full questionnaire):

- at 1 and 2 on the scale, two extremely liberal policies that very few Democratic Members of Congress support, described concretely,
- at 3 on the scale, a policy corresponding to the typical Democratic view advanced by party leaders and most in the rank-and-file, described concretely,
- at 4 on the scale, a 'moderate' policy that is to the right of most Democratic elected officials' positions but to the left of most Republicans', usually describing the status quo, described concretely,
- at 5 on the scale, a 'Republican' choice mirroring the Democratic choice at point 3, described concretely, and,

- at 6 and 7 on the scale, two extremely conservative choices to the right of most Republican elites, described concretely.

Such items present two advantages. First, as variegated scales, these items capture a continuum of preferences, not just a binary that partitions respondents on one side or the other of a salient divide. Because they lack this quality,<sup>2</sup> existing issue-specific data have not allowed us to examine the relationships between ideological scales and underlying issue preferences in fine detail.

In addition, anchoring the party's positions at a fixed point on the scale also helps retain one of the benefits of ideological 'joint scaling,' being able to estimate where in the distribution of legislators' preferences a voter's preferences would belong (e.g., Bafumi and Herron, 2010). Rather than relying on potentially problematic statistical assumptions to conduct this 'bridging' across many issues, I have relied upon human judgment to place the parties on scales and then allowed respondents to place themselves. To craft the scales for each issue area, a team of research assistants catalogued the positions of all senators from the 113th Congress on these issues. The positions were then validated by attempting to place all 100 sitting US Senators' positions on each issue on the scales, revising the scales as necessary when it did not adequately capture a common position in the political debate. All Senators were then coded once the scales were finalized (see Section F in the Supplementary Appendix).

There is no doubt room for improvement in the construction of these scales. Future work can and should make these improvements and endeavor to make stronger claims about the exact distribution of public opinion than I advance here.<sup>3</sup> However, this data provides a reasonable proving ground for my more humble goals: illustrating how the differences between ideological and issue-specific approaches derived analytically manifest in real opinion data.

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<sup>2</sup>Some surveys do offer citizens the opportunity to describe their policy views on *abstract* 7-point scales with unlabeled points, but, were abstract scales to be employed in this paper's analysis, it would be easier to attribute the findings to differential item response or non-random measurement error.

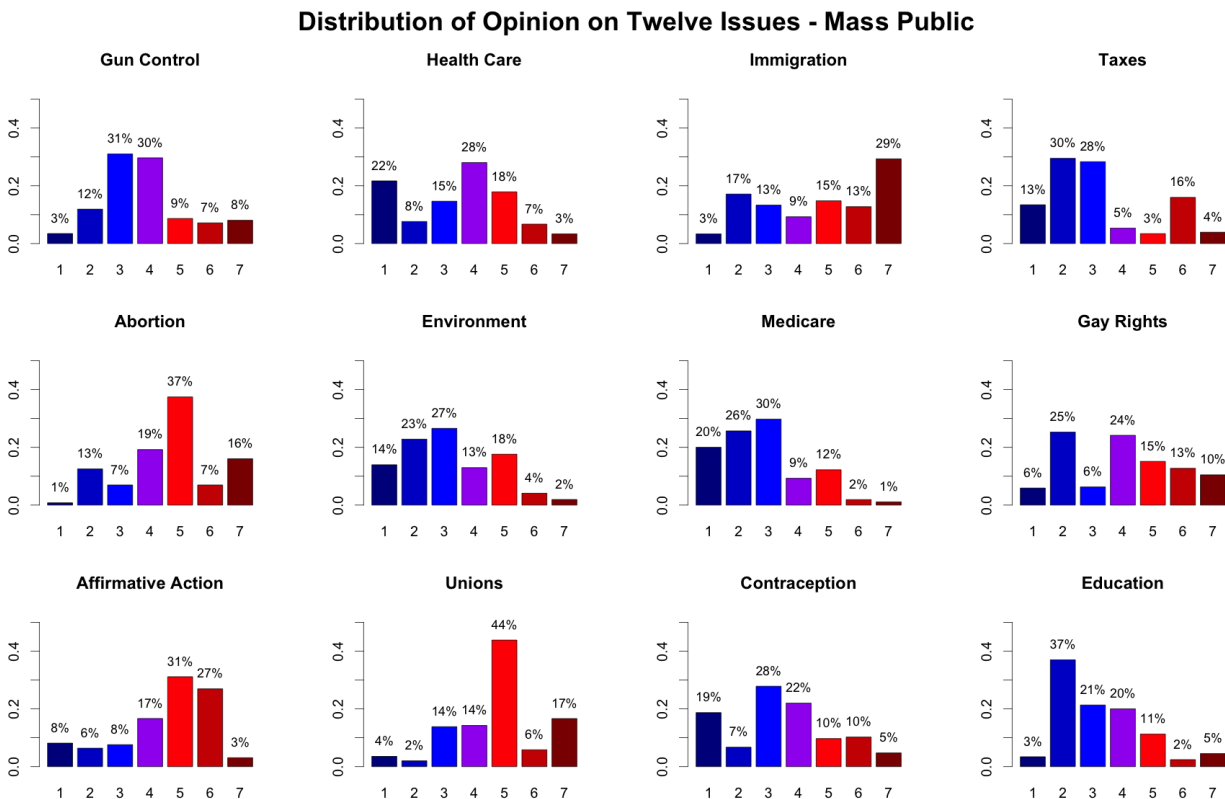
<sup>3</sup>Any such work should be cognizant of some of the drawbacks of this data that ideological scales also share. For example, by enforcing one-dimensionality *within* policy domains, this data potentially oversimplifies some respondents' views. But ideological scales that describe multiple policy domains do this to a strictly greater extent.



## Differences Between Public Opinion On Issues and Ideological Scales

Figure 1 presents the raw distributions of respondent's responses in each of the twelve issue areas. These data will help concretely illustrate why issue-by-issue and ideological approaches to studying representation may yield different answers.

Figure 1: Mass Opinion On Individual Issues



*Notes: The policy labeled as a 1 in each question is the most extreme liberal response available, a 3 corresponds to the national Democratic party's general position, a 5 corresponds to the national Republican party's general position, and a 7 is the most extreme conservative response available.*

Suppose an analyst is interested in understanding how often citizens tend to support moderate policies. Ideological scales are often used for identifying which citizens are moderate, and tend to suggest that citizens are moderates by and large (e.g., Fiorina and Abrams, 2009; Bafumi and Herron, 2010). The heart of this paper's argument concerns what students of representation should do with data like that depicted in Figure 1 when attempting to explore a question such as whether

citizens tend to support moderate policies.

Table 3: Strategies for Aggregating Mass Opinion, Example Data

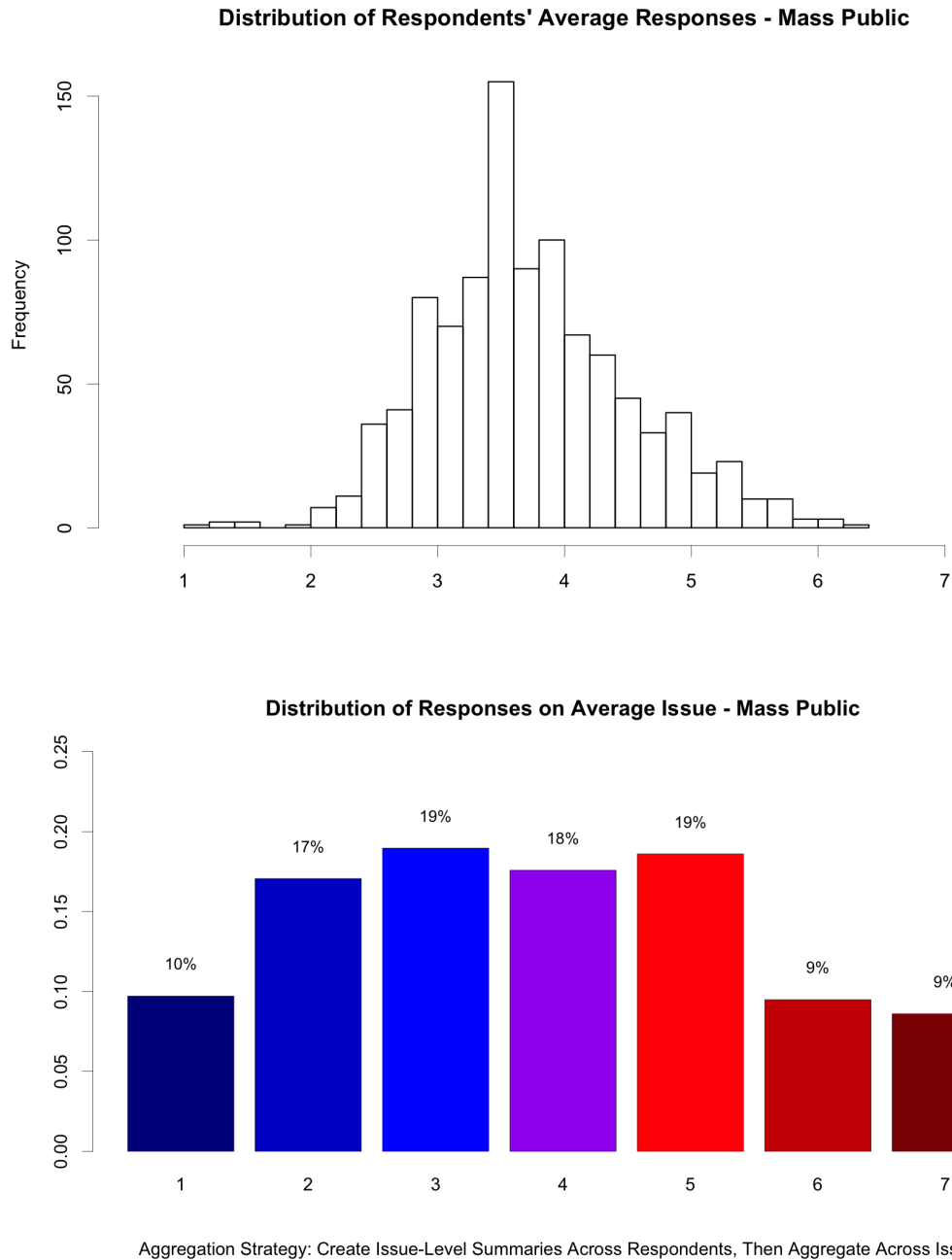
	Issue 1	Issue 2	Mean	Aggregation Strategy
<b>Voter 1's Responses</b>	1	7	4	Voters' 'Average Responses'
<b>Voter 2's Responses</b>	6	1	3.5	
<b>% At 1</b>	50%	50%	50%	Pattern on 'Typical Issue'
<b>% At 6</b>	50%	0%	25%	
<b>% At 7</b>	0%	50%	25%	

Table 3 illustrates how each of the two approaches to studying policy representation would approach this question. An ideological approach for aggregating across items and respondents is shown in example data at the top right of Table 3. This approach first computes the average of each voters' responses and computes the distribution of voters' 'typical responses.' Note how this approach entails summarizing each voter's preferences across multiple issues to a point on a single scale. It also leads both voters to appear similarly moderate because neither reliably hews to one ideological side, despite that they strongly disagree with each other on both issues. The real public opinion data exhibit a similar tendency. The results of this same approach in the full public opinion data I described are shown in the top panel of Figure 2. As can be seen, the overwhelming tendency is for individual voters' 'average responses' to be near 4, the moderate anchor. The conclusion that one might reach from this data thus mirror the conclusion in the literature more generally that voters reliably support moderate policies (Ansolabehere, Rodden and Snyder, 2006; Fiorina, Abrams and Pope, 2005; Fiorina and Abrams, 2009), despite that Figure 1 showed that non-moderate responses on issues were common.

Now consider a second approach to drawing conclusions from this data: analyzing it one issue at a time, and then aggregating across issues. This approach is shown at the bottom right in Table 3. This approach first considers the pattern on every issue and then estimates what pattern is typical on issues, yielding a picture of the distribution of mass opinion on the 'typical issue' in the survey.

The bottom panel of Figure 2 shows that this 'issue-by-issue' procedure characterizes these respondent's issue preferences markedly differently than the ideological approach. For example,

Figure 2: Strategies for Aggregating Mass Opinion



*Notes: The histogram in the top panel shows the distribution of respondents' 'average responses.' To compute this figure, I first average each voters' response across multiple issues and then plot a histogram of these voter-level response averages, as shown in the top right of Table 3. To calculate the bottom figure, I followed the aggregation strategy shown at the bottom of Table 3: I first calculated the marginals on every issue (see next section), and then average the marginals to describe the 'typical issue.'*

the bottom panel shows that about 30% of Americans give one of the two most left-wing responses on the typical question. However, the top panel shows that nearly none of these respondents gave this response on *every* question, meaning few respondents have ‘average views’ this extreme. This potentially gives the impression that nearly no Americans support policies as or more left wing than the Democratic party, anchored at 3 (e.g., Bafumi and Herron, 2010). Nevertheless, a look at the raw data without summarizing voters on one dimension suggests that many citizens support such positions.

These data, although quite naively aggregated, thus help illustrate why mapping voters to an ideological scale can change the conclusions we draw about their views. By averaging voters’ views across many policy areas into an index, an ideological scale tells us how likely voters are to be somewhere on the liberal or conservative side of a policy selected at random. What we typically learn from this exercise is that most voters have some mix of liberal and conservative views. This observation seems to imply very little about these voters’ views on issues themselves.

## **Can An Ideological Scale Summarize Voters’ Preferences?**

The previous sections showed how issue-specific and ideological approaches to studying citizens’ views may yield quite different answers, but offered no guidance about which approach’s answer should be trusted. This section casts doubt on the validity of the ideological approach’s answer more directly. I first show that the main assumption underpinning it is flawed. I then show that relying on ideological scales anyway is not innocuous, as ideological scales *fail to correlate* with the concept they are often used to measure.

