

Public Opinion on Policy Solutions: Equivalence Frames, Policy Scope, and Party Cues

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Introduction

The apparent irrationality of public attitudes has long been a central theme in studies of American public opinion. Do citizens hold “real” and meaningful attitudes towards public problems and policy solutions? Or are their attitudes susceptible to dramatic change depending on even subtle differences in how problems are framed and presented?

In this paper, we evaluate several hypothesized sources of irrationality in public opinion on problems facing the nation. The first holds that the public judges problems as being more serious when facts concerning their prevalence are framed in negative rather than in positive terms. Negatively framed portrayals focus on incidences of a bad outcome (e.g., percentage of children living in lead-contaminated housing), while positively framed portrayals focus the incidence of good outcomes (e.g., percentage of children living in housing that is uncontaminated by lead). A related conjecture is that the public will give more support to ameliorative policies described as reducing the incidence of negative outcomes than to policies described as increasing the incidence of positive outcomes. Both of these ideas concern what has come to be called equivalency framing (following Druckman 2001a), as the frames differ in their valence but depict the exact same facts or policy changes. Although social scientists have generated a large literature on equivalency framing, Druckman’s 2001 (2001a, 239) portrayal of political science’s contribution as “embryonic” remains largely true today. As discussed below, almost no studies have considered framing of this type when it comes to social problems or ameliorative policy measures.

The second idea holds that the public’s view of problem-solving policies tends to be insensitive to the scope or ambition of the policy. Put starkly, the conjecture is that the public is equally supportive of any policy designed to combat the problem, whether a modest bandaid or an ambitious effort. This idea comes from the economics literature on contingent valuation or “willingness to pay” for public goods, which has repeatedly uncovered evidence of scope insensitivity. The amount people report being willing to pay for, say, limited environmental cleanup efforts is about the same as they are willing to pay for expansive ones. A further possibility is that the public is more scope sensitive when a policy is framed as reducing bad outcomes than it is when it is framed as increasing good outcomes (Quattrone and Tversky 1988). With rare exceptions (e.g., Donahue and Miller 2006), political scientists have not addressed the question of scope (in)sensitivity in public opinion, or the related question of how scope interacts with positive and negative framing.

The final issue concerns the impact of partisan cues on the public’s views of problem-solving policies. Do citizens extend or withhold support for policy initiatives designed to solve serious problems depending on the partisan sponsor of the initiative? Does partisan cue-taking diminish when there is partisan agreement on the severity of a problem, or does it depend on how serious the problem is judged to be? Although a vibrant and ever-growing political science literature has studied partisan cue-taking, most of the work has studied cue-taking on “position” (or “proximity”) issues such as welfare reform, where there is a partisan divide rooted in ideology, values, and/or interests. Our work extends this question to the problem-solving domain of valence politics, recognizing that here too partisan divisions can arise.

A case can be made that all three of these phenomena—equivalency framing effects, scope insensitivity, and partisan-cue-taking—introduce irrational (though not inexplicable) elements into public opinion on problem-solving policy initiatives, though the case is strongest for equivalency framing and weakest for partisan cue-taking, as discussed below. This is important, because if these phenomena are prevalent, they may also have macro-political implications. For instance, if public concern about problems and support for policy solutions can more readily be drummed up by focusing on negative outcomes (of which there are too many) rather than on positive outcomes (of which there are too few), this would provide an incentive for politicians and interest groups to accentuate the negative over the positive. Likewise, if public support for problem-solving initiatives is insensitive to a policy’s scope, politicians may be able to pursue bandaids instead of ambitious solutions without fear of losing electoral support. Finally, if partisans condition their support for problem-solving initiatives on the party (or parties) sponsoring the legislation, this too can shape electoral incentives and the prospects for making legislative gains.

In what follows, we present preliminary evidence from a pilot study of public opinion and irrationality. First, we assess effects on how citizens respond to different social problems. We follow this by assessing how citizens evaluate public policy solutions. Our experimental set-up allows us to examine three types of irrationalities across a variety of issues. While the evidence we present is preliminary, in that our study is necessarily just a first step in a much larger research agenda, our results suggest a need to better understand both the direct and interactive effects of framing effects, scope insensitivity, and partisan cue-taking.

Background

Equivalency Framing

Just as a partially filled glass of water can be described as either half full or half empty, equivalency frames portray one reality in two or more alternative ways. According to the invariance principle of rationality, describing (or “framing”) an option in one or another logically equivalent way should not affect people’s choices.¹ Yet, decades of research has repeatedly uncovered such framing effects. A recent example comes from Pederson (2016), whose experiments portrayed the tax consequences of a new education initiative as either \$250 per month or \$3,000 per year. Though the tax consequences were the same under either frame, Pederson’s survey respondents expressed more support for an initiative costing \$250/month than for one costing \$3,000/year (see also McDaniel 1988).

Unlike the Pederson study, most of the research on equivalency framing focuses on how any one piece of information can be portrayed to accentuate the positive or to accentuate the negative (called “valence framing” by Levin, Schneider, and Gaeth 1998). There are four strands of research in this tradition, two of which are relevant to our project—attribute framing and gain/loss framing.²

¹ As discussed by Tversky and Kahneman (1986, p. S253), the invariance principle states that “different representations of the same choice problem should yield the same preference. That is, the preference between options should be independent of their description.”

² A third category, typically called “goal framing” or “message framing”, considers the efficacy of persuasive messages promoting some action through arguments about the benefits of acting vs. the costs of not acting. One

Attribute Framing

Research on attribute framing³ examines how positively or negatively framed information about the attribute(s) of an object influence judgments of and attitudes toward the object and in some cases actual choices. Much of this research focuses on consumer products, such as ground beef (Levin and Gaeth 1988), jelly donuts, (Janiszewski, Silk, and Cooke 2003), and condoms (Linville, Fischer, and Fischhoff 1993), or on medical treatments such as the human papillomavirus vaccine (HPV) (Bigman, Capella, and Hornik 2010) or diagnostic tests for cancer (Howard and Salkeld 2009). In each case, alternative frames describe an attribute in either positive or negative but otherwise logically equivalent terms, as in the lean vs. fat makeup of ground beef, the success vs. failure rate of condoms, or the effectiveness vs. ineffectiveness of the HPV.

Other research presents positively vs. negatively framed information on the performance of groups or institutions such as contractors, work teams, hospitals, and schools. Kuvaas, Bård, and Marcus Selart (2004), for example, studied business decisions about funding allocations to teams, framing performance in terms of the team's past success (e.g., 7 out of their last ten projects) or failure (3 out of their last 10 projects). Olson (2015a, 2015b) studied evaluations of hospitals and schools, framing performance in terms of the percentage of patients satisfied vs. dissatisfied with their treatment (hospitals) and in terms of the percentage of schoolchildren who passed vs. failed their exams (schools). Still other work considers the framing of allocation principles that stipulate who is vs. is not deserving of medical services (Gamliel and Peel 2010) or the positivity vs. negativity of the labels for groups, e.g., "illegal" vs. "undocumented" vs. "unauthorized" immigrants (Merolla, Ramakrishnan, and Haynes 2013).

Theoretically, most analysts studying attribute framing argue that different thoughts and feelings will be aroused depending on the valence of the frame, becoming more positive when an attribute is framed positively and more negative when an attribute is framed negatively. This will lead to evaluations that are biased in the direction of the frame. As Janiszewski, Silk and Cooke (2003, 311) put it:

Positive attribute frames evoke favorable associations in memory and encourage the recruitment of positive information, whereas negative attribute frames evoke unfavorable associations in memory and encourage the recruitment of negative information. If one assumes that all recruited information is integrated into an evaluation, judgments become more positive or negative depending on the framing of the attribute information.

complication here is that "benefit" arguments can be either about good things that flow from the action or bad things that are stymied; similarly, "cost" arguments can be about bad things that flow from inaction or good things that are stymied. For reviews, see Levin, Schneider, and Gaeth (1998), O'Keefe and Jensen (2006). A fourth category focuses on the consequences of making a choice between two options and being invited to express a preference for vs. against one of them (Bizer and Petty 2005, Bizer, Larson, and Petty 2011, Hobolt 2009, Shafir 1993). Brugman and Burgers (2018) coded 372 social science experiments on framing from 284 studies published since 2000, finding that only 8.1% involved equivalency framing, with the highest rate found in psychology (17%). See Chong and Druckman (2007) and Druckman (2001, 2011) for a broader discussion of framing, especially as it relates to political science.