## **Citizens Have Meaningful Issue Preferences Their Ideologies Cannot Predict**

Scholars have traditionally been skeptical that citizens conceive of politics in ideological terms or have ideologically-driven preferences. The primary evidence for this claim is straightforward. If one or two dimensions did capture Americans’ views well, Americans’ attitudes on individual

issues should correlate strongly, but empirically they correlate only weakly (e.g., Baldassarri and Gelman, 2008; Converse, 1964; Kinder and Sears, 1985). Likewise, one or two dimension can explain far less of the variation in citizens' responses to surveys than in elite roll-call votes (Noel, 2014; Treier and Hillygus, 2009).<sup>4</sup> When choosing between issue-by-issue approaches to studying citizens' views or ideological scales, this traditional perspective would tend to privilege issue-specific measures, believing citizens to have distinct views on distinct issues that cannot be captured by an ideological label or score.

A growing chorus among scholars who rely on ideological scales has questioned this traditional perspective (e.g., Ansolabehere, Rodden and Snyder, 2006, 2008; Jessee, 2009; Tausanovitch and Warshaw, 2014*b*). According to this critique, the considerations that inform citizens' views on issues can be simplified down to one or two dimensions nearly entirely – hence Bafumi and Herron (2010) write that we should think of citizens as having latent ideological “ideal points that drive their...choices.”<sup>5</sup> However, citizens are thought to make significant mistakes as they attempt to apply their ideological predispositions on surveys, generating large measurement error. Thus, issue items in surveys tend to correlate very weakly with each other because measurement error attenuates these correlations dramatically, even though citizens' underlying preferences are thoroughly one- or two-dimensional.

This alternative perspective, if true, should lead us to prefer the conclusions about public opinion and representation that ideological scales yield. For example, the issue-specific measures shown in the previous section may be plagued with measurement error that buffets citizens away from providing their true moderate preferences, but aggregating their views across many issues into an ideological index may reduce this noise and reveal citizens' true moderate nature.

Is there much informing Americans' survey responses to particular policy items beyond their

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<sup>4</sup>I replicate this finding in these data; the first factor among the mass public captures about 59% of the variance while among elites it captures 90%. Factor analysis may exhibit upward bias and be sensitive to the distribution of the latent factor, so these findings alone are not definitive. Moreover, measurement error may attenuate the mass statistic considerably. However, Achen (1975) shows that corrections for measurement error do not increase correlations between policy domains considerably..

<sup>5</sup>Indeed, this belief runs so deeply that Jackman and Sniderman (2006) predict (but do not find evidence) that citizens who think they have issue positions inconsistent with their ideology are not informed enough to know how they really 'should' feel.

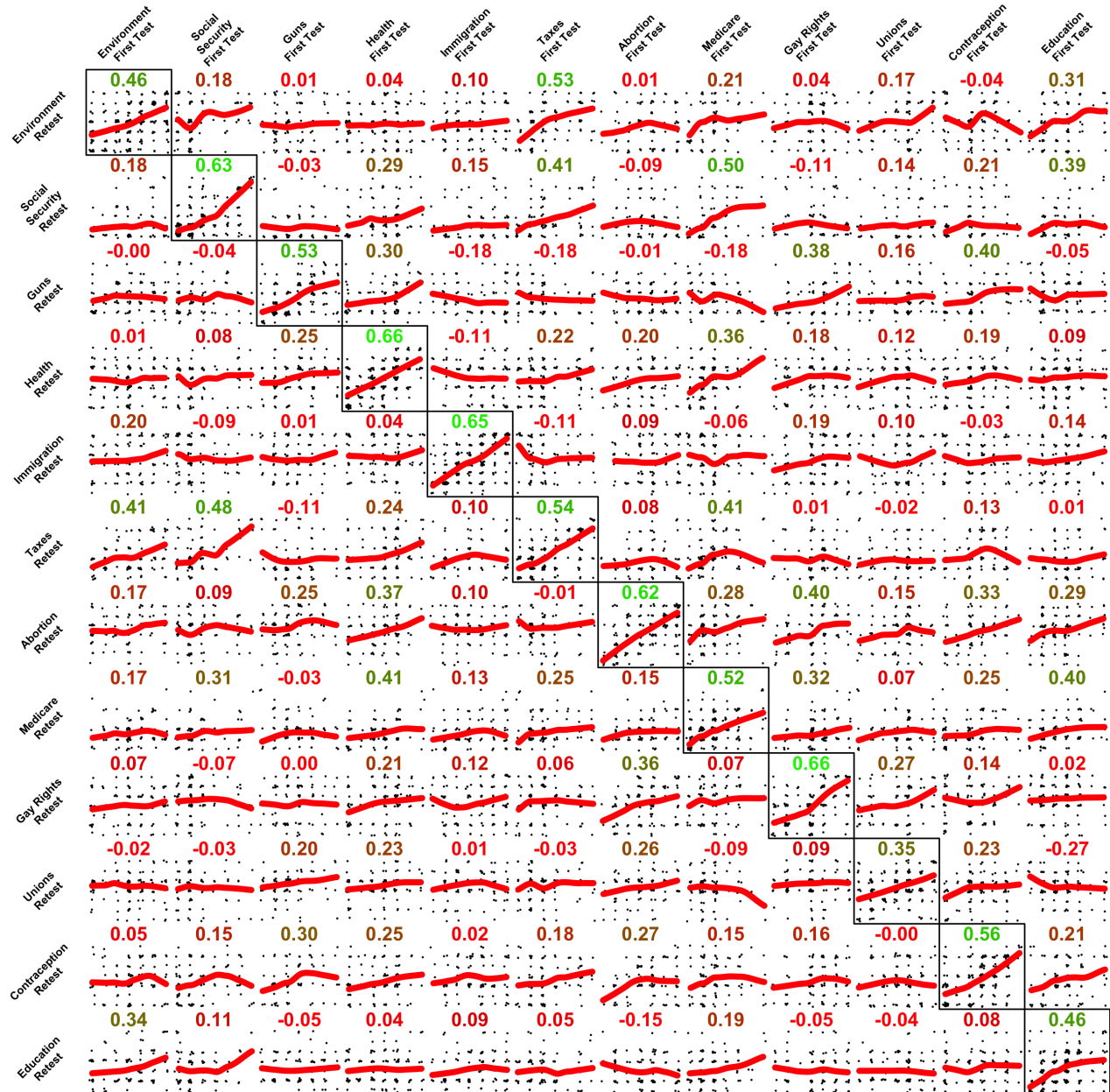
ideologies and error? Suppose the new ideological perspective were correct and measurement error artificially attenuates correlations it is possible to achieve with individual issue items on surveys so much that citizens' ideological nature is nearly completely obscured. Such measurement error should dramatically attenuate *all* correlations one can achieve between two individual survey questions. Therefore, we should tend to observe similarly low correlations between two different issue items in the same survey and between an issue item when it is measured in a first survey and the same item when it is asked again. After all, according to this line of reasoning, these responses are all noisy reflections of the same underlying ideological predisposition. On the other hand, if the classic perspective is correct that citizens have distinct views on distinct policy issues separate from their ideologies, we would predict significantly higher test-retest correlations within issue areas than across issue areas.

To help adjudicate between these alternatives, I conducted a panel survey (see Supplementary Appendix Section B.2). Respondents were contacted again two months after a first survey wave and asked the same battery of policy questions again. This panel allows me to compare inter-issue and intra-issue correlations. 515 responded to both waves.

Figure 3 shows respondents' first-test and re-test responses within each issue and across issues. Each subgraph in Figure 3 shows individuals' responses on a first issue in the first test on the x-axis and individuals' scores on a second test given one month later on the y-axis. Raw data and a loess smoothed line are both shown for transparency and simplicity. The test-retest polychoric correlation is shown above each graph.

If a liberal-conservative continuum was able to capture Americans' views but inter-issue correlations were nearly extinguished by measurement error, we should see similarly low interwave correlations between individual issue items and across different issue items. However, the plots on the diagonal show that interwave correlations within issues are considerably larger than correlations between different issues. The mean correlation within issues over time is 0.56, but the mean correlation between different issues is only 0.13. This contrast is inconsistent with the measurement error account for low inter-issue correlations. Citizens have persistent views on

Figure 3: Test-Retest Polychoric Correlations Within and Across Issues



Notes: Each subgraph depicts responses on a first issue during the first survey wave on the x-axis and responses on a second test a month later on the y-axis. Raw data is plotted with jitter given the categorical nature of the variables. Red lines depict the loess smoothed relationship between the responses. Polychoric correlations are shown above each graph. Issue names for the x- and y-axes of each graph are shown, respectively, along the top and left of the figure.

individual issues that do not correlate strongly with their views on other issues. (Section C in the Supplementary Appendix shows these figures for high- and low- political knowledge respondents.)

Two other pieces of evidence consistent with citizens' 'ideological innocence' outside this paper's scope are worthy of note. First, in a companion paper with Douglas Ahler, I show that professed issue preferences inconsistent with citizens' ostensible ideologies (and that ideological scales classify as 'errors') can powerfully predict citizens' subsequent choices. Moreover, citizens do not appear to place any significance on whether the 'mix of views' implied by a politicians' place on an ideological scale is closer to their own (Ahler and Broockman, 2015). Second, although often cited to justify ideological scaling for originally identifying that measurement error can attenuate observed correlations between issues, Achen (1975) shows that error-corrected correlations between separate policy domains are usually low (see Achen (1975), Table 5).<sup>6</sup>

There is no doubt some measurement error in Americans' responses to survey questions and empirical analysts are wise to consider it (e.g., Palmquist and Green, 1992). However, this measurement error has not been shown to be of the particular variety that would justify ideological scaling. Rather, despite what scholars who employ ideological scales have offered in justification, there is little reason to doubt what a long line of public opinion research has found: most citizens are 'ideologically mixed,' genuinely supporting liberal policies in some domains and conservative policies in others (Baldassarri and Gelman, 2008; Converse, 1964; Kinder and Sears, 1985; Layman and Carsey, 2002; Zaller, 2004).

## **'Ideological Moderates' Are No More Likely To Support Moderate Policies**

It may both be the case that the assumptions underpinning ideological scaling are unsound and that the answers scales provide tend to be correct. As the adage goes, all models are wrong, but some are useful. Here I show ideological scales do not seem useful for one of their main purposes.

Ideological scales are often said to identify citizens whose policy preferences are more

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<sup>6</sup>Jackman and Sniderman (2006) evaluates the possibility that citizens would become more ideologically consistent if they thought through issues more carefully or were exposed to elite rhetoric and finds that they would not.



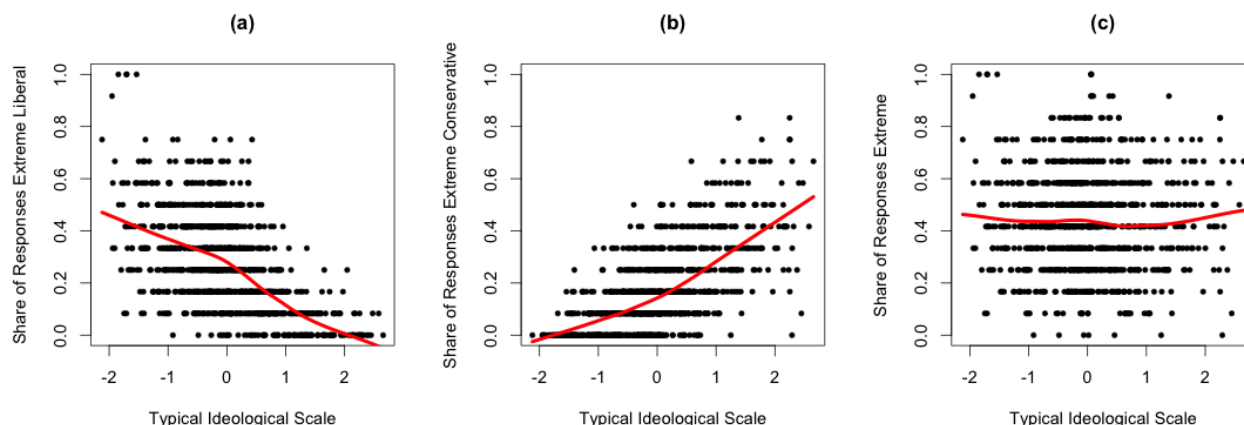
‘moderate’ or ‘extreme’ (e.g., Bafumi and Herron, 2010; Fiorina, Abrams and Pope, 2005). However, despite their common use for this purpose, it is unknown whether the vast majority of citizens with moderate scores on ideological scales are actually more likely to support moderate policies than the citizens with extreme scores. As previously noted, citizens appear to earn moderate ideology scores by being ideologically mixed, with each supporting their own idiosyncratic mix of liberal and conservative policies (e.g., Zaller, 2004). Nevertheless, they may also be more likely to support moderate policies, too.

To examine the ability of ideological scales to identify individuals who tend to support moderate and extreme policies, I move beyond the crude ideological ‘scale’ depicted in the bottom of Figure 2 and instead rely upon the state-of-the-art approach for estimating ideological scales, Item Response Theory (e.g., Martin and Quinn, 2002). To do so, I administered a series of 21 yes-or-no questions drawn from the questionnaires employed by prominent articles that use estimate citizens’ ‘ideal points’ from issue questions elsewhere in the same survey (see Supplementary Appendix A). I then estimated an IRT model from these items using the `MCMCpack` package in R (Martin, Quinn and Park, 2011). Recall that this approach is ultimately similar to the one described in the bottom panel of Figure 1: each respondent’s responses to many issue questions are boiled down to a point on a scale.

Figure 4 shows the results. The first two panels of Figure 4 reinforce the point that ideological scales measure ideological consistency across policy domains, how often a citizen comes down on the liberal or conservative side of the status quo. The x-axis on these panels refer to individuals’ ideology scores built from binary questions, such that ideological moderates appear in the middle, ‘ideological extremists’ appear on the far left and far right. The y-axis on panel (a) records the share of the 7-point issue questions respondents gave an ‘extreme liberal’ answer to (at 1 or 2), and the y-axis on panel (b) records the share of these 7-point questions respondents gave an ‘extreme conservative’ answer to (at 6 or 7). The expected relationships between the ideological scale and support for more immoderate policies on each side of the spectrum do hold: ‘extreme ideological liberals’ do tend to hold extreme liberal views on more issue and ‘extreme ideological

conservatives’ do tend to hold extreme conservative views on more issues.

Figure 4: Extremity On Ideological Scales Does Not Predict Support For Actual Extreme Policies



Notes: Black dots show raw data, red lines are loess smoothed lines.

But are ‘ideological moderates’ especially likely to support moderate policies in general? The y-axis in Panel (c) adds together the y-axes from panels (a) and (b), corresponding to the total number of extreme policies each respondent supported in the 12 seven-point questions. The x-axis in Panel (c) again corresponds to each respondents’ score on the ideological scale estimated via IRT, with ‘ideological moderates’ in the middle. If extreme scores on ideological scales measured support for more extreme policies and moderate scores with support for moderate policies, we should observe a ‘V’ shape in Panel (c), whereby citizens with more extreme scores on the ideological scale are also more likely to support extreme policies. However, individuals with more extreme ideology scores appear no more likely to express extreme views than ‘ideological moderates.’ Likewise, those with more moderate scores are no more likely to support moderate policies in general than are ‘ideological extremists.’<sup>7</sup> Self-reported ideological extremity also only barely predicts support for extreme policies.<sup>8</sup> The extremity of citizens’ views on issues and ‘extremism’ as political scientists measure it with ideological scales appear literally orthogonal.

<sup>7</sup>The statistical relationship between extremity on the ideological scale and the number of extreme policies individuals support is negative and nearly significant in the opposite direction ( $p = 0.09$ ).

<sup>8</sup>Self-reported ideological extremity also barely predicts extremity on the issue questions. See Figure 13 in the Supplementary Appendix.

This data suggests we should think about citizens with extreme and moderate scores on ideological scales differently. Citizens do not earn moderate scores on ideological scales because the policies they support are especially moderate. They earn these scores because ideological scales have difficulty predicting their views. A citizen with a moderate score on an ideological scale is likely to support some liberal policies in some areas and conservative policies in some others, but we have no way of knowing in which. On the other hand, citizens with extreme scores on ideological scales are especially ideologically consistent, tending to come down on one ideological side across many policies. We can learn which side of the debate these citizens tend to come down on from their scores. But these citizens do not appear any more likely to support extreme policies within these domains than their moderate counterparts. These revised interpretations underscore how citizens' scores on ideological scales primarily measures the consistency of their views across policy domains, even as political scientists interpret them as measuring views on actual policies.

## **Applications**

The evidence presented so far has suggested that ideological measures may significantly mislead the study of representation as they appear to say little about citizens' views on issues. To illustrate the importance of attending to this distinction, I now explore how two widely accepted conclusions largely drawn from ideological scales may need revisiting.

### **Application 1: An artificial 'disconnect' – How ideological scales distort the study of collective representation**

In the United States today, an ambitious reform agenda seeks to expand the role of elites as delegates, hoping they will more closely attend to public opinion (e.g., Kousser, Phillips and Shor, 2014; Lessig, 2011; Mann and Ornstein, 2013). A stated rationale for much of this agenda is an empirical claim drawn from ideological scales: voters reliably support more moderate policies than elites (e.g., Ansolabehere, Rodden and Snyder, 2006; Stone and Simas, 2010; Maskett and Noel,

2012). For example, Bafumi and Herron (2010) find that only 10% of American voters prefer policies that are as extreme as their representatives in Congress. For many reformers, it follows from this view that, if we observe one political party successfully pursuing a policy that we see as undesirable relative to the status quo, most voters will support a less extreme and thus more desirable alternative. For example, in support of campaign finance reform, Lessig (2011) writes: “Fundraising happens among the extreme, and that puts pressure on the extremist [politicians] to become even more extreme.” Similarly, Mann and Ornstein (2013) recommend that we can “moderate politics by expanding the electorate.”

This new conventional wisdom concerning legislators’ extremism and voters’ moderation stands in sharp contrast to classic empirical studies that find American politicians provide robust ‘collective representation.’ As a whole, this literature suggested, elites do tend to support policies in concert with the public’s views (e.g., Weissberg, 1978). Moreover, if anything, these classic studies assumed that political elites would only support policies within a relatively narrow and moderate range relative to the broad range of policies for which many citizens might voice support (e.g., Kingdon, 1989, page 291). But recent scholars using ideological measures consistently conclude the opposite: political elites support policies far more extreme than citizens, leaving Americans governed by extremists fundamentally “disconnected” from rank-and-file Americans’ reliably moderate demands (e.g., Fiorina and Abrams, 2009; Bafumi and Herron, 2010; Henderson, 2013; Hill and Tausanovitch, 2014; McCarty et al., 2014).

There is reason to suspect these new studies’ departure from classic wisdom may be an artifact of the ideological measures they use. Research has long found that elites tend to consistently take positions on one side of the ideological spectrum across many policy areas but also eschew taking positions that are too extreme within any policy area (e.g., Converse and Pierce, 1986; Jennings, 1992). This is reminiscent of the legislator from Table 1, who scored at the extreme of an ideological scale for having consistently conservative views despite having fairly moderate positions on issues themselves. If political elites have positions like this, they may appear ‘extreme’ on ideological scales by virtue of their consistency across policy domains (‘this legislator supports

the liberal position on every single policy’), even if elites tend to stake out fairly moderate positions on issues themselves (‘none of this legislator’s positions are very far to the left’).

Figures 1 and 2 provided the first evidence consistent with this possibility. Many citizens voice support for policies well to the left or right. But when these views are ‘averaged’ at the individual level, they appear moderate on the whole.

What happens when this same procedure is applied to elites? To compare what happens when voters and elites are examined one issue at a time or on ideological scales, I conducted a parallel survey to a convenience sample of sitting state legislators in April 2013 and administered the same issue batteries as I delivered to the mass public.<sup>9</sup> This survey was not intended to be strictly representative of sitting legislators, but merely to explore the consequences of the much greater degree of ideological consistency typically present in elite samples.<sup>10</sup>

Figure 5 depicts the results of this survey in the same two ways the mass survey results were depicted in Figure 2: the top panel shows the distributions of individual legislators’ ‘typical responses,’ whereas the bottom panel shows the frequency of the legislators’ responses on the ‘typical issue.’

A first striking pattern is worthy of comment: there is strong similarity between the results these two aggregation approaches yield among elites. This shows what the dimensionality assumption underpinning ideological scales looks like when it holds, and why ideological scales have been so widely adopted among scholars of political elites. Political elites who are to the left of the Democratic party on one issue, for example, tend to be consistently to the left of the Democratic party across most other issues also. This means that their views can be meaningfully summarized by a point on a scale – ‘left-wing Democrats.’<sup>11</sup>

But what happens when we add voters to the picture? A comparison of the bottom panels in Figure 2 and Figure 5 suggests that the public in fact delivers similar amounts of support for

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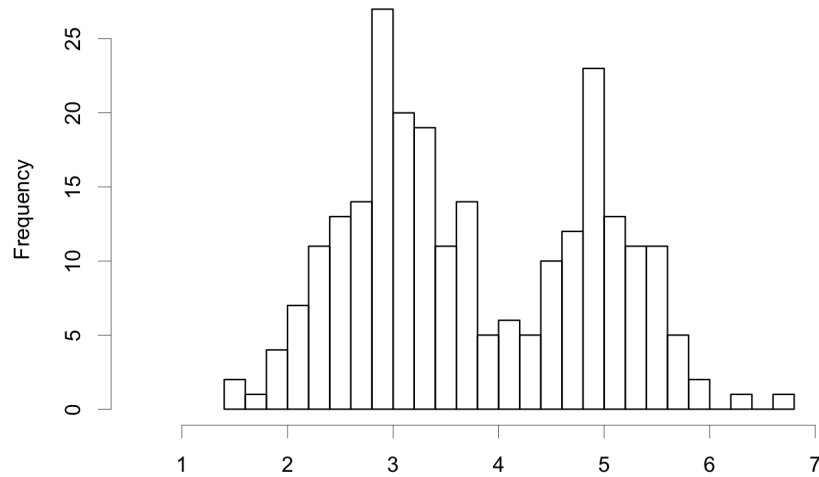
<sup>9</sup>State legislators were invited to participate by contacting them at their public email addresses. Screener questions ensured that only legislators themselves were answering the survey.

<sup>10</sup>The survey was also not intended to query legislators’ *personal opinions* on the issues at hand but rather their *public positions*, the concept at stake in studies of policy representation.

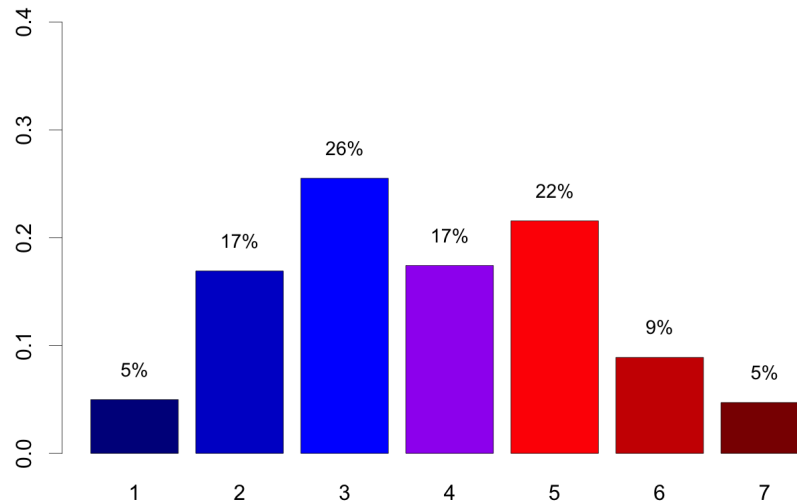
<sup>11</sup>There are certainly legitimate concerns that can be raised about ideological scales separate from the issues this paper interrogates, but space is limited to elaborate those critiques in detail (see, e.g., Lee, 2009).

Figure 5: Strategies for Aggregating Elite Opinion

**Distribution of Respondents' Average Responses - Legislators**



**Distribution of Responses on 'Average Issue' - Legislators**



*Notes: The panels were computed identically to Figure 2, but with the elite sample.*

moderate and immoderate policies as legislators. At the level of the public (shown previously in Figure 2), the deep blue and red bars at points 1, 2, 6, and 7 on the scale received a great deal of support: on the typical question about 45% of the public offered these positions. On

the typical issue at the elite level – which ideological scores suggest are a hotbed of support for extreme policies – the modal responses centered nearly exactly at points 3 and 5, where the parties’ expected positions were specified *ex ante*. Moreover, legislators were actually slightly *less* likely to describe their positions at points 1, 2, 6, and 7. And, the exact same share – 18% at both the mass and elite levels – picked a ‘moderate’ option on the typical policy. This is quite a different portrait than existing literature paints, such as Bafumi and Herron’s (2010) conclusion that only 10% of the public supports policies more extreme than legislators. However, when these data are mapped to a single dimension as existing literature is accustomed, voters again appeared moderate and elites retained their clusterings, now at the extremes.

The ‘disconnect’ scholars routinely report thus seems to be an artifact of the ideological measures they use, which assign ‘ideologically mixed’ Americans middling scores on an index and ‘ideologically consistent’ politicians extreme scores. It is certainly too soon to confidently overturn conventional wisdom based just on these unique survey items and this one sample. It is possible that measurement error would change the picture slightly (Section D in the Supplementary Appendix discusses this possibility), or that other issues would yield different answers. Nevertheless, the finding that nearly half the public supports policies more extreme than legislators on the typical issues in this survey raises questions about the new conventional wisdom that voters are reliably more moderate. On individual issues, these patterns of moderation and extremism do not reliably persist. Rather, collective representation may be significantly stronger than ideological scales imply (Weissberg, 1978).

One may wonder whether the aggregation strategies pursued in the Figures above do justice to the more sophisticated procedures employed by methods such as IRT models, but Figure 14 in the Supplementary Appendix uses data from the binary response options delivered to both the mass public and legislators to show that state of the art methods do not overcome these problems. The IRT estimates look like the bottom panels on Figures 2 and 5, suggesting these legislators are reliably more extreme despite what is plain in the data when it is aggregated by issue first.

Of course, the whole truth is never quite so simple. An additional benefit of examining

representation on individual issues is the heterogeneity across issues that this mode of analysis can reveal (e.g., Lax and Phillips, 2012; Pacheco, 2014). And there indeed appears to be substantial heterogeneity in the collective relationship between politicians and voters on different issues. Moreover, this heterogeneity may be theoretically significant. The issue data in Figure 1 suggested a quite different ‘disconnect’ prevails on many issues than existing literature deems possible: elites in *both* parties sometimes spurn many voters in the same way – declining to raise taxes on the wealthy by large amounts or increasing spending on social insurance programs dramatically, for example, or being much harsher towards undocumented immigrants. Such patterns are ripe for further investigation. They may also have implications for reformers. If public opinion is assumed to be a moderate gold standard, encouraging legislators to act as delegates of voters may seem obviously desirable (e.g., Lessig, 2011; Mann and Ornstein, 2013). But examining the public’s potentially unwise preferences on individual issues (Sances, 2014) provides an important reminder: faithful representation of sometimes-extreme public opinion is not the sole standard to which representatives can aspire (Burke, 1774).

## **Application 2: Political Sophistication and Extremity of Opinion**

Scholars are not only concerned with how well politicians represent the public overall; they are also concerned with which citizens politicians tend to represent best or are most responsive to. Here again a rich tradition that tests who is represented in a variety of particular issue areas (e.g., Dahl, 1961; Gilens, 2012) coexists with a recent literature asking similar questions using ideological scales (e.g., Bafumi and Herron, 2010; Bartels, 2008; Bhatti and Erikson, 2011; Griffin and Newman, 2005, 2007; Fiorina and Abrams, 2009; Tausanovitch, 2014).