³ The attribute framing label comes from Levin, Schneider, and Gaeth (1998).

The logic is akin to that for the affect heuristic (Slovic et al. 2002) and mood effects. Being in a positive (negative) mood can lead toward attitudes that are biased in a positive (negative) direction, in part by direct affect transfer and in part by influencing the thoughts that come to mind (Erison, Lodge and Taber 2014, Winkielman, Zajonc and Schwartz 1997).⁴

Experimental research routinely finds evaluative differences that are consistent with these expectations. Most studies simply compare the views of people exposed to either positively or negatively framed attribute information, finding more negative evaluations among the latter. Studies adding a control group—either no information or both positively and negatively framed information—have shown that evaluations are biased away from those in the control group in accordance with the valence of the frame (e.g., Olsen 2015b). Although the typical study involves generic or hypothetical objects (condom brand X, school A), framing effects have also been found with real objects that are more meaningful to people, such as HPV or ground beef that people have actually tasted (Levin and Gaeth 1988).⁵ Related, Olsen (2015b) experimented with adding additional information about a hypothetical hospital in addition to the negatively or positively framed information about patient satisfaction—specifically, information about media coverage (alternatively positive or negative) and neighbor opinion (ditto). Evaluations of the hospital were still 7 points lower (on a 100-point scale) among those told that 50% of patients were dissatisfied than among those told that 50% of patients were satisfied, and 16 points lower among those told that 10% of patients were dissatisfied than among those told that 90% were satisfied.

To our knowledge, only one study has addressed the framing of information about problems facing the nation (Ash and Schmierbach 2013). Ash and Schmierbach exposed a small sample of undergraduates (n=113) to mock news stories containing information on race-based differences in NCAA student athlete graduation rates. In the positive condition, the percentage of black and white athletes graduating was reported (“Black athletes in all sports graduated at a 59% rate, White athletes at an 82% rate”) while in the negative condition the percentage not graduating was reported (“Black athletes in all sports fell short of graduating at a 41% rate, White athletes at an 18% rate”); the study also varied the order in which black or white rates were presented. Respondents in the negatively framed condition were significantly more likely than those in the positively framed condition to judge racial disparities in graduation rates as serious and to attribute those disparities to structural causes. They did not, however, differ, in their opinions on policy remedies.

Our research expands the focus on problems facing the nation initiated by Ash and Schmierbach (2013). As described in more detail later, we examine public concern over 16 problems, each of which is described with either a positive or a negative frame.

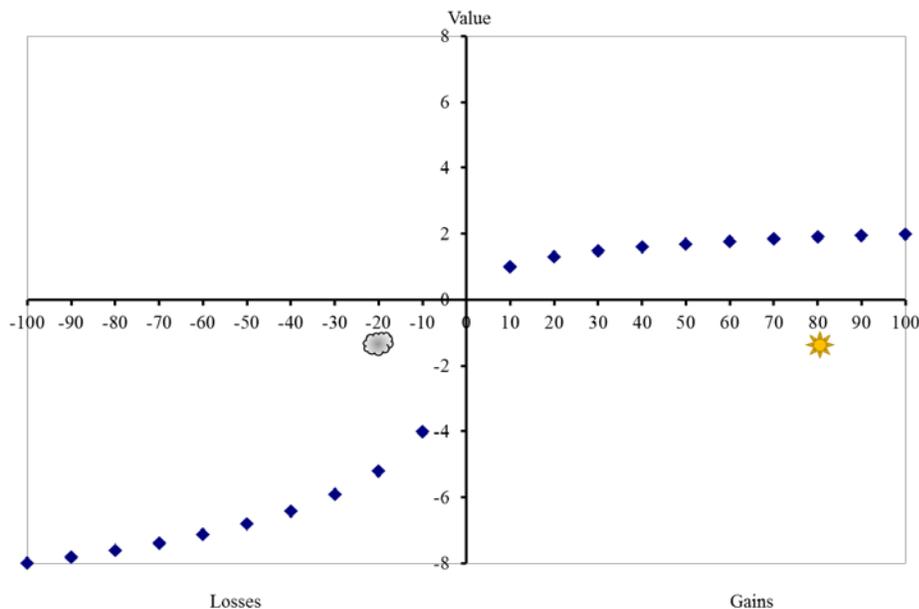
⁴ Typically, researchers studying attribute framing connect the phenomenon to Tversky and Kahneman’s (1981, 1986) notion of loss aversion and to negativity biases more generally (Rozin and Royzman 2011, Soroka 2014).

⁵ Levin and Gaeth (1998) did find that the framing effect was smaller among those tasting ground beef, especially among those who learned about the framed fat content after they tasted it. Janiszewski, Silk and Cooke (2003) review other work suggesting that attribute framing effects are limited regarding objects that people have strong attitudes about or personal experience with. Their own study argues that attribute framing effects also depend on how frame information compares to expectations, which is akin to Lau’s (1985) figure-ground explanation for negativity biases in performance evaluations.

Gain/Loss Framing

Research on gain/loss framing was inspired by Amos Tversky and Daniel Kahneman's prospect theory of decision-making (Kahneman and Tversky 1979, Tversky and Kahneman 1981, 1986, 1991, Quattrone and Tversky 1988; see Kahneman 2003a for discussion of the evolution of this work). Prospect theory holds that (1) people's choices depend on whether they result in welfare gains or losses, i. e. in changes to welfare relative to a reference point; (2) people are loss averse, which is to say that the disutility they receive from a given loss exceeds the utility they receive from an equivalent gain; and that (3) people are more sensitive to varying degrees of loss than they are to varying degrees of gain. These propositions result in a value/utility function such as that illustrated in Figure 1, which is convex in the domain of losses (below zero) but concave in the domain of gains, and where the disutility of any one loss exceeds the utility of the comparable gain. Initially developed to explain decision-making when at least one of the options was a risky prospect (Tversky and Kahneman 1979), the theory was later extended to decision making over non-risky options (Tversky and Kahneman 1991).⁶

Figure 1. Utility in the Domains of Losses and Gains



Much of the voluminous literature spurred by prospect theory has nothing to do with equivalency framing. Indeed, Barberis' (2013) review of "Thirty Years of Prospect Theory in Economics" says nothing at all about framing. Instead, the focus has been on often-puzzling aspects of the behavior of economic actors that prospect theory can explain (see also Camerer 2004, Kahneman 2003b). These include status quo bias (Samuelson and Zeckhauser 1988, Rabin and Thaler 2001), where people are loathe to take a gamble that offers them an equal chance of winning or losing the same

⁶ The risky variant of prospect theory also holds that people do not use objective probabilities when weighing risky outcomes, but rather use decision weights that overweigh low probability outcomes. See Barberis (2013) for an overview and a discussion of applications that draw on this feature of prospect theory.

amount and even reject gambles with positive expectation, preferring to stick with the status quo. Another is the endowment effect (Thaler 1980, Kahneman, Knetsch, and Thaler 1990), where people place much more value on things once they own them than they do before they acquire them. Loss aversion has been repeatedly demonstrated in different contexts (Kahneman, Knetsch and Thaler 1991, Novemsky and Kahneman 2005), as in List's (2004) study showing that workers' productivity increased more if they were promised penalties for failing to meet production targets than if they were promised bonuses for exceeding them, or in demonstrations that people respond more to price increases than to price decreases (Kalyanaram and Winer 1995). Prospect theory's expectation that people will be risk-averse in the domain of gains and risk-seeking in the domain of losses⁷ has been used to explain many phenomena, such as why gamblers engage in more risky behavior when they are losing than when they are winning (Thaler and Johnson 1990) and why underperforming firms take more risks than overperforming firms (Fiegenbaum and Thomas 1988). Levy (2003) provides an excellent overview of how these ideas have found application within political science.

Furthermore, many of Tversky and Kahneman's own framing experiments were not about equivalency framing. Rather, they attempted to manipulate reference points in order to mimic varying (or potentially varying) real-world situations and demonstrate the contrasting reactions to gains vs. losses.⁸ For example, Kahneman, Knetsch and Thaler (1986, problem 5) describe a scenario in which there is a shortage of a popular automobile in the market. In one condition, a car dealer who had been selling the model at list price raised the price by \$200. In another condition, a car dealer who had been selling the model at a \$200 discount raised the price by \$200. Condemnation of the dealer's price increase was twice as high for the first dealer compared to the second. Another example comes from McCaffery, Kahneman and Spitzer (1995), who consider the practices used to instruct juries about injury awards. In one condition, they asked mock jurors to base their award on the amount of money they would require in order to have the injury happen to them. In the other condition, they asked jurors to assume they were already injured and to base their award on the amount of money they would require to be "made whole." Awards in the former condition were larger by a factor of three.

With equivalency framing, the emphasis is not on actual gains vs. losses, but rather on how any one transition can be portrayed either as producing a gain (more of a good) or as diminishing a loss (less of a bad), or vice versa. The equivalency framing experiments of Tversky and Kahneman and subsequent scholars fall into three categories. Experiments in the first and by far most populous category evaluate whether people act in a more risk-seeking fashion when risky policies are loss-framed rather than gain-framed. These experiments typically ask people to choose between two options. The two options have the same expected value, but while the first promises a certain outcome the second involves a risky choice. Importantly, the two options are logically equivalent across the framing conditions, but in one case are portrayed as yielding a gain and in the other as

⁷ This follows from the fact that the utility curve is concave in the domain of gains and convex in the domain of losses. At any one reference point in the domain of gains (right hand side of Figure 1), an even gamble will have lower expected utility than doing nothing, while at any one reference point in the domain of losses (left hand side of Figure 1), an even gamble will have higher expected utility than doing nothing.

⁸ Tversky and Kahneman (1981, 453) define a decision frame as "the decision-maker's conception of the acts, outcomes, and contingencies associated with a particular choice."

reducing a loss.⁹ Our experiments do not as yet introduce a risky choice option, so we will say nothing more about this set here. See Druckman (2004), Kühberger (1998), and Kühberger, Schulte-Mecklenbeck, Perner (1999) for an overview of the work on risky choice framing experiments.

Experiments in the second category evaluate whether people exhibit loss aversion when a non-risky choice is loss-framed rather than gain-framed—i.e., whether support for a policy depicted as reducing losses exceeds that for an equivalent policy depicted as achieving gains. Experiments in this category are remarkably sparse in Tversky and Kahneman’s own writings and to our knowledge almost non-existent elsewhere. Quattrone and Tversky (1988) provide two examples, both of which involve the Equal Rights Amendment (ERA), use similar experimental variations, and yield similar results. In one of the experiments, subjects (Stanford undergraduates) were told either that supporters thought the ERA would “help eliminate discrimination of women” or would “improve the rights of women” in job opportunities, salary, and social security benefits. As anticipated, support for the ERA was higher when it was framed as reducing discrimination than when it was framed as improving rights.¹⁰

Experiments in the third category also concern non-risky choice, but here the goal is to demonstrate that people see more similarity among gain-framed policy alternatives than among loss-framed policy alternatives, as would be expected on the basis of the steepness of the utility curves in each domain. Again, experiments in this category are sparse in Tversky and Kahneman’s writing and

⁹ The Asian Disease Experiment is the most famous and most replicated experiment within this set:

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

Gain Frame

If Program A is adopted, 200 people will be saved.

If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved.

Which of the two programs would you favor?

Loss Frame

If Program C is adopted 400 people will die.

If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.

Which of the two programs would you favor?

Option A and C are equivalent, though A represents a gain (from 0 to 200 saved) while C represents a reduction in loss (from 600 to 400 die). Options B and D are likewise equivalent, but with risky options framed as gains or as losses. Tversky and Kahneman (1986) report that 72% of subjects in the gain-framed condition opted for the risk averse option A, while 78% in the loss-framed condition opted for the risk seeking option D.

¹⁰ Another example comes from Bateman et al. (2005), who studied responses to policies managing acidity in mountain lakes. One scenario portrayed the objective as avoiding degradation in water quality while a second scenario portrayed it as improving water quality.

have received very little follow-up by other researchers.¹¹ Quattrone and Tversky (1988) provide one example. The gain-framed condition describes workforce participation in terms of employment rates (policy J at 90%, policy K at 95%) while the loss-framed condition uses unemployment rates (policy J at 10%, policy K at 5%). A tradeoff with inflation is present in each case, where J carries an inflation rate of 12 and K a rate of 17. As expected, Quattrone and Tversky find a more equal distribution of preferences in the gain-framed condition (54% J, 46% K) than in the loss-framed condition (36% J, 64% K). Quattrone and Tversky go on to propose the “ratio difference principle”, which holds that people use ratio comparisons as a heuristic for how similar or different the policies are—here, how different they are in terms of utility.¹²

Our experiments investigate the consequences of gain vs. loss equivalency framing in the context of non-risky choice, inspired by prospect theory and the experiments just reviewed. Our framework, described more completely below, begins by establishing a problem status quo, framed either positively (e.g., 80% graduate from high school) or negatively (20% drop out from high school); in Figure 1, these alternatives are marked by sun and cloud symbols, respectively. We then ask for opinions on a policy designed to ameliorate the problem, which is gain-framed in one condition (i.e., increasing the prevalence of the good outcome) and loss-framed in the other (i.e., decreasing the prevalence of the bad outcome). We replicate this across three problem/policy areas (marine debris, hospital deserts, and vaccination rates). We also build in experimental variations in the anticipated scope of the policy, allowing us to evaluate Quattrone and Tversky’s (1986) ideas about the ratio difference principle and the general issue of scope insensitivity, which we take up next.

Scope Insensitivity

What value does the public put on cleaning up oil spills or preserving endangered species? On reducing traffic congestion or eliminating potholes? Economists and other social scientists have answered questions like these, about the valuation of public goods, using a variety of methods (Schl pfer 2017). Common are those that use surveys or interviews to inquire directly about how much people would be willing to pay (WTP) for a given good. One preoccupation within this literature—and the topic of interest to us—is whether or when judgments of value are sensitive to the scope of the public good to be provided. Research on the topic is extensive, contentious, and in many respects inconclusive (for reviews, see Banzhof 2017, Carson 1997, 2010, Desvousges, Mathews, and Train 2012, Diamond and Hausman 1994, Frederick and Fischhoff 1998, Hanneman 1994, Veisten et al. 2004, Whitehead 2016).

¹¹ Druckman (2004) replicates this experiment but does not report the results. The paper instead combines results from this and replications of several other experiments from the Tversky and Kahneman research stream in analyzing potential moderators of framing effects.

¹² Thus, people see starker differences between the loss-framed alternatives than between the gain-framed alternatives because the ratio of unemployment rates (10 vs. 5) is much larger than that for employment rates (95 vs 90). A second experiment that Quattrone and Tversky use to demonstrate the ratio difference principle is an attribute framing experiment similar to the Ash and Schmierbach (2013) study described earlier. It frames crime rates within two hypothetical populations (Alphans and Betans) as either the percentage without a criminal record (A at 3.7%, B at 1.2%,) or the percentage with a criminal record (A at 96.3%, B at 98.8%).

Following rational choice principles, the valuation of public goods should increase with their scope or quantity, albeit in a diminishing fashion, unless all of the quantities being evaluated differ trivially (Bateman et al. 2005) or are beyond the “satiation point” where the utility function flattens out (Rollins and Lyke 1998).¹³ Yet, a plethora of studies has found insensitivity to scope. Early and oft-cited examples come from Desvousges et al. (2010[1992]).¹⁴ One experiment asked about willingness to pay for an initiative to protect waterfowl from oil spills, experimentally varying whether the initiative would protect 2 thousand, 20 thousand or 200 thousand birds. The median WTP was identical across the conditions (\$25) and the means were statistically indistinguishable (\$80, \$78, \$88). A second asked about an initiative to limit the environmental effects from oil spills. One condition portrayed the initiative as 90% effective for oil spills under 50k gallons, while a second condition portrayed it as both 90% effective for oil spills under 50k gallons and 75% effective for oil spills over 50k gallons. The average WTP was actually higher for the smaller scope condition though the medians were the same. Other examples come from research using the “add-on” method, which show that WTP for, say, the preservation of two wilderness areas or the protection of two endangered species is about the same as the WTP for either one of the two.