Perhaps the most influential finding about who politicians represent best that is based on ideological scales regards the allegedly radicalizing influence of especially engaged citizens. Because politically engaged, active, and knowledgeable individuals appear extreme on ideological scales, they have often been implicated in leading legislators to support extreme policies (e.g., Abramowitz, 2010; Bafumi and Herron, 2010; Fiorina, 1999; Fiorina and Abrams, 2009). Fiorina



and Levendusky (2006) clearly state this idea: “People who are active in politics tend to have more extreme views than ordinary voters.”

The notion that engaged citizens’ policy views are more extreme may seem natural, but sits at odds with a great deal of classic literature. This literature suggested that rank-and-file members of the public with the *least* political information and education were the most likely to support extreme endeavors (e.g., Kingdon, 1989; Stouffer, 1955). On the other hand, as Zaller (1984) wrote, educated and politically engaged citizens were widely accepted to be “more rather than less likely to conform to prevailing convention” (p. 22), hewing to beliefs within the mainstream.

Why, then, might knowledgeable individuals appear more extreme on ideological scales? Classic political behavior research also provides an answer. This research would expect politically engaged citizens to be the most ideologically consistent across issues, as they tend to support their party’s side of salient issues (e.g., Converse, 1964; Glaeser and Ward, 2006; Lenz, 2012; Zaller, 1992). The greater ideological loyalty of political sophisticates to one side of many policy debates could account for why sophisticates appear ‘extreme’ on the ideological scales, even if their views within these policy areas tend not to be extreme.

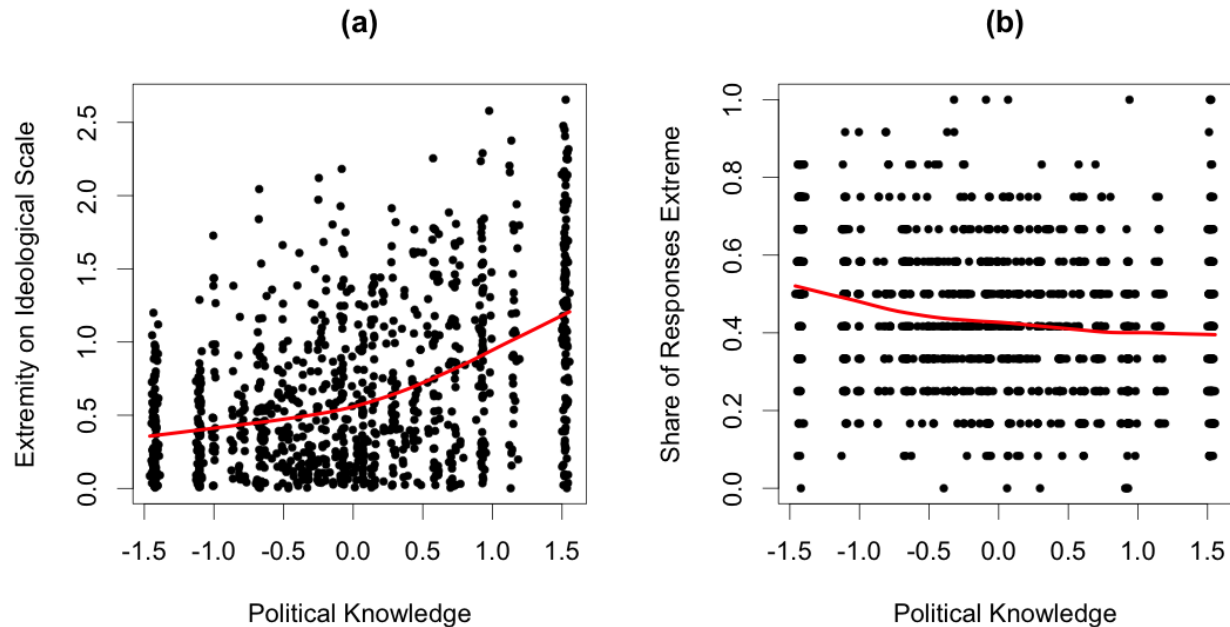
Are engaged and knowledgeable Americans in fact more likely to support extreme policies, or merely more ideologically consistent across policy domains? The left panel in Figure 6 shows that highly engaged and knowledgeable individuals are the likeliest to have extreme scores on an ideological scale as they consistently fall on their parties’ side of the ideological spectrum across many issues. This replicates the typical finding that extremity on an ideological measure (shown on the y-axis, and computed using IRT from the 20 binary items) correlates strongly and positively with a political knowledge scale<sup>12</sup> (on the x-axis) ( $t > 14, p < 0.001$ ) (Abramowitz, 2010; Fiorina and Abrams, 2009). Highly knowledgeable individuals are more likely to voice support for one of the two parties’ side of many policy debates.

However, political sophisticates appear no less likely to support moderate policies within policy areas than other Americans. In fact, the second panel of Figure 6 suggests that the truth may be

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<sup>12</sup>See the Supplementary Appendix for the items used to create the political knowledge scale.

Figure 6: Relationships Between Political Knowledge, Ideology Scale, and Support for Extreme Policies



closer to the reverse: individuals who are higher in political knowledge appear *less* likely to support policies that are more extreme than the parties' positions ( $p < 0.001$ ). Highly knowledgeable and politically attuned Americans may appear extreme on ideological scales merely because they consistently answer in line with one of the parties' positions, but they do not seem more likely to prefer more extreme policies than other Americans. (Section E of the Supplementary Appendix discusses whether these pattern are attributable to measurement error.)

The same reversal of conventional wisdom persists among self-reported<sup>13</sup> primary voters, another class of individuals scholars routinely indict for drawing politics to the extremes (e.g., Brady, Han and Pope, 2007; Fiorina and Levendusky, 2006).<sup>14</sup> Self-reported primary voters appear (slightly) *less* likely to volunteer extreme views than those who do not report voting in a primary ( $p < 0.001$ ), even though they are much more 'extreme' on ideology measures by virtue of their

<sup>13</sup>The self-reported primary voting measure is clearly not ideal, although most existing studies rely on this measure as well and rarely find different results when subsetting to validated primary voters.

<sup>14</sup>For a review of early literature on this topic and an early skeptical perspective, see Norrander (1989).

greater loyalty to their ideological side across issues ( $p < 0.001$ ).

The role of political information does not seem to be to pull voters outside the realm of mainstream political debate; quite the contrary. With that said, this evidence does nothing to impeach arguments that strong partisans and political activists are increasingly likely adopt their parties' views or express disdain for the other party (e.g., Mason, 2014; Iyengar, Sood and Lelkes, 2012). However, extremity of opinion on a given issue is a separate construct from – and is not guaranteed to correlate positively with – ideological consistency across issues, intensity of opinion on issues, or strength of partisan identification.

## **Other Potential Applications**

Relaxing the assumption that voters' views can be summarized on by one or two dimensions may also have implications for the study of representation more generally, as one-dimensional ideological scales have formed the basis of much conventional wisdom in numerous literatures. I briefly elaborate three more examples to illustrate this potential.

First, an influential literature considers the conditions under which elites are 'held accountable to voters more strongly.' This concept is often operationalized as the extent to which politicians' estimated ideal points are moderate (e.g., Canes-Wrone, Brady and Cogan, 2002; Snyder and Strömberg, 2010). This metric is premised upon the idea that voters by and large want ideological moderates to represent them. Yet, consider again the example from Table 2. In order to represent majority will on every issue, the legislator in that example must take the liberal position on every issue and appear 'very liberal' ideologically. On the other hand, legislators who were actually out of step with more constituents would seem ideologically closer to the district. Thus, even though scholars often assume that 'moderate' representatives represent voters' preferences more closely, it is possible that legislators who appear 'ideologically extreme' are actually likelier to agree with their constituents on issues – even if voters' views are not extreme.<sup>15</sup> The substantive conclusions

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<sup>15</sup>Empirical studies are remarkably mixed on whether voters prefer ideological moderates (e.g., Adams et al., 2013; Montagnes and Rogowski, 2012), and when differences between extremists and moderates on valence dimensions are carefully taken into account, the conclusions of such studies can reverse (e.g., Stone and Simas, 2010).

of studies using ideology to study electoral accountability depend upon how voters evaluate the particular policies on which moderate legislators and extreme legislators disagree.<sup>16</sup>

Second, the literature on race and unequal representation has attempted to judge the conditions under which Latinos and whites are better represented by comparing the one-dimensional ideal points of legislators to the typical ideal points imputed to white and Latino voters (Griffin and Newman, 2007). However, consider a hypothetical libertarian legislator representing a Latino-majority district. This libertarian could appear ‘moderate’ and in-step with her constituents on a one-dimensional scale due to being ‘liberal on some issues and conservative on others,’ just as Latinos tend to be. However, the specific issues on which libertarians are liberal and conservative tend to be the opposite of Latinos. Such a legislator might thus be very unrepresentative of her Latino constituents’ views on all issues *and* appear to be a ‘good ideological fit.’ Recommendations on how to encourage better representation of Latinos’ views based on one-dimensional scales thus may yield counterproductive results.<sup>17</sup> Similar issues could arise in studies of differential representation by income, partisan responsiveness, and sub-constituency responsiveness, many of which rely on ideological scales (e.g., Barber, Canes-Wrone and Thrower, 2014; Bartels, 2008; Bhatti and Erikson, 2011; Gerber and Lewis, 2004; Ezrow et al., 2011). Because ideological consistency correlates with many of these attributes, these studies may reach conclusions about representation that instead reflect unrelated reasons certain groups tend to be more ideologically loyal. Measures of issue-specific opinion are necessary to assess these questions.

Finally, Tausanovitch and Warshaw (2014a) report a remarkable finding based on ideological scales: voters are completely unaware of the ideological positions of their Members of Congress,

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<sup>16</sup>As an example of this potential for substantive conclusions to change as a result of this critique, Snyder and Strömberg (2010) show that legislators whose districts overlap well with newspaper markets tend to be more moderate, which they interpret as showing that the media helps voters hold legislators accountable to their preferences. If voters are thought to be uniformly moderate and other political actors uniformly extreme, this interpretation may be relatively straightforward. However, consider an alternative interpretation of this result: interest groups tend to encourage ideological moderation, perhaps because it is less likely to lead to changes in the status quo (Baumgartner et al., 2009; Bonica, 2013); and, when Members of Congress know it is less expensive for interest groups to purchase negative advertisements against them (because an advertisement in only one newspaper can cover an entire district), they are more careful not to contravene interest groups’ preferences. This is quite a different view of how media coverage affects political accountability. Without the assumption of voter one-dimensionality, which interpretation of Snyder and Strömberg’s (2010) results is unclear.

<sup>17</sup>This example illustrates the converse pathology of that shown in Table 2.

once what they can guess from party is taken into account. This lack of voter awareness spells troubling implications for democratic accountability, they conclude, and allows legislators to pursue their out-of-step agendas. But Ansolabehere and Jones (2010), using the very same dataset, have shown that voters are actually remarkably knowledgeable about these same legislators' votes on individual bills, much more so than one could guess based on their party alone. It is difficult to see how measurement error could account for Ansolabehere and Jones's (2010) results. And it does not seem desirable to average voters' knowledge away into an index of their perceptions that exaggerates their ignorance by attributing their knowledge to error.

## **Discussion: Studying Representation of Ideological Innocents**

Scholars often pursue one of two strategies when seeking to characterize public opinion and investigate how politicians represent it. The first strategy is exemplified in recent work like Gilens's (2012) *Affluence and Influence*, Lax and Phillips's (2012) "Democratic Deficit in the States," and Lenz's (2012) *Follow The Leader*. These works first collect data about the public's opinions on a number of issues and then ask research questions at the level of these issues – for example, how predictive are lower income Americans' support of particular proposals for whether it ultimately becomes law? How much public support is typically necessary until a proposal is likely to be enacted? Showing the consistency of these works' hypotheses across a number of issues facilitates their persuasive contributions.

An alternative, increasingly popular approach first summarizes citizens' preferences across a variety of issues to estimate their ideological orientations (or asks respondents to supply their own general ideology). It then describes public opinion and tests hypotheses about its representation in government using these ideological summaries.

These ideological summaries are often interpreted as summaries of citizens' policy preferences, but they primarily measure ideological consistency: the share of policies on which an individual has a liberal or conservative view. Citizens' scores say little about *how liberal* or *how conservative*

their views on these issues are. Moreover, for the vast majority of citizens who support an idiosyncratic mix of liberal and conservative policies, their middling scores imply nothing about their view on any issue, not allowing us to do better than guessing when predicting which side of an issue they are likely to be on.

This paper first illustrated analytically how attending to this distinction between ideological consistency across policy domains and policy views within domains can have dramatic implications for studying representation. For example, what appears to be a legislator providing ‘good representation’ on an ideological index can correspond to very poor representation in reality if legislators do not match their constituents on the actual issues that go into the index; likewise, as Table 2 showed, legislators providing very close representation of public opinion in reality can appear out of step on an ideological index if their constituents are not as ideologically consistent as they are. Ideological measures can thus lead to inaccurate answers to the significant questions they are increasingly used to investigate, such as “how well [a politician] represents” his or her constituency. The key issue with such measures is their fundamental assumption that do not have meaningful views distinct from their ideological orientations. A rich history of public opinion research has detailed that citizens should be conceptualized in precisely the opposite manner (e.g., Converse and Pierce, 1986; Kinder and Sears, 1985).