Some psychologists engaging this literature find scope insensitivity to be expected, with Kahneman Ritov, and Schkade (1999, 217) going so far as to depict it as “the inevitable result of general rules that govern human judgment.” People simplify, focus on the public good, itself, and neglect information about quantity unless it is explicitly brought to their attention (see also Baron and Greene 1997, Kahneman et al. 1993). Not surprisingly, people tend to manifest more scope sensitivity in within-subjects experiments, where each respondent sees all of the policy alternatives, especially if those alternatives are displayed all at once rather than sequentially (Bateman et al. 2004). People also display more scope sensitivity in incentivized experiments, where they know that they may have to act on their expressions of willingness to pay (Voelckner 2006), or if they have been primed to think in a calculating fashion by math-related tasks prior to offering WTP judgments (Hsee and Rottenstreich 2004, Hasford, Farmer and Waites 2015).

Others argue that scope insensitivity may only or especially be evident when the public good arouses strong emotions (Hsee and Rottenstreich 2004) or engages core values (Baron and Spranca 1997). For example, one of Hsee and Rottenstreich’s (2004) experiments inquired about willingness to donate to an effort to save endangered pandas. The between-subjects design varied the number of pandas to be saved (either 1 or 4) and whether or not the request was accompanied by a photo of the cute and cuddly panda(s). Without the photo, subjects demonstrated scope sensitivity (mean WTP of 12 vs 22), whereas with the photo subjects did not (mean WTP of 19 vs. 20).

¹³ This simplifies, since limited scope sensitivity could also reflect income or substitution effects, as the literature cited above discusses. Carson (2010, 35) adds another idea about why limited scope sensitivity in WTP judgments may be rational: “the likelihood of the government delivering on very large projects can be perceived to be much lower than that for smaller projects, in which case values placed on two goods may be entangled with beliefs about how well government functions.”

¹⁴ This research has also been subject to a variety of critiques. The second (2010) edition includes a new forward that reviews and responds to some of the criticisms. Plenty of other studies have found scope sensitivity, though it is often not clear whether the extent of scope sensitivity meets the expectations of rational choice (Desvousges, Mathews, and Train 2012).

Our study engages the question of scope sensitivity in the public’s views of problem-solving policies. As we explain in more detail below, the experimental design includes conditions that vary the scope of the policy initiative while holding cost constant. When gain-framed, the policy is portrayed as resulting in small, medium, or large increases in good outcomes relative to the status quo, and when loss-framed it is portrayed as resulting in equivalent decreases in bad outcomes. There are definite limits to what can be learned from our present design. However, it will yield baseline findings on scope sensitivity within this domain and on the question of whether sensitivity varies by frame.

Party Cue-Taking

A large literature in political psychology addresses the role that party policy cues—the sponsorship of a policy by the Democratic or Republican party or candidates associated with them—play in voter support.¹⁵ Although the potential power of party cues is widely accepted, scholars continue to argue about the mechanism by which these cues work, their importance relative to other influences on voter opinions, and their normative implications.

Party identification shapes many facets of American political life, including support for individual policies and broad ideology in addition to candidate choice (Campbell et. al 1960; Green, Palmquist and Schickler 2002). Partisan cue-taking is one method by which partisan affiliation affects support for policies, acting as a shortcut for voters to develop positions. Information about in-party sponsorship or endorsement leads voters to infer that the policy has value, just as out-party sponsorship conveys the opposite, leading some voters to adopt in-party positions when they become aware of them (Cohen 2003, Lenz 2012; Butler and Broockman 2015). Highly informed voters are most likely to be exposed to party cues (Zaller 1992), though uninformed voters are most reliant on them once exposed (Kam 2005).

Experimental evidence shows a wide range of effects of party cues. For example, Cohen (2003) study of welfare policy views found that opinions were overwhelmingly influenced by party cues, while Bullock’s (2011) study on a related issue found that voters responded equally to party cues and policy information. Current research suggests that cue-taking effects depend on the amount of policy information to which voters are exposed, the strength of the arguments made for or against a policy, and level of partisan polarization (see Bullock 2011, Druckman et. al 2013). Moreover, cues that contradict the party brand may have limited impact (Arcenaux 2008).

Party cue-taking may allow voters to reach rational judgments, i.e. judgments that are similar or even identical to the judgments they would have made if fully informed. Research shows that even when voters do have some policy information, they use party cues to make inferences about unknown policy details, assuming that a policy sponsored by co-partisans will have features that are more in accord with what they value (Cohen 2003), and that their reliance on cue-taking diminishes with the extent of policy information to which they are exposed (Bullock 2011). On the other hand, preferences based on party cues may well be inconsistent with preferences based on full-information, since not all voters will be in lock step with co-partisan elites on matters of

¹⁵ To simplify, we use “party cue” in what follows, though of course party-cue taking has broader applications (e.g., in candidate evaluation).

policy. Even worse, party cues may prompt blind following (Lenz 2012) and biased information-processing and reasoning (Bolson, Druckman, and Cook 2011, Petersen et al. 2013).

What is unknown is whether party cue-taking will also lead voters to extend or withhold support for policies aiming to ameliorate problems such as poverty, income inequality, failing infrastructure, pollution, gun violence, or the opioid epidemic. Existing studies of party cue-taking have almost exclusively focused on ideological (position, proximity) issues rather than valence issues. These including welfare (Cohen 2003) health care (Bullock 2011), foreign policy (Berinsky 2009), environmental regulations, and abortion restrictions (Arcenaux 2008). Malhotra and Kuo (2008) examine the effect of partisan cues on evaluations of the handling of Hurricane Katrina, but their focus is on retrospective evaluation of performance, not support for policy. Most ideological issues have a strong association with parties, lowering the ceiling for cueing effects (Levendusky 2010).

Our research extend the literature on party cue-taking to valence issues, where party cues are associated with policies designed to solve widely-acknowledged problems facing the nation. Because we nevertheless expect partisanship to color judgments of problem severity as well as support for remedial government action, we chose issues where we expected more concern from the Democrats (increasing vaccination rates), more concern from Republicans (increasing access to hospitals in rural America, “hospital deserts”) and equal concern from both groups (reducing marine debris).¹⁶ We plan to extend the issue focus in future work.

Hypotheses

As described above, our research considers the extent to which public opinion on social problems and remedial policies are influenced by equivalency framing, policy scope, and party cues. The research design allows for an investigation of how these interact. However, our pilot study is underpowered for studying these interactions. Hence, we focus on only one interaction in what follows, namely, the extent to which scope sensitivity is greater for loss-framed than for gain-framed policies (H3 below).

Building on the existing literature on these topics, our hypotheses are as follows.

1. Equivalency Framing of Problems—Negative (vs positive) framing of a problem will prompt more concern about the problem.
2. Equivalency Framing of Policies—Loss (vs. gain) framing of a policy solution will prompt more support for the policy.
3. Scope Sensitivity—Scope sensitivity will be less evident on gain-framed policies than on

¹⁶ In our study, described below, the three issues were rated for seriousness on a 1 (not at all serious) to 7 (extremely serious) point scale. Responses averaged 5.3, 5.6, and 5.5, for vaccinations, hospital deserts, and marine debris respectively. Democrats rated each one as more serious than did Republicans, but the party gap was largest on vaccinations (5.7 vs. 4.9), followed by marine debris (5.6 vs. 5.1) and then hospital deserts (5.7 vs. 5.3).

loss-framed policies.¹⁷

4. Party Cues—Party cues will affect support for policies. Specifically, Democrats will be more likely to support a proposal endorsed by Democratic politicians than one endorsed by Republican politicians. The reverse will be true for Republicans.

Research Design

To test our hypotheses, we ran a short (3-5 minute) survey. The survey was administered to Amazon Mechanical Turk workers, who were each paid 30 cents for participating.

In the Problem section (Part 1) of the survey, respondents were asked to evaluate to 2 out of a set of 16 public problems, assigned at random.

1. Voter Registration
2. Domestic Violence
3. Identity Threat
4. High School Dropouts
5. Vaccination Rates
6. Lead Poisoning
7. Bad Bridges
8. Overstayed Visas
9. Hospital Deserts
10. Marine Debris
11. Opioid Overdoes
12. Falls among the Elderly
13. Children in Poverty
14. Robbery/Assault
15. Teenage Bullying
16. Gun Accidents

We chose these particular issues in an attempt to ensure variation across three dimensions: (1) extent of partisan differences, (2) degree of emotional import, and (3) perceived importance. Some issues were expected to be of more concern to Democrats, others were expected to be of more concern to Republicans, and others were expected to be evaluated similarly by both groups. In addition, some issues were expected to elicit a highly emotional response, while others were expected to be less emotionally salient to respondents. Finally, we expected some problems to be seen as critical issues for government policymaking, while others would be seen as less important areas for policy intervention.

For each problem, we randomly assigned respondents to one of two potential problem frames, positive or negative. In the negative frame, respondents were told that the problem afflicted “at

¹⁷ We are agnostic about whether scope sensitivity will be evident at all on gain-framed policies, but do expect greater scope sensitivity on loss-framed policies, following prospect theory. The literature also leads one to expect less scope sensitivity on morally charged issues, but we do not have a good test of that expectation in our study.

least 20%” of a given population. In the positive frame, respondents were told that “fewer than 80%” of a given population was not afflicted by the problem.

For example, in our problem statements focused on the issue of identity theft, respondents were told that:

Many Americans have their identities stolen, resulting in the misuse of their credit card or bank accounts. According to a recent study, [at least 20%/fewer than 80%] of Americans [had/kept] their financial information [hacked by/safe from] identity thieves last year.

Our goal with these frames were to maximize comparability across policy domains. However, it was also important to us to avoid deception. Specifically, we did not want to present respondents with false information about the true scope of a specific problem. With this in mind, we therefore chose only a subset of policies that could accommodate a 20%/80% frame. This meant that some problems of interest could not be included, because there was not a roughly 20% incidence of that problem (or an 80% problem avoidance). Appendix 1 shows the wording for all 16 issues.

After each problem statement, we then asked respondents a set of questions about that problem. These questions were designed to gauge their emotional reaction to the problem (i.e., anger, sadness, worry, satisfaction); the perceived seriousness of the problem; and the importance of government taking action to address that problem. All dependent variables used 7-point scales. Appendix 2 shows complete question wording.

Next, in the Policy section (Part 2) of the survey, we presented each respondent with 1 out of 3 potential problem statements (vaccinations, hospital deserts, marine debris), assigned at random, and described a hypothetical public policy initiative designed to help ameliorate that problem. Randomization was designed such that respondents would not receive the same problem in parts 1 and 2 of the survey.

The text of each policy initiative was randomized across three dimensions: the equivalency frame of the problem and policy, the scope of the solution, and the party that was proposing the policy. Our design thus included 12 conditions (2x3x2) for each of the three policies—(1) a *positive or negative frame*, (2) a *scope condition* reducing 20% to 10%/5%/1%, or increasing 80% to 90%/95%/99%, and (3) a *source cue* indicating either a Democrat or Republican-proposed policy.

For example, the text for the policy concerning rural hospital closures read as follows:

Many hospitals, particularly in rural areas, have closed in recent years, leaving communities without advanced medical care. According to a recent report, [at least 20%/fewer than 80%] of Americans live [too far from/close enough to] a hospital to get adequate care in case of an emergency.

[Democrats/Republicans] in Congress have proposed a policy that would reduce the number of Americans that live [too far from/close enough to] a hospital to get adequate care. The policy proposal calls for a coordinated effort across the 50 states, the creation of public-private partnerships, and a combination of tax incentives, regulatory reforms and outreach initiatives. The price tag is estimated to be \$10

billion. The policy is expected to [reduce/increase] the number of Americans [too far from/close enough to] hospitals from [20% to [10%/5%/1%] / 80% to 90%/95%/99%] over the next 10 years.

Appendix 1 shows the wording for the full set of policies.

Policy support was measured through three 7-point scales with labeled endpoints, which were indexed: (1) What is your view of this policy proposal? (Strongly disapprove – Strongly approve); (2) If asked, how likely would you be to sign a petition supporting this policy? (Not at all likely – Extremely likely); (3) One element of the outreach is to engage citizen volunteers in efforts to solve the problem. Would you be willing to lend your time and effort to this initiative? (Definitely would not – Definitely would).

In addition to the core problem and policy questions, we also asked a standard set of demographics plus questions concerning party identification, trust in government, and interest in politics. These questions were asked at the start of the survey, prior to the first problem statement. At the end of the survey, we asked about Trump approval and expected vote in the 2018 midterm election. Finally, we offered an optional but full debriefing. The debriefing page included source information and links for each of the problem depictions.

Our survey yielded 3,805 responses. The average age of respondents was 37 years, and respondents were 53% female, 58% with college degree or more, and 75% white. Of our respondents, 26% almost never trust the government, while 2% just about always do, and 56% identified as Democrat (including leaners), 32% Republican, and 12% pure Independent. We reduced our total sample to N=3332 by dropping those who did not complete the survey (n=134), as well as those who were either too fast (<90 seconds) or too slow (>10,000 seconds), n=27 and n=46, respectively. We also dropped those who appeared to be straightlining— answering 1,1,1,1 or 2,2,2,2 or 3,3,3,3, or 5,5,5,5, or 6,6,6,6, or 7,7,7,7—on questions related to either problem battery (Angry, Worried, Sad, Satisfied), or who gave all 4's on both problem batteries, a total n of 266.

Results

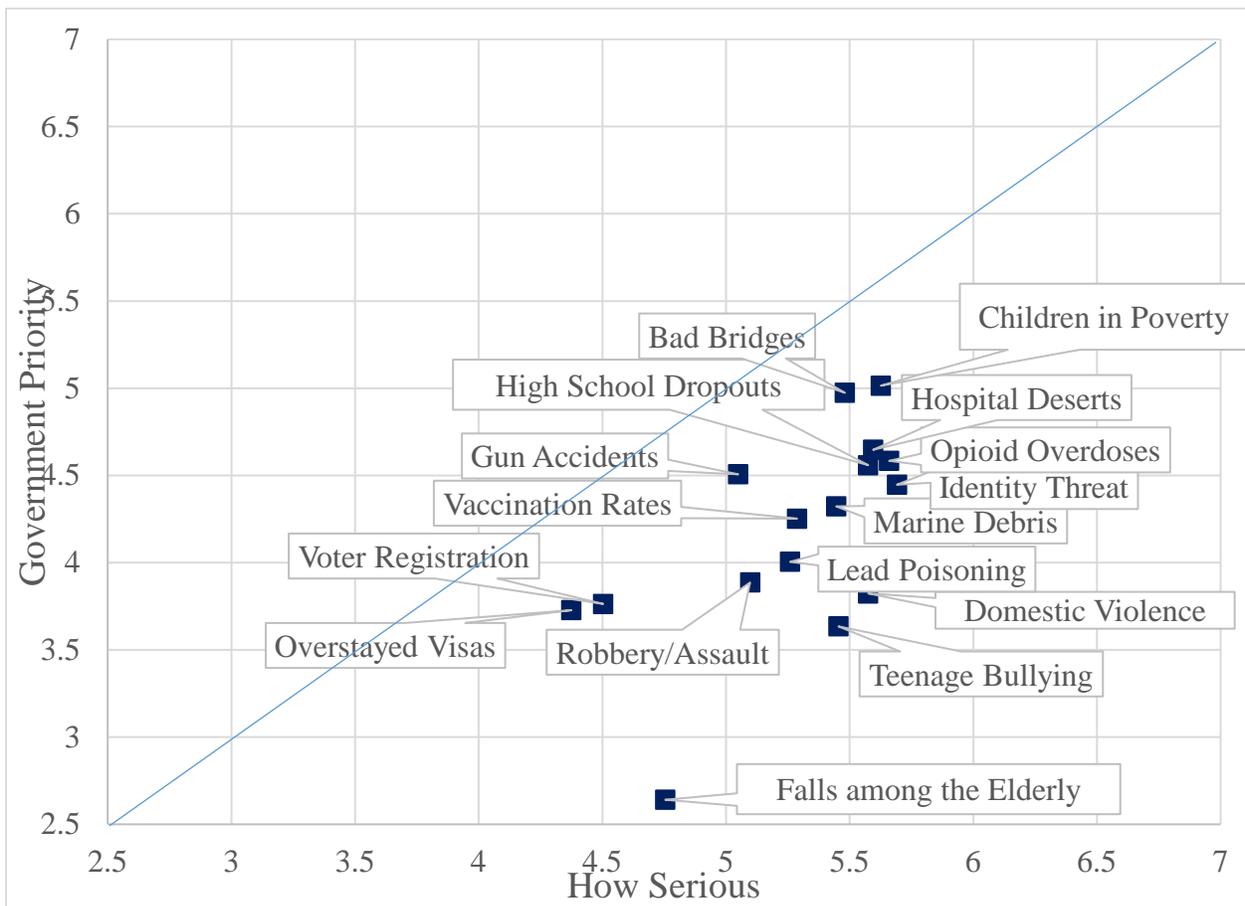
Framing the Status Quo

As expected, the issues we selected varied in partisan salience, emotional salience, and perceived importance. Respondents were almost universally dissatisfied with the problems presented to them; on a seven-point scale, all issues score an average of 5.5 or higher. However, there is considerable variation in the emotional salience of these issues; across problems, the average ratings of worry, sadness, and anger range by over 30% of the scale. Emotional reactions were generally correlated, with a few exceptions such as “falls among the elderly,” which drew worried and sad reactions but not anger. The best emotional predictor of desire to see government action was anger.