Several pieces of evidence supported this critique. I showed that citizens have persistent views on individual issues that do not correlate strongly with their views on other issues nor can be predicted well by their scores on a scale. I also showed that support for extreme policies within policy domains is *uncorrelated* with state-of-the-art ideological scales often interpreted as diagnostic of support for extreme policies. I next provided examples of how two widely accepted findings about representation based on ideological scales may need revisiting. First, although scholars increasingly accept that American politicians support more extreme policies than their reliably moderate constituents would prefer, the policies politicians support appear no more extreme in general. Moreover, the highly politically active and knowledgeable citizens that scholars routinely indict for pulling politics to the extremes appear if anything less likely than

their peers to support more extreme policies than legislators. Although they have not been devoted much attention in this paper, measures of respondent's own ideological self-placement present similar conceptual issues.<sup>18</sup>

There are some areas where measures of citizens' ideological consistency across policy domains are likely to be the most appropriate tools. Sometimes scholars are interested in comparing how likely different collective units in the public are to support liberal policies without regard to what these policies are. For example, Caughey, Dougal and Schickler (2013) use a one-dimensional scale to document changes in the public's propensity to support liberal policies over the course of the New Deal. Likewise, Gerber et al. (2010) use an ideological scale to examine whether individuals with different personality profiles are more likely to support liberal policies.<sup>19</sup> In these applications, 'how much likelier is this group of citizens to support a liberal policy than another group, without regard to which policy?' is the research question of interest, unlike in studies of representation.<sup>20</sup>

This paper's critique be reformulated in the language of multidimensionality, and a critic adopting this language may note that adding a second or third dimension to ideology models does not explain much additional variance in Americans' policy preferences. The lack of predictive power of an additional dimension is often taken as evidence that one or two dimensions is 'enough' (e.g., Jessee, 2009; Tausanovitch and Warshaw, 2013, 2014b). However, merely because adding *one* additional dimension does not capture a great deal of the heterogeneity of Americans' issue preferences does not mean that additional dimensions do not exist; it merely means that there is

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<sup>18</sup>Many citizens have several genuine policy views on both sides of the ideological spectrum, so it is difficult for their policy views to be accurately described with one location on this spectrum, regardless of whether it is the output of a scaling procedure or citizens themselves supply it. Those who identify as 'moderate' may still be best understood as 'cross-pressured' or 'ideologically mixed,' rather than as typically supporting moderate policies (Treier and Hillygus, 2009; Zaller, 2004). Consistent with this potential, Figure 13 in the Appendix shows that self-described moderates are similarly likely to support moderate policies as self-described extremists.

<sup>19</sup>In the special case when Democratic and Republican candidates for office are at the poles of ideological scales, an ideological scale might also be useful for summarizing individuals' policy preferences when estimating the influence of policy preferences on vote choice (e.g., Jessee, 2009). In this application, 'on what share of issues does a citizen agree with the Democratic candidate' is the quantity we seek to measure, potentially without regard to *which* issues these are. However, this interpretation quickly dissipates if there is any differentiation between multiple Democratic or Republican candidates' positions on different issues (Hill, 2015).

<sup>20</sup>Ahler and Broockman (2015) evaluates the possibility that citizens judge representation on the basis of ideological fit rather than congruence with their positions on individual issues and finds that they do not.

not any one particularly large secondary influence common across all Americans.<sup>21</sup> This logic can be seen by considering a placebo test: a factor analysis of Census-tract-level correlates of socio-economic status such as race, income, education rates, and marriage rates produce one large dimension because all these variables correlate moderately; but, this does not mean that race and marital status are ‘actually the same thing.’ Similarly, there may be hundreds of ‘dimensions’ to Americans’ policy preferences – some might favor universal healthcare because of a personal experience with an insurance provider, for example, and others may oppose gay marriage due to their religious convictions (Tesler, 2014). Simply because there is no single particular factor that competes in strength with the first dimension does not mean that such factors collectively matter little and that ‘views on gay marriage’ and ‘views on abortion’ are ‘actually the same thing.’<sup>22</sup> As Figure 3 makes clear, there are many issues on which Americans have persistent views yet that do not have strong relationships with other policy domains.

Confronting the multidimensionality of citizens’ preferences significantly complicates the task of studying representation empirically and theoretically (e.g., Shepsle and Cox, 2007). But the consequences of assuming otherwise appear far from benign. As Converse (1964) famously cautioned, “belief systems have never surrendered easily to empirical study or quantification.” An addendum is perhaps necessary: assume otherwise with caution.

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<sup>21</sup>Some existing literature finds a strong second ‘social issues’ dimension (e.g., Ansolabehere, Rodden and Snyder, 2006, 2008; Treier and Hillygus, 2009), although this appears to depend upon the data source used. The point this paper makes remains apt regardless of whether one or two dimensions are considered; the argument is that many more dimensions exist than one or two, even if no one of them is individually large.

<sup>22</sup>Although this paper is agnostic about why the first dimension exists, a simple explanation consistent with the evidence is that citizens largely arrive at their preferences on distinct issues for idiosyncratic reasons but adopt the position of their favored political party on some issues (e.g., Glaeser and Ward, 2006).



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# Supplementary Appendix

## A Survey Item Wordings

### A.1 Questions with Multiple Responses

The below questions were delivered to both the mass public and state legislators. The order of the questions was randomized, but the answer options within each question were always presented to respondents in the order shown below. Answer choice 1 is sometimes the most conservative choice and sometimes the most liberal choice in the below questions; however, for ease of interpretation the data in the paper reverse codes some questions such that 1 is always the most liberal choice and 7 is the most conservative choice.

- Which statement comes closest to describing your views on gun control?
  1. Sales of firearms of any kind should be completely banned in the United States.
  2. Weapons with high-capacity magazines of all kinds should be banned in addition to fully automatic weapons, and those wishing to buy other kinds of guns should always have to pass a background check. Ammunition should be heavily regulated, with certain types (e.g., armor-piercing bullets) banned outright. Additionally, it should be illegal for civilians to carry concealed guns in public.
  3. Weapons with high-capacity magazines of all kinds should be banned in addition to fully automatic weapons, and those wishing to buy other kinds of guns should always have to pass a background check. Ammunition should also be heavily regulated, with certain types (e.g., armor-piercing bullets) banned outright.
  4. Fully automatic guns like high-powered machine guns should be extremely difficult or illegal for civilians to purchase. Those wishing to buy other kinds of guns should always have to pass a background check, except when buying guns from friends and family.
  5. Fully automatic guns like high-powered machine guns should be extremely difficult for civilians to purchase. Other firearms should be free to be bought and sold at gun shows and in other private transactions without restrictions.
  6. All Americans should be allowed to buy any kind of gun they want, including automatic guns. No background checks or licenses should be required.
  7. Certain Americans who are not in law enforcement (e.g., teachers and school staff) should be REQUIRED to own a gun to protect public safety.
- Which statement comes closest to describing your views on the issue of health care?
  1. The United States should move to a system like Great Britain's, where the government employs doctors instead of private companies and all Americans are entitled to visit government doctors in government hospitals free of charge.

2. The government should expand Medicare to cover all Americans, directly providing insurance coverage for all Americans free of charge.
  3. The government should guarantee full private health insurance coverage to all Americans, regardless of their age or income.
  4. The government should help pay for all health care for vulnerable populations like the elderly, children, and those with low incomes. Other Americans should only receive assistance in paying for catastrophic illnesses.
  5. The government should help pay for some health coverage for vulnerable populations like the elderly and those with very low incomes, including prescription drugs. However, other individuals should not receive government assistance. The government should primarily pursue market reforms (e.g., tort reform, increasing tax deductions, allowing citizens to buy across state lines) to make insurance more affordable.
  6. The government should only help pay for emergency medical care among the elderly and those with very low incomes. Other individuals and any routine care should not be covered. Instead, the government should pursue market reforms to make insurance more affordable.
  7. The government should spend no money on health care for individuals. Those who cannot afford health care should turn to their families and private charity for help.
- Which statement comes closest to describing your views on immigration?
    1. The United States should have open borders and allow further immigration on an unlimited basis.
    2. Legal immigration to the United States should greatly increase among all immigrant groups, regardless of their skills. Immigrants already in the United States should be put on the path to citizenship.
    3. Immigration of highly skilled individuals should greatly increase. Immigration by those without such skills should continue at its current pace, although this immigration should be legalized.
    4. Immigration of highly skilled individuals should greatly increase, and immigration among those without such skills should be limited in time and/or magnitude, e.g., through a guest worker program.
    5. The United States should admit more highly skilled immigrants and secure the border with increased physical barriers to stem the flow of other immigrants.
    6. Only a small number of highly skilled immigrants should be allowed into the United States until the border is fully secured, and all illegal immigrants currently in the US should be deported.
    7. Further immigration to the United States should be banned until the border is fully secured, and all illegal immigrants currently in the US should be deported immediately.
  - Which statement comes closest to describing your views on taxes?

1. Establish a maximum annual income, with all income over \$1,000,000 per year taxed at a rate of 100%. Decrease federal taxes on the poor and provide more services benefitting the middle class and poor.
  2. Increase federal income taxes on those making over \$250,000 per year to pre-1990s levels (over 5% above current rates). Use the savings to significantly lower taxes and provide more services to those making less and to invest in infrastructure projects.
  3. Increase federal income taxes on those making over \$250,000 per year to 1990s rates ( 5% above current rates). Use the savings to lower taxes and provide more services to those making less while also paying down the national debt.
  4. Maintain current levels of federal spending and federal income taxes on the rich, middle class, and poor.
  5. Decrease all individuals' income tax rates, especially high earners who pay the most in taxes now, accomplished by decreasing government services.
  6. Move to a completely flat income tax system where all individuals pay the same percentage of their income in taxes, accomplished by decreasing government services.
  7. Move to a flat consumption tax where all individuals pay the same percentage of their purchases in taxes, banning the income tax, even if this means the poor pay more in taxes than the rich. Significantly decrease government services in the process.
- Which statement comes closest to describing your views on abortion?
    1. Abortions should always be legal, and the government should pay for all abortions.
    2. Abortions should always be legal, and the government should help women pay for abortions when they cannot afford them.
    3. Abortions should be legal in the first two trimesters at least, and the government should require private insurers to cover abortions.
    4. Abortions should be legal in the first two trimesters, though the government should not play any role in financially supporting abortions.
    5. Abortion should only be legal if the life of the mother is in danger or in cases of rape and incest.
    6. Abortion should only be legal if the life of the mother is in danger.
    7. Abortion should always be illegal.
  - Which statement comes closest to describing your views on pollution and the environment?
    1. The government should institute a carbon tax or cap and trade system that would significantly decrease US carbon emissions over the next several decades.
    2. The government should institute a carbon tax or cap and trade system that would keep US carbon emissions at or just below their current levels.
    3. The government should discourage the use of energy sources that contribute most heavily to global warming (e.g., coal) and subsidize the use and development of solar, wind, and nuclear energy. However, there should be no general cap on or market for carbon emissions overall.

4. The government should enact regulations encouraging energy efficiency and subsidize the use and development of solar, wind, and nuclear energy.
  5. The government should encourage energy efficiency but not subsidize the development of 'green' energy.
  6. The government should allow for further oil drilling offshore and/or on federal lands, prioritizing American energy independence and low prices over environmental concerns.
  7. The government should both allow AND subsidize increased domestic production of fossil fuels (i.e., coal, oil, and gas).
- Which statement comes closest to describing your views on Medicare, the government's program for covering the elderly's health care costs?
    1. Replace Medicare with government-run hospitals and clinics for the elderly that directly employ doctors, nurses, and surgeons.
    2. Increase spending on Medicare, allowing the program to provide even more benefits than it does today, although retain its current structure.
    3. Maintain the current annual growth in Medicare spending and all other aspects of the program in their current form.
    4. Reduce the rate of growth in Medicare funding over time, though continue to leave the program as structured.
    5. Reduce the rate of growth in Medicare funding over time and transition towards a voucher system that helps seniors to buy private insurance instead of directly covering health costs.
    6. Significantly reduce funding for Medicare so that it helps seniors only with catastrophic health costs like expensive surgeries, leaving other costs to be paid for by their savings, their families, and private charities.
    7. The government should not assist the elderly in paying for any health expenses.
  - Which statement comes closest to describing your views on rights for gays and lesbians?
    1. Same-sex couples should be allowed to marry and adopt children; the government should prosecute companies for firing individuals because they are lesbian or gay; the government should require corporations to offer the same benefits to partners of gay and lesbian employees as they do to straight employees' partners; and, government should require that all schools teach children about gay and lesbian relationships.
    2. Same-sex couples should be allowed to marry and adopt children; the government should prosecute companies for firing individuals because they are lesbian or gay; and, the government should require corporations to offer the same benefits to partners of gay and lesbian employees as they do to straight employees' partners.
    3. Same-sex couples should be allowed to marry and adopt children; and, the government should prosecute companies for firing individuals because they are lesbian or gay.

4. Same-sex couples should be allowed to marry each other and adopt children.
  5. Same-sex marriage should not be legal, although the government should not regulate homosexual conduct or ban gays and lesbians from adopting children.
  6. Gay sex should be permitted, but same-sex marriage should be illegal and known gays and lesbians should not be allowed to adopt children.
  7. Gay sex should be illegal and punishable by imprisonment, similar to the penalties for committing incest and bestiality.
- Which statement comes closest to describing your views on affirmative action in higher education?
    1. All public and private universities should be required by law to admit applicant pools that fully represent their state's broader racial makeup, with racial minorities composing the same share of students as they do in the overall population.
    2. Public universities only should be required to admit applicant pools that fully represent their state's broader racial makeup, with racial minorities composing the same share of students as they do in the overall population.
    3. Public universities should be sure admit a certain number of underrepresented minorities each year so as to counteract any biases in the admissions process.
    4. The government should not dictate whether public universities will consider race in admissions decisions, although discrimination against racial minorities should remain illegal and carefully monitored.
    5. Public universities should not be allowed to consider race in admissions one way or the other. Race should be completely irrelevant to admissions decisions.
    6. Both public and private universities should not be allowed to use race in admissions decisions one way or the other. In order to receive federal funds universities must not consider race at all.
    7. Non-discrimination laws should be repealed; if universities prefer to have particular racial makeups, that is their right.
  - Which statement comes closest to describing your views on unions?
    1. The government should periodically administer union elections in all workplaces where a union has not been formed.
    2. The government should automatically recognize unions in instances when over 50% of a workplace's employees indicate interest in forming a union.
    3. Workers should be allowed to attempt to form unions that charge mandatory dues, by secret ballot. If a company's workers form a union, new employees may be compelled to join.
    4. Workers should be allowed to attempt to form unions with voluntary dues and membership. Unions should only be formed through secret ballots. Corporations should not be allowed to fire workers for starting them.