Somewhat surprisingly, Democrats and Republicans had similar emotional reactions and assessment of the seriousness of most problems. The two exceptions to this are “overstayed visas” and “registration of ineligible voters,” two highly polarized issues that Democrats may feel are not in fact valence issues.

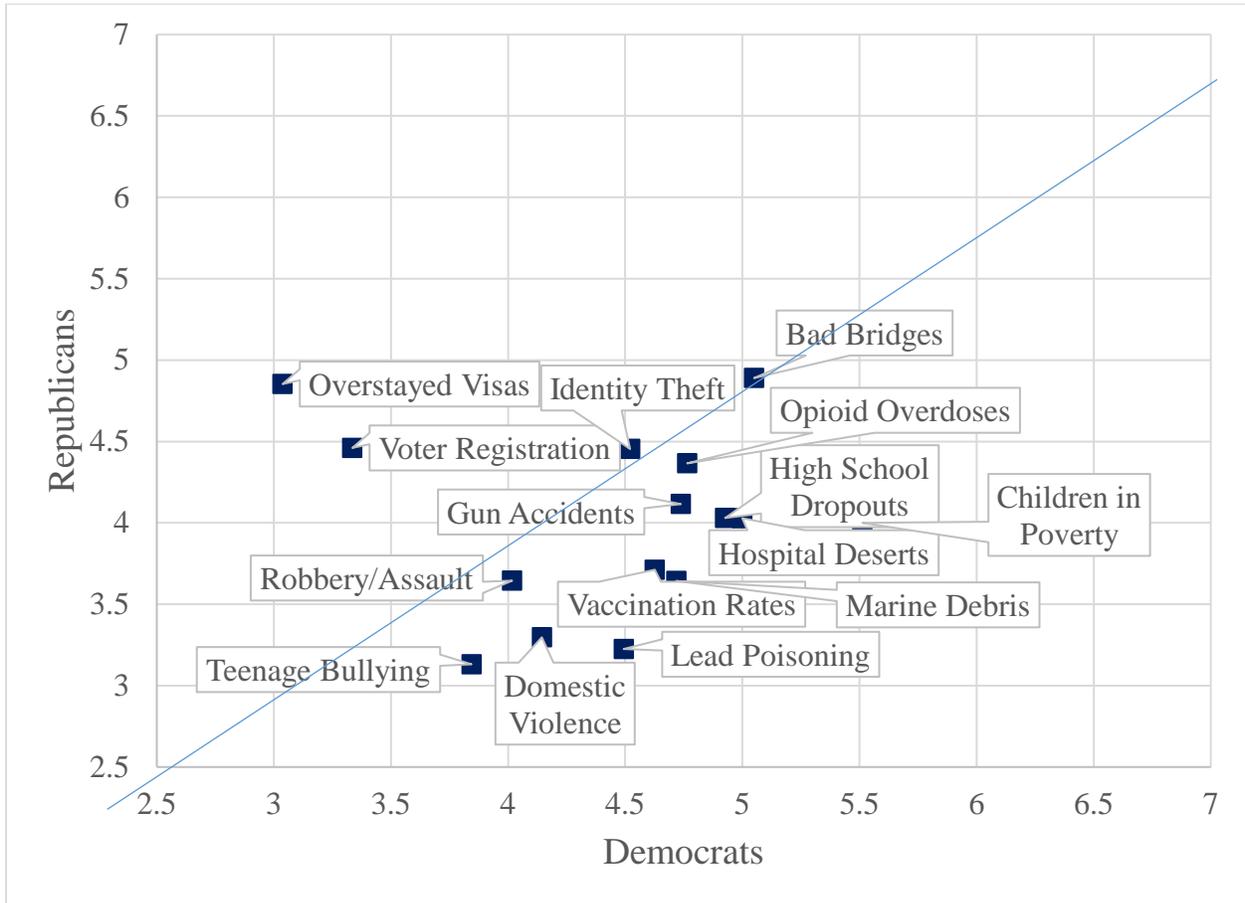
It is important to note that a strong emotional reaction to a problem does not necessarily translate into a desire for government action. Both Democrats and Republicans expressed anger and sadness over teenage bullying and domestic violence and judged the problems to be very serious. However, Democrats and Republicans were both hesitant to endorse government action to address these problems. Figure 2 shows how judgments about problem seriousness relate to judgments about government priority for the sample as a whole.

Figure 2. Problem Seriousness and Government Priority



Generally speaking, the respondents' interest in having the federal government address these problems differed significantly by partisanship, as shown in Figure 3. Reflecting ideological differences, Democrats tended to express a stronger desire for government action. The two exceptions, again, are in addressing overstayed visas and voter registration, two issues that Democrats did not regard as very problematic. On several others, Democrats and Republicans were essentially in agreement. In priority order, these include failing infrastructure (bad bridges), identity theft, and crime (robbery assault); these are the only three issues on which differences between the two groups are statistically insignificant (two-tailed p -values $>.05$, from T-tests).

Figure 3. Partisan Differences in Government Priority



Consistent with our hypothesis (1), we find statistically significant, though substantively very small, effects of framing problems in negative versus positive terms across emotional reactions and perceived seriousness. Table 1 contains these results, aggregating across the 16 problem areas. Specifically, we find that a problem framed negatively generated more anger, worry, sadness, dissatisfaction, and was perceived as more serious than when the same problem was presented with a positive frame. The substantively trivial magnitude of these effects is apparent by considering their size relative to the standard deviation (SD) of the dependent variable, which in no case exceed 7% of a SD. There are no framing effects on judgments of government priority.