5. Workers should be allowed to attempt to form unions with voluntary dues and membership. Unions should only be formed through secret ballots, and unionized workplaces must hold recertification elections regularly. Corporations should not be allowed to fire workers for starting them.
  6. Workers should be allowed to attempt to form unions with voluntary dues, but corporations should have the right to fire workers for attempting to start such unions and/or the power of the National Labor Relations Board to issue directives to unionized companies should be significantly curtailed.
  7. Workers should not be allowed to form unions, just as corporations are not allowed to form cartels.
- Which statement comes closest to describing your views on birth control?
    1. The government should help pay for birth control pills for all women AND other forms of contraceptives for women who cannot afford them.
    2. The sale of birth control pills should be allowed. Pharmacists should be required to sell them and the government should cover their cost.
    3. The sale of birth control pills should be allowed. Pharmacists should be required to sell them and insurance companies should be forced to cover their cost.
    4. The sale of birth control pills should be allowed and pharmacists should not be allowed to refuse selling birth control pills. However, employers and insurance companies may decline to cover birth control.
    5. The sale of birth control pills should be allowed to people of all ages. However, insurance companies, pharmacists, and employers should be allowed to refuse selling or covering birth control.
    6. The sale of birth control pills should be allowed, but only to women over 18 years of age. Insurance companies, pharmacists, and employers should be allowed to refuse selling or covering birth control.
    7. Birth control pills should be banned.
  - Which statement comes closest to describing your views on public funding for private school education?
    1. All children should attend public schools. Private schools perpetuate economic inequality and should be banned.
    2. Private schools should be legal but the government should play no role in funding private education – for example, private schools should not be exempt from taxes.
    3. Private schools should be legal and retain tax exempt status, but government should play no active role in funding private education.
    4. The government should create private school voucher programs in school districts where regular public schools are failing so all families in such areas can send their children to a private school if they wish.

5. The government should create a voucher program in all school districts, paying private school tuition for families so that they always have the choice to send their children to private schools.
6. The education system should be fully privatized, although the government should still provide support for private school tuition.
7. The education system should be fully privatized, with government playing no role in paying for families' education expenses. However, private school tuition should be tax deductible.

## A.2 Binary Questions for Ideological Scale

These items were delivered to both the mass public and state legislators.

Do you agree or disagree with the following statements? (Please pick the option that most accurately represents your views.) [*Question order randomized.*]

- The federal government should pay for the elderly's medical care.
- The government should provide parents with vouchers to send their children to any school they choose, be it private, public, or religious.
- Allow doctors to prescribe marijuana to patients.
- Increase taxes for those making over \$250,000 per year.
- Overturn *Roe v. Wade*.
- Allow workers to invest a portion of their payroll tax in private accounts that they can manage themselves.
- Same-sex couples should be allowed to marry.
- Implement a universal healthcare program to guarantee coverage to all Americans, regardless of income.
- Limit the amount of punitive damages that can be awarded in medical malpractice lawsuits.
- There should be strong restrictions on the purchase and possession of guns.
- Illegal immigrants should not be allowed to enroll in government food stamp programs.
- Include sexual orientation in federal anti-discrimination laws.
- Prohibit the use of affirmative action by state colleges and universities.
- The US should contribute more funding and troops to UN peacekeeping missions.
- The government should not provide any funding to the arts.
- I support the death penalty in my state.



- Repeal taxes on interest, dividends, and capital gains.
- Prohibit the EPA from regulating greenhouse gas emissions.
- Health insurance plans should be required to fully cover the cost of birth control.
- The federal government should subsidize student loans for low income students.

### **A.3 Political Knowledge Battery**

These items were delivered to the mass public only.

*[Question order randomized.]*

1. Do you happen to remember which party controls the United States House of Representatives – that is, which party has a majority of members in the United States House of Representatives? *[First two responses rotated.]*
  - Republicans
  - Democrats
  - Neither
  - I'm not sure
2. Do you happen to remember which party controls the United States Senate – that is, which party has a majority of members in the United States Senate? *[First two responses rotated.]*
  - Democratic Party
  - Republican Party
  - Neither
  - I'm not sure
3. Do you happen to remember what job John Boehner holds? *[First four responses rotated.]*
  - Speaker of the US House
  - Governor of Texas
  - Chief Justice of the US Supreme Court
  - Prime Minister of Canada
  - Vice President of the United States
  - I'm not sure
4. Do you happen to remember what job John Roberts holds? *[First five responses rotated.]*
  - Speaker of the US House
  - Governor of Texas
  - Chief Justice of the US Supreme Court

- Prime Minister of Canada
  - Vice President of the United States
  - I'm not sure
5. Do you happen to remember what industry the Dodd-Frank Act regulates? *[First four responses rotated.]*
- Finance
  - Healthcare
  - Insurance
  - Oil and Natural gas
  - I'm not sure
6. Do you happen to remember what political party President Franklin Roosevelt was a member of? *[First two responses rotated.]*
- Democratic Party
  - Republican Party
  - Whig Party
  - Some other party
  - I'm not sure
7. For how many years is a member of the United States Senate elected – that is, how many years are there in one full term of office for a US Senator?
- Two
  - Four
  - Six
  - Eight
8. Do you happen to remember how much of a majority is required for the US House and Senate to override a Presidential veto?
- A majority, or one half (1/2)
  - Two thirds (2/3rds)
  - Three fifths (3/5ths)
  - I'm not sure

## **B Details of Mass Survey Procedures**

### **B.1 Main Survey**

The data for most of the paper's results come from an April 2013 survey administered by Survey Sampling International.

### B.1.1 Representativeness and Weighting

Participants were recruited via Survey Sampling International, a reputable online survey firm. The SSI sample looks very similar to the ANES, GSS, and other surveys on key demographic and political benchmarks. Table 4 shows a number of demographic benchmarks in the ANES and the unweighted SSI Survey. Table 5 compares the ANES and the SSI survey on a number of political benchmarks.

The results presented in the text are weighted using the `anesrake` package in R (Pasek, 2013). Gender, age, and race are weighted to the most recent US Census. Personal ideology and educational attainment are weighted to the most recent General Social Survey. Party ID is weighted to the 2012 ANES. Unweighted results are available on request and are very similar to the weighted results.

### B.1.2 Screener Question

In order to ensure that individuals in the survey read the questions and selected support for more extreme policies genuinely, individuals were shown a screener question at the beginning of the survey to ensure they were paying attention. Individuals who did not fill out the below question correctly were removed from the survey immediately.

*What kind of things do you typically look for in friends? To demonstrate that you've read this much, just go ahead and select both kindness and good looks among the alternatives below, no matter what your actual answer to the question is. Yes, ignore the question below and select both of those options. What kind of things do you most look for in a friend?*

- *kindness*
- *compassion*
- *humor*
- *good looks*
- *money*
- *happiness*
- *friendliness*
- *none of these*

Suggesting that this question was successful, over 97% of the remaining respondents correctly answered the question below, which was inserted later in the survey.

*We are interested in information about you. Specifically, we are interested in whether you actually take the time to read the directions; if not, some results may not tell us very much about decision making in the real world. To show that you have read the instructions, please ignore the question below about how you are feeling and instead check only the "none of the above" option as your answer. Thank you very much. How are you feeling?*

- *Interested*

Table 4: Demographic Sample Statistics in 2012 ANES and SSI Survey

Study	2012 ANES (Weighted)	SSI Survey (Unweighted)
Gender		
Male	48%	46%
Female	52%	54%
Age Group		
17-20	4%	5%
21-24	6%	7%
25-29	10%	10%
30-34	8%	11%
35-39	7%	8%
40-44	9%	6%
45-49	7%	10%
50-54	10%	10%
55-59	10%	10%
60-64	8%	11%
65-69	7%	7%
70-74	5%	3%
75+	6%	2%
Race		
White Non-Hispanic	71%	73%
Black Non-Hispanic	12%	13%
Hispanic	11%	11%
Other	6%	4%
Education		
Less than high school	10%	2%
High school or equivalent	30%	20%
Some college	30%	41%
Bachelor's degree	19%	24%
Graduate degree	11%	13%
Annual Household Income		
Below \$30,000	30%	28%
\$30,000-\$40,000	11%	15%
\$40,000-\$50,000	8%	12%
\$50,000-\$60,000	9%	11%
\$60,000-\$70,000	8%	7%
\$70,000-\$80,000	7%	6%
\$80,000-\$90,000	5%	4%
\$90,000-\$100,000	4%	4%
Over \$100,000	19%	13%

- *Distressed*
- *Excited*
- *Upset*
- *Strong*
- *Guilty*

Table 5: Political Sample Statistics in 2012 ANES and SSI Survey

Study	2012 ANES (Weighted)	SSI Survey (Unweighted)
Self-Reported Ideology		
Extremely liberal	3%	5%
Liberal	11%	16%
Slightly liberal	11%	12%
Moderate	34%	35%
Slightly conservative	16%	12%
Conservative	19%	15%
Extremely conservative	5%	4%
Party ID		
Strong Democrat	20%	24%
Not very strong Democrat	15%	20%
Lean Democrat	12%	9%
Independent	14%	15%
Lean Republican	12%	7%
Not very strong Republican	12%	12%
Strong Republican	15%	13%
Political Knowledge		
Knows Senators Elected To 6-Year Terms	34%	46%
Knows Democrats Control US Senate	51%	44%
Knows Republicans Control US House	58%	50%

- *Scared*
- *Hostile*
- *Enthusiastic*
- *Proud*
- *Irritable*
- *Alert*
- *Ashamed*
- *Inspired*
- *Nervous*
- *Determined*
- *Attentive*
- *Jittery*
- *Active*
- *Afraid*
- *None of the above*

## B.2 Panel Survey

The data on test-retest stability come from a panel survey largely identical to the first survey. The first wave administered in early January 2014, with the re-test delivered in late February 2014. The main change was the replacement of the question about affirmative action with a question about contraception, on which Senator's positions were more clear.

### B.2.1 Sample Demographics

Table 6 compares the demographics of the SSI sample used in the panel survey to the probability sample of U.S. citizens from the 2012 American National Election Study [ANES] as well as to Census data.

Table 6: Raw and Unweighted SSI Panel Sample Compared to ANES and Census Data

	SSI Sample (January 2013) quota	Weighted SSI Sample (January 2013) quota w/ survey weights	ANES (2012) probability	Weighted ANES (2012) weighted prob.	U.S. Census (2010) population
<b>Age</b>					
18-24	5.2%	7.3%	0.6%	1.4%	9.2%
25-34	21.0%	19.6%	3.9%	9.4%	17.5%
35-49	26.6%	26.9%	16.6%	27.3%	27.2%
50-64	30.7%	26.6%	49.1%	40.3%	17.9%
65+	16.5%	19.6%	30.0%	21.6%	17.2%
<b>Gender</b>					
Male	47.6%	55.6%	61.2%	57.7%	49.1%
Female	52.4%	44.4%	38.8%	42.4%	50.9%
<b>Race/Ethnicity</b>					
Non-Hispanic White/Caucasian	41.6%	59.7%	83.3%	83.0%	63.7%
Black/African-American	30.5%	13.9%	4.9%	4.9%	12.2%
Asian/PI	11.7%	4.9%	1.0%	2.0%	4.8%
Hispanic/Latino	13.2%	17.3%	4.6%	4.0%	16.4%
Native American	1.8%	0.3%	0.9%	0.7%	1.1%
Other	1.4%	3.9%	5.3%	5.4%	6.2%
<b>Education</b>					
Less than HS degree	1.2%	3.8%	0.5%	2.6%	8.9%
High school/GED	18.6%	37.2%	7.8%	9.9%	31.0%
Some college/2-year degree	39.8%	25.2%	33.2%	33.7%	28.0%
4-year college degree	25.1%	22.7%	31.3%	29.6%	18.0%
Graduate/professional degree	15.3%	11.0%	27.2%	24.3%	9.3%
<b>Party Identification</b>					
Democratic (inc. leaners)	55.3%	47.3%	46.9%	49.0%	
Republican (inc. leaners)	27.4%	39.9%	41.9%	39.0%	
No party preference/Other	17.3%	12.8%	11.3%	11.9%	
<b>Ideology</b>					
Liberal (inc. leaners)	34.4%	25.2%	39.5%	38.6%	
Moderate	38.8%	40.3%	15.5%	18.9%	
Conservative (inc. leaners)	26.8%	34.5%	45.0%	42.3%	

## C Measurement Error and Test-Retest Correlations Among Higher and Lower Knowledge Respondents

It may be of interest whether test-retest correlations and inter-issue correlations are higher or lower for subjects with different levels of political knowledge. Table 7 reports the average correlations from 3, discussed in the paper, and those same correlations when computed and subjects above or below the median on a political knowledge scale. Figures 7 and 8 replicate Figure 3 in the paper for subjects above and below the median in political knowledge as well.