Table 1. Problem Frame Effects

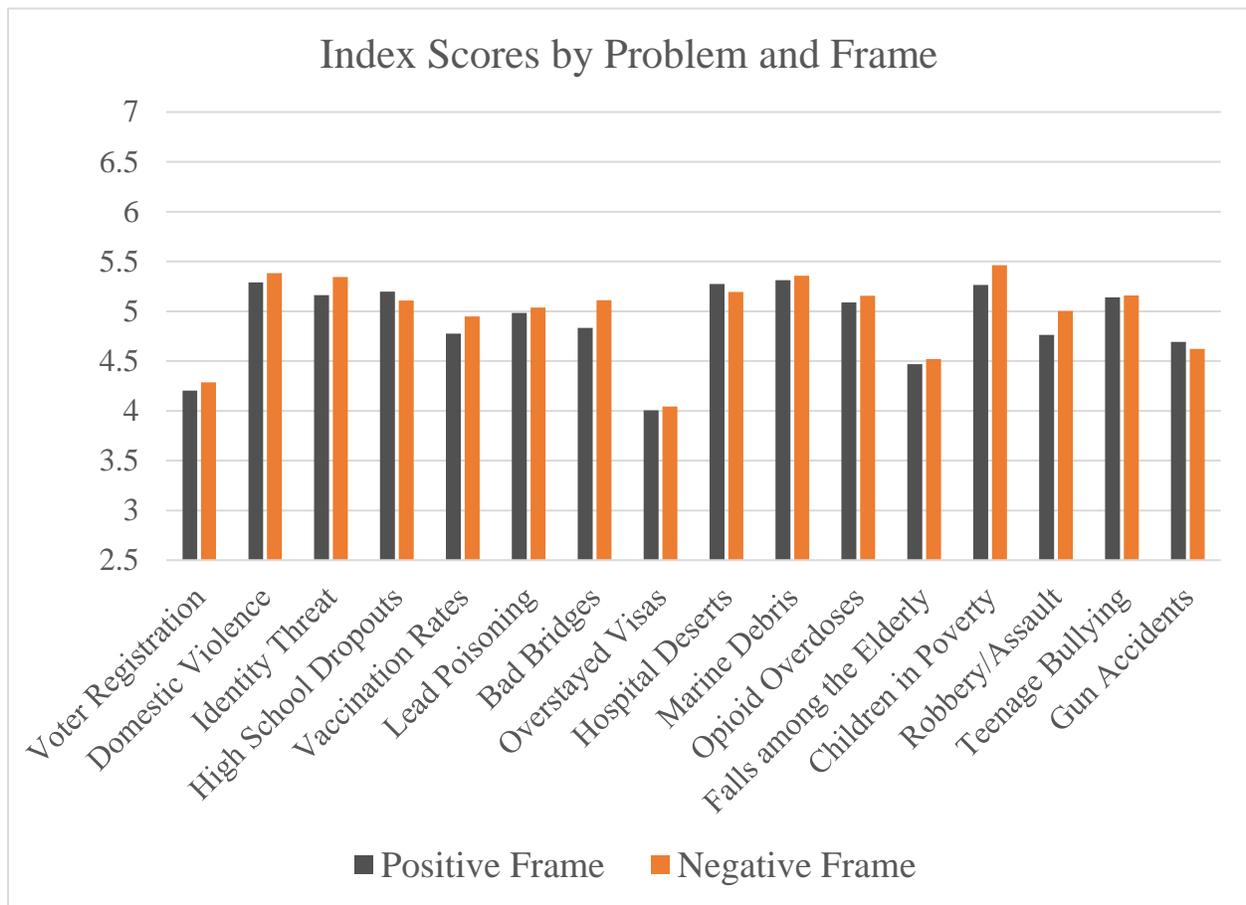
	Angry	Worried	Sad	Dissatisfied	Serious	Priority	Index
Coefficient	.12	.10	.07	.10	.06	.01	.08
(P-Value)	(.001)	(.008)	(.044)	(.001)	(.048)	(.96)	(.003)
% of Range	2.0%	1.6%	1.3%	1.6%	1.0%	—	1.3%
% of SD	7%	5%	4%	7%	4%	—	7%

Mean Positive Frame	4.39	4.71	4.83	6.03	5.24	4.16	4.89
Mean Negative Frame	4.51	4.81	4.90	6.13	5.31	4.17	4.97

Note: Results from panel regression analysis with problem fixed-effects, order fixed-effect, and panel-corrected standard errors.

The last column of Table 1 reports the results for an index that averages all six dependent variables. Figure 4 reports how these index scores vary by the frame presented for each of the 16 problem areas. Differences by frame are in the expected direction for all but 3 of the issues, the exceptions being high school dropouts, hospital deserts, and gun accidents, though are small for the other dozen problems (and often statistically insignificant in these smaller samples).

Figure 4. Reactions to Problems by Frame



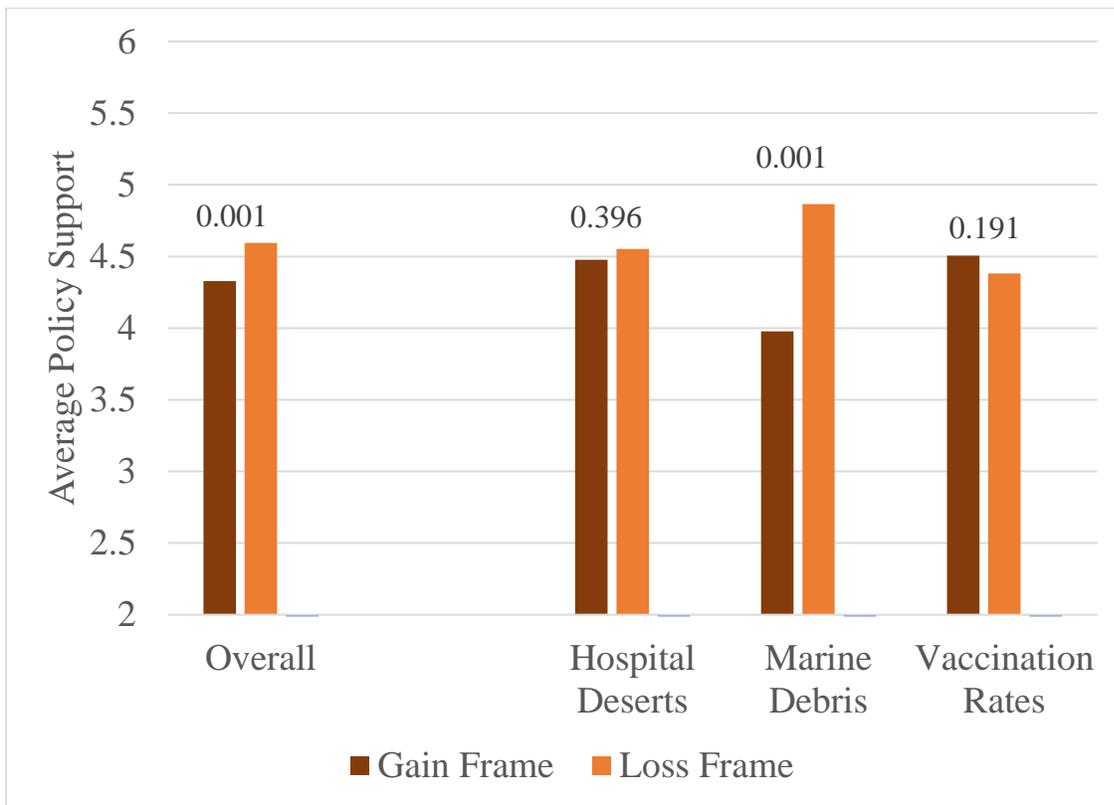
The small size of these equivalency-framing effects is striking in light of the many prior studies that have found substantively significant effects. Yet as pointed out earlier, equivalency framing

effects appear to diminish when people have more available information on which to make a judgment. Most of the problems we studied have been the subject of extensive media coverage and some relate directly to citizens’ day-to-day lives, which could be responsible for the small magnitude of the framing effects. As an indirect test of this idea, we examined framing effects by partisanship, finding effects twice as large among independents as among partisans (even so, the effects among independents did not exceed 15% of a SD). One explanation for this result is that partisans have received more elite cues on the seriousness of problems, and therefore are less susceptible to framing effects.

Framing Policy Solutions

Next, we turn to the three proposed policy solutions and our experimental manipulation of equivalence framing, policy scope, and partisan cues. We find significant framing effects for marine debris, but not for hospital deserts or vaccination rates. The framing effect on the marine debris issue is very substantial, substantively. The estimated difference in policy support is .89 on the 1-7 scale, which is 15% of the range of the scale and just over one-half (57%) of a standard deviation. Figure 5 shows the results.

Figure 5. Policy Support by Frame



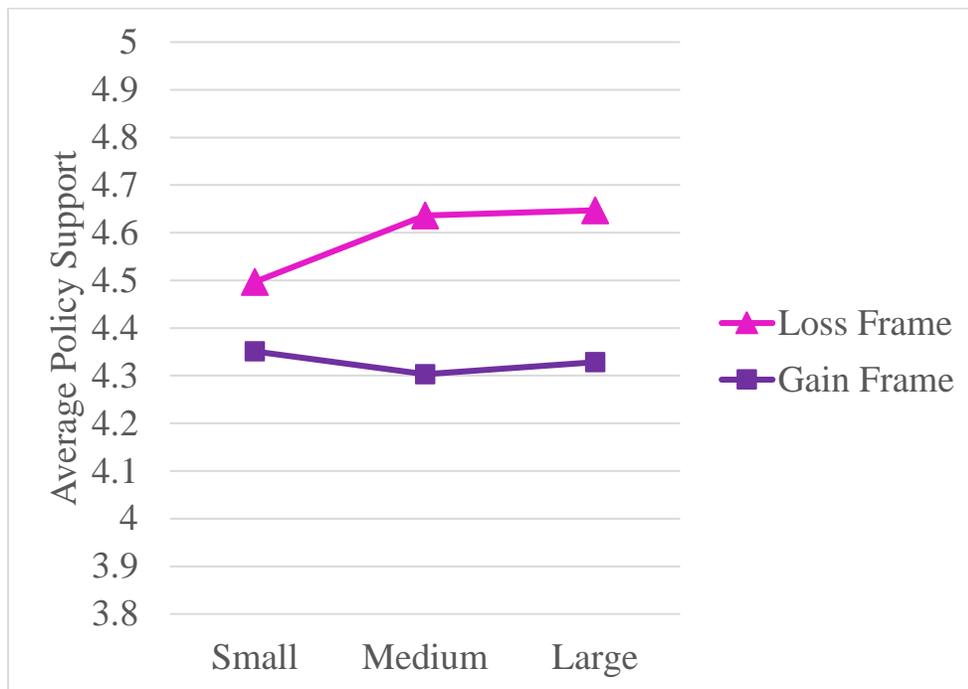
Note: Bars show average support for policy solutions for all levels of scope and partisan cues, for the gain frame (dark bars) and loss frame (light bars). P-values from t-tests for difference in means between bar pairs shown above bars.