Table 7: Polychoric Correlations Within and Across Issues, by Knowledge			
	Entire Sample (In Paper)	Above Median Knowledge	Below Median Knowledge
Mean Correlation Within Issues, Over Time	0.56	0.63	0.48
Mean Correlation Across Issues, Over Time	0.13	0.19	0.06

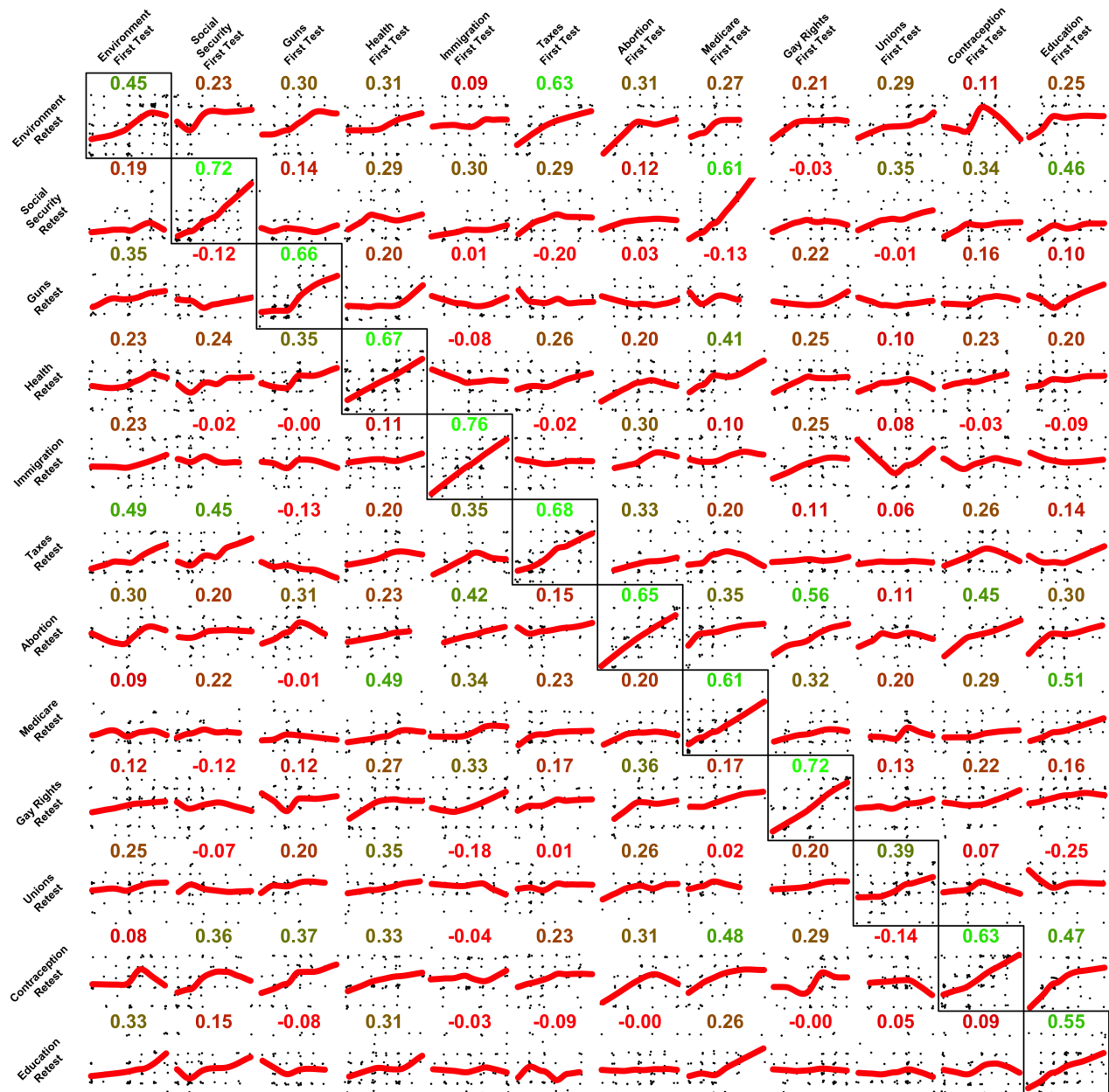
High-knowledge subjects clearly have higher test-retest correlations both within and across issues. Importantly, high-knowledge subjects still have significantly higher correlations within issues than across issues.

Theoretically, it is unclear what to make of the higher correlations within and across issues for high-knowledge subjects (a pattern that has been reported previously). One source of the higher correlations across issues is likely to be the greater ideological consistency of engaged voters (e.g., Kinder and Sears, 1985). On the other hand, their higher test-retest correlations within issues is likely due to lower levels of measurement error in their responses. This is not certain, however; it is also possible that more engaged citizens also have fewer conflicting considerations in particular issue areas (Zaller, 1992) or that they are likelier to have thought through issues thoroughly enough to decide where they stand Alvarez and Brehm (2002). These latter two interpretations are significant because they change how we should interpret the pattern that many citizens offer extreme responses to survey questions. To see this, imagine the limiting case of complete survey instability when it comes to a truly horrific policy that originally motivated the study of extremism in public opinion (Adorno et al., 1950). Imagine that everyone in Weimar Germany had a 10% probability of, when asked “should the government kill all the Jews?” answering in the affirmative. Does the fact that their responses are unstable mean that we should dismiss them? Or, rather, would the fact that the entire population was willing to endorse this policy sometimes make us more fearful of the potential for demagogues to pursue this policy than if it were only confined to a firm 10% against a firm 90%? These conceptual issues point to fundamental unresolved issues with interpreting public opinion data (Bartels, 2003), not only statistical concerns.

## D Measurement Error and Application 1

There is likely to be more measurement error in citizens’ responses to survey questions than in elites’ choices in roll call votes. As a result, citizens’ extremism is likely to be overstated in the

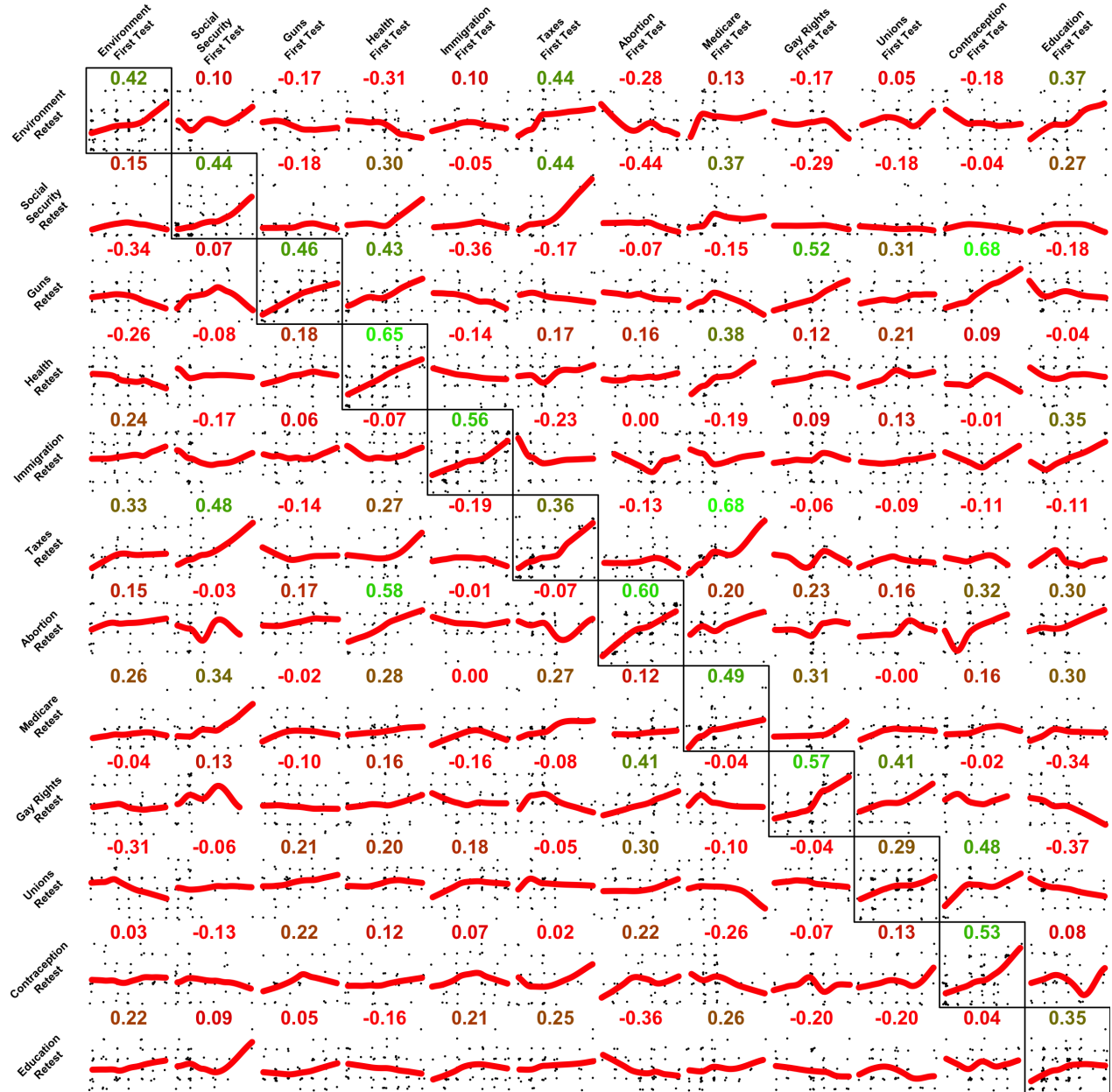
Figure 7: Wave 1 and Wave 2 Responses: High Knowledge Respondents



7-point scales as measurement error buffets some citizens towards the extreme options. Principled measurement error models that rely on repeated measures alone require at least three survey waves, and models that allow for correlated errors usually require five (Palmquist and Green, 1992). Only two waves are available here and so it is not possible to apply a standard measurement error model. Nevertheless, here I use two simple strategies to examine whether measurement error would reverse the findings. (To be clear, future work could significantly improve upon these preliminary strategies if more data were available.)



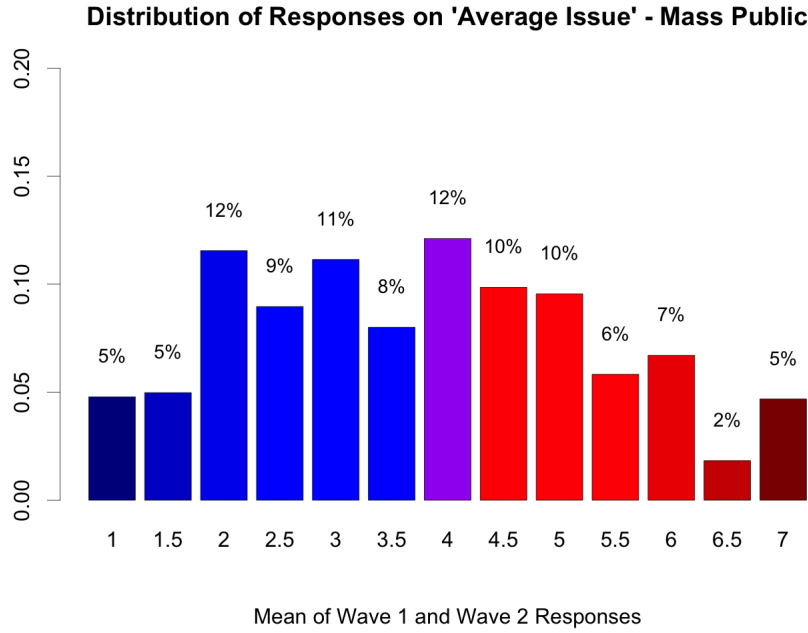
Figure 8: Wave 1 and Wave 2 Responses: Low Knowledge Respondents



The results of the first strategy is shown in Figure 9. First, I averaged citizens' responses to each item on Wave 1 and Wave 2 of the survey:  $x_{ij} = \frac{x_{ij1} + x_{ij2}}{2}$  is computed. Figure 9 shows the histogram of those citizen-issue observations, the  $x_{ij}$ s. About 51% of the density is between 3 and 5, while 49% is between 1 and 2.5 or 5.5 and 7. This actually suggests greater extremism among citizens than reported in Figure 2 in the paper.

A second strategy considers the 'worst case' upper bound of the most citizen moderation one could possibly conclude based on any measurement error model applied to the data. To do so, I

Figure 9: Citizen-Issue Means of Wave 1 and Wave 2 Responses



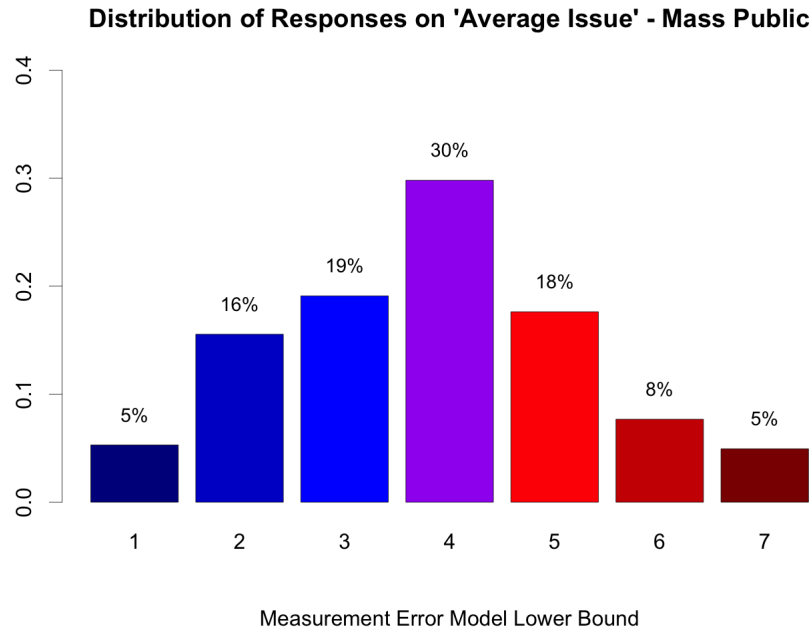
*Notes: Citizens' responses to each item on Wave 1 and Wave 2 of the survey were averaged. Above is the histogram of those citizen-issue observations. (This is identical to computing the marginals for each issue first and then averaging the marginals, the metaphor in the main text of the paper.)*

take the most moderate of each citizens' response on each issue at Wave 1 and Wave 2 and call this their response:  $x_{ij} = \min(x_{ij1} - 4, x_{ij2} - 4) + 4$  is computed. Figure 10 plots the histogram of these  $x_{ij}$ s. Unsurprisingly, this very conservative approach yields more apparent moderation: 34% of citizen-issue responses were more extreme than the parties twice. 36% of elites' responses were in this range. This 2 percentage point difference is well within the boundaries of sampling error; and, it remains clearly higher than the 10% estimated by (Bafumi and Herron, 2010) and similar ideological approaches.