That we find framing effects for marine debris but not the other two policy domains is unexpected, and points to the potential importance of affective responses to particular policy domains. The wording of our marine debris problem frame notes that “fresh-caught fish sold at market are [contaminated/uncontaminated] by debris.” As Jonathan Haidt and others have pointed out, “contamination” is a particularly evocative word, which can elicit a powerful emotional response and classically conditioned feelings of disgust. This might plausibly account for the especially strong effects of framing on this issue.

Sensitivity to Scope

We also find limited sensitivity to the scope of the policy solution, consistent with findings from the contingent valuation literature and the expectations of some psychologists, as discussed earlier. At the same time, the results suggest that the public’s views may be more scope sensitive if the policy is loss-framed, as would be expected from prospect theory and our H3. Even when loss-framed, however, scope sensitivity was modest in our results. Scope sensitivity overall (combining the three issues) is illustrated in Figure 6. Under the loss frame, there was a modest rise in policy support between the small and medium scope conditions but no difference between the medium and large; differences in support between the small and the medium or large scope conditions are marginally statistically significant (t-tests yield $p=.13$ and $p=.09$, two tailed, the F test $p = 0.18$). This pattern is consistent with prospect theory’s expectation of diminishing returns from increased policy effectiveness. There are no significant differences in support by policy scope under the positive frame. When the three issues are analyzed separately, sensitivity is greater in the loss-framed condition for each policy, albeit not statistically significantly so (not shown).

Figure 6. Policy Support by Frame and Scope

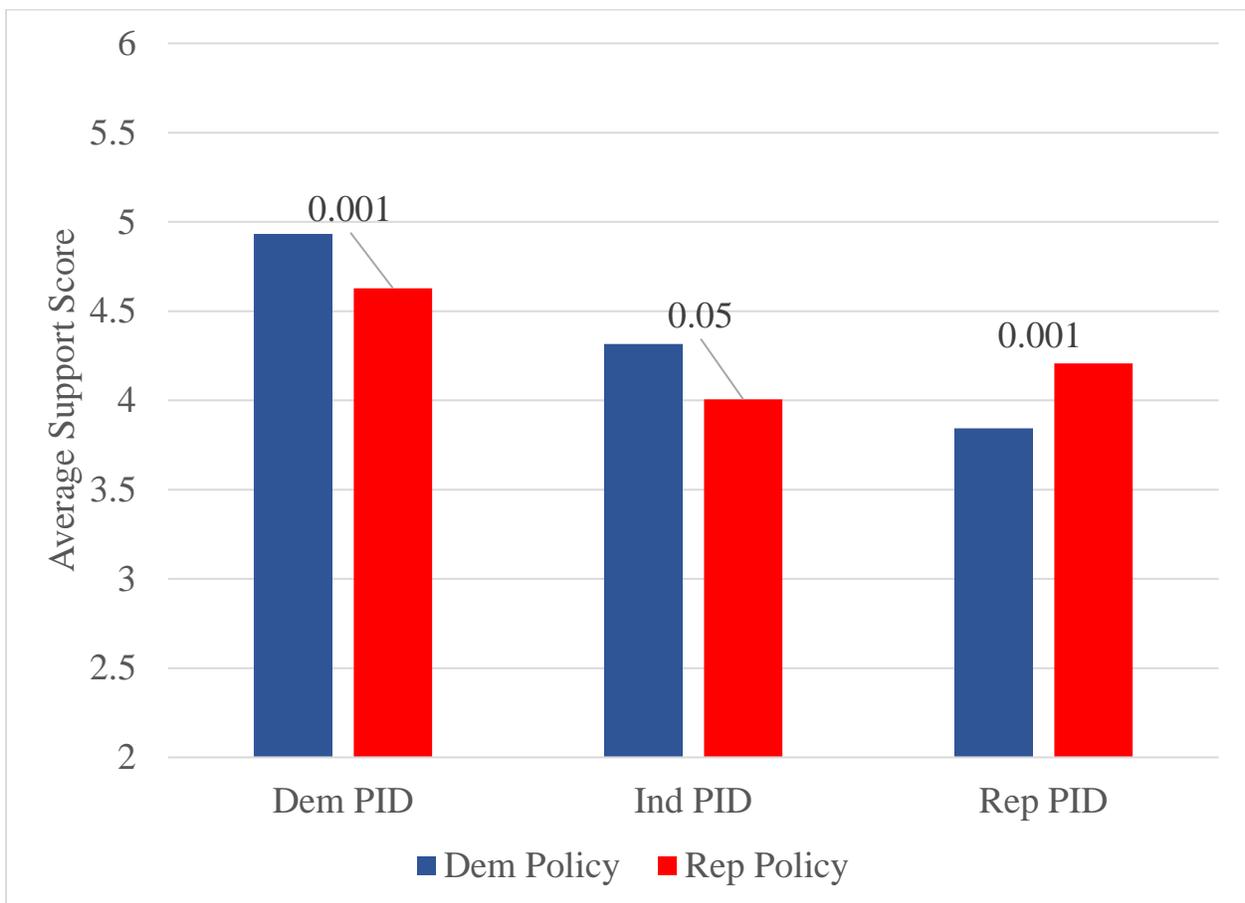


Note: Points show average support for policy solutions for both partisan source cues. Small policy scope reduces the bad from 20% to 10% (loss-framed) or increases the good from 80% to 90% (gain-framed)). For medium and large scope, these are 20% to 5% or 1% in the loss-framed conditions and 80% to 95% or 99% in the gain-framed conditions

Party Cue Taking

Finally, we examine the effect of party source cues on support for policies to reduce marine debris, hospital deserts, and low rates of compliance with government vaccination standards. Averaging across the three issues, we find, consistent with the literature and our hypothesis 4, that both Democrats and Republicans showed more support for these policies when they were sponsored by co-partisan representatives in Congress. However, under each condition (and on all three issues), Democrats were more supportive of the policy solutions than were Republicans. Pure independents showed more support for the policies when they were sponsored by Democrats.

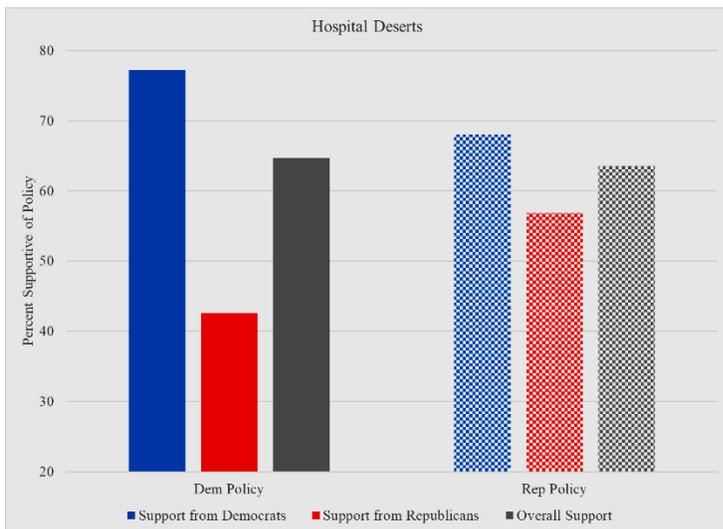