## E Measurement Error and Application 2

Here I report the results of replicating the finding that political sophisticates are less likely to support 'extreme policies,' defined as policies at 1, 2, 6, and 7 on the 7-item scales, in the second sample and with the approaches to reducing measurement error from Section D above. Among those who completed the first wave of the panel, the association is negative, just as in the paper's evaluation of the April 2013 one-wave survey ( $t = -5.2, p < 0.001$ ). Among those who completed the second wave as well, the association is also negative using their second wave responses ( $t = -3.4, p < 0.001$ ; there are fewer observations but the point estimate is the same). Averaging these respondents' wave 1 and wave 2 responses, the result remains significant ( $t = -2.5, p = 0.01$ ). Using the 'lower bound' measurement error model, taking the least extreme of the responses used in either wave, the result remains significant as well ( $t = -2.3, p = 0.02$ ).

Figure 10: Most Moderate of Wave 1 and Wave 2 Responses



*Notes: The most moderate of each citizens' responses to each item across the two waves is found and these responses are plotted above.*

As in the previous section, additional panel waves would allow the application of a formal measurement error model that may change these findings. However, it is unlikely to reverse them without relying on non-traditional assumptions.

## F Coding of Senators

Figures 11 and 12 show the codings of Democratic and Republican Senators.

## G Other Figures

Two other supplementary figures were referenced in the main text.

Figure 13 shows the relationship between ideological self-placement and support for 'extreme policies.' The key point is that self-described ideological moderates are only slightly more likely to support moderate policies.

Figure 14 shows that the distribution of legislators' and citizens' IRT-estimated ideal points in these samples can replicate the conclusion in the literature that citizens are typically moderate while legislators tend to be more extreme.

Figure 11: Coding of Democratic Senators

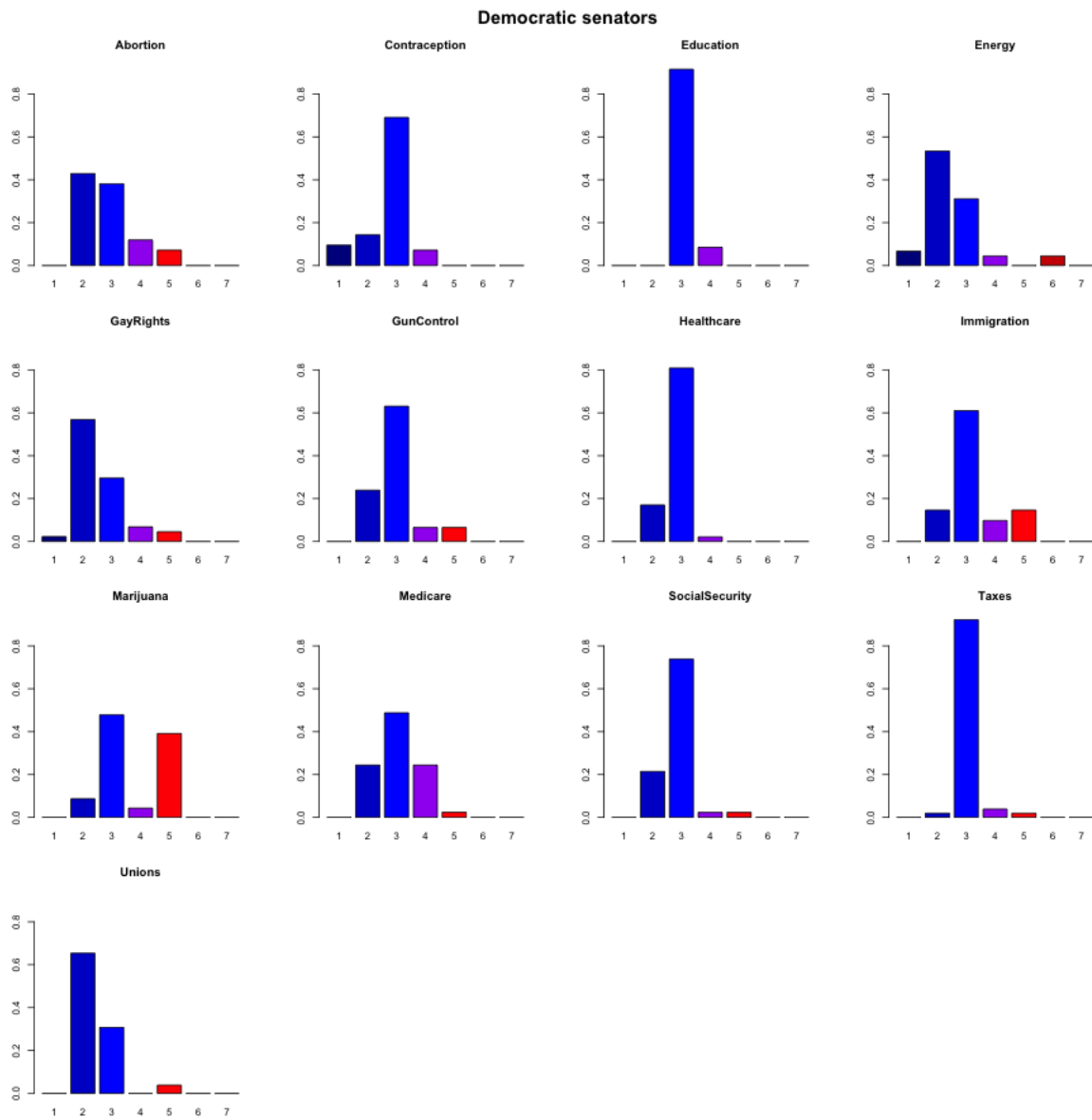


Figure 12: Coding of Republican Senators

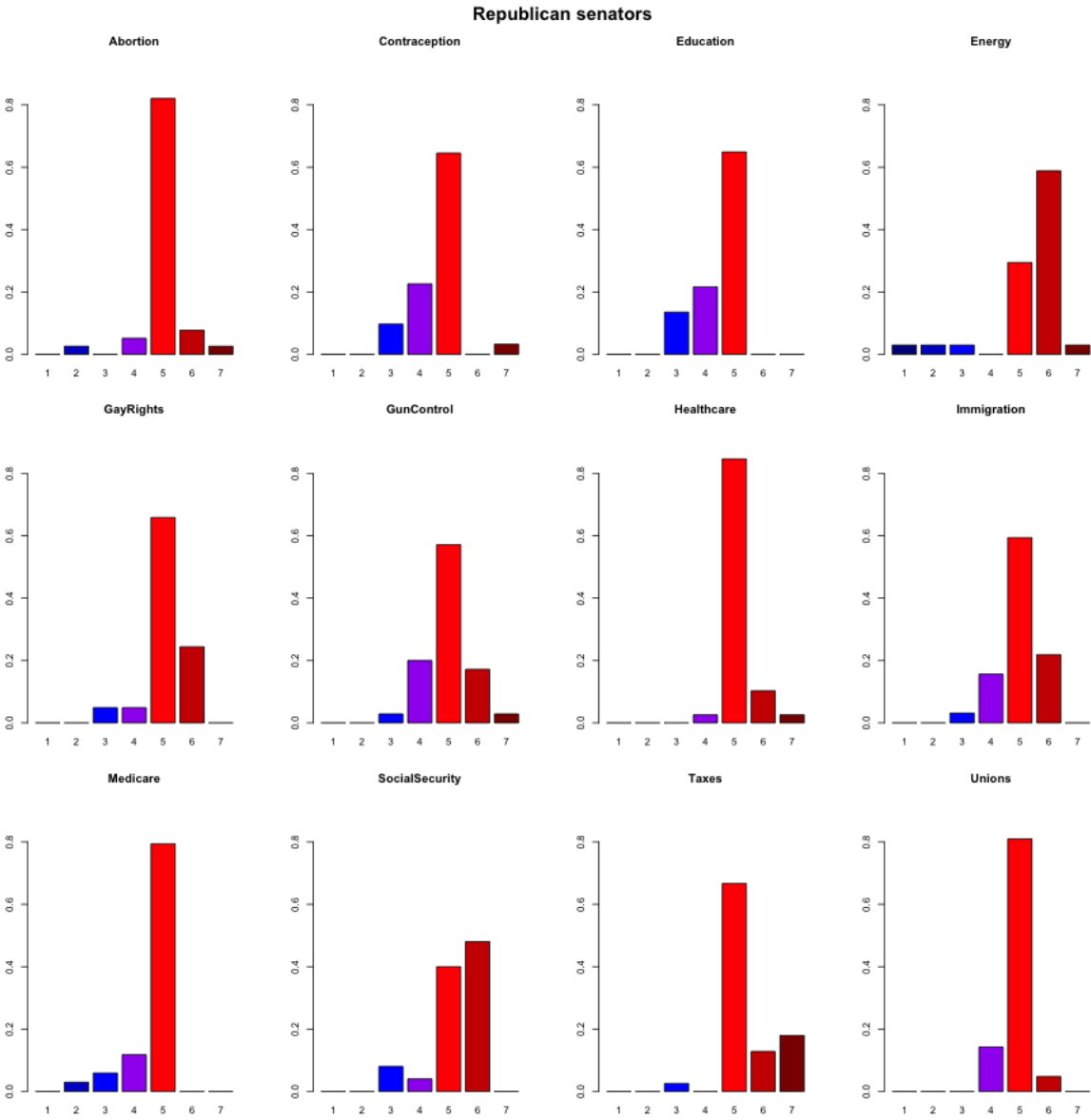
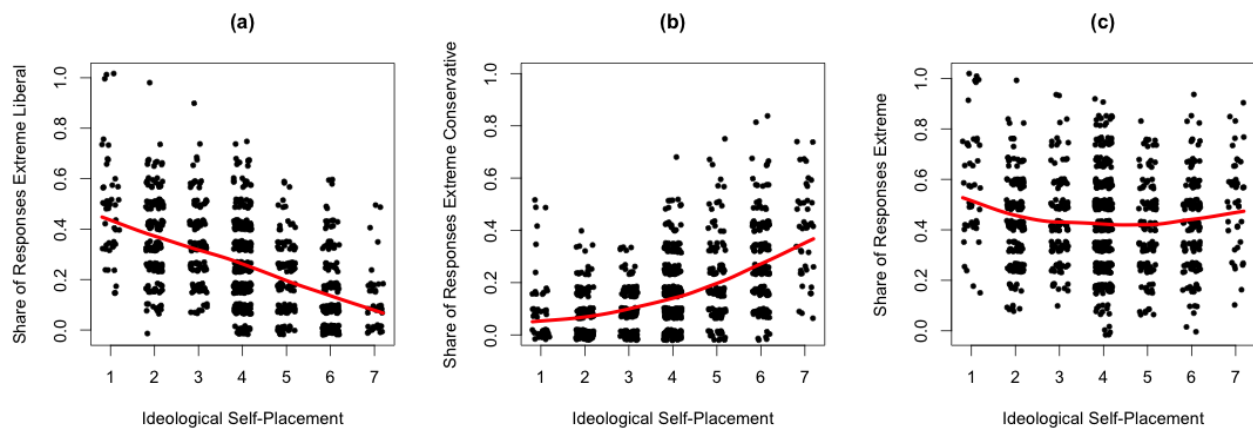
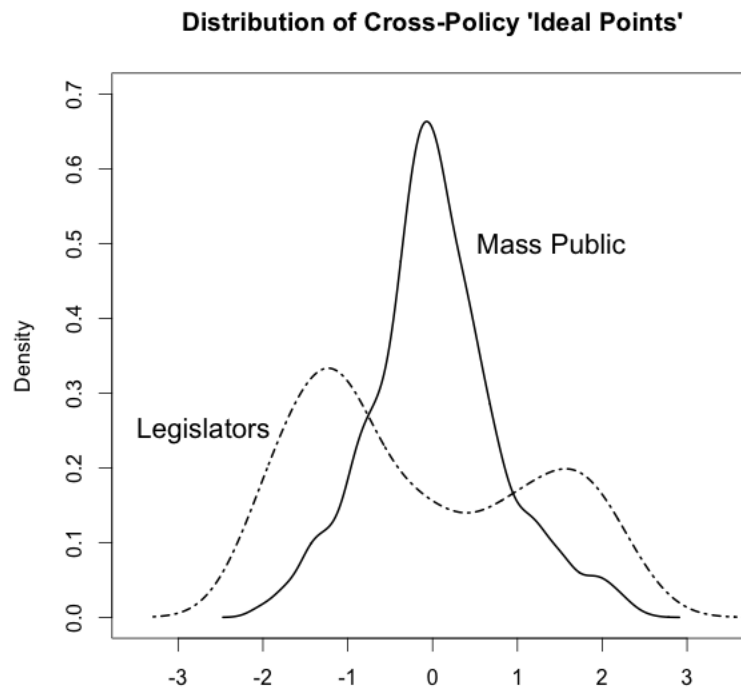


Figure 13: Ideological Self-Placement Barely Predicts Support for Extreme Policies



*Notes: Raw data shown with jitter. Self-described ‘ideological moderates’ are barely more likely to support extreme policies than self-described ‘ideological extremists.’*

Figure 14: Elite and Mass Opinion on IRT Scales



*Notes: Legislators and the mass public's responses to the battery of binary issue questions were jointly scaled using a standard IRT procedure (Martin and Quinn, 2002). The resulting estimates replicate the pattern of results familiar in other datasets: legislators are nearly all more extreme than the largely moderate public. Because prevailing methods do yield similar results in these samples, it is unlikely that the contrary findings reached with other methods as described in the paper are due to idiosyncrasies of the samples.*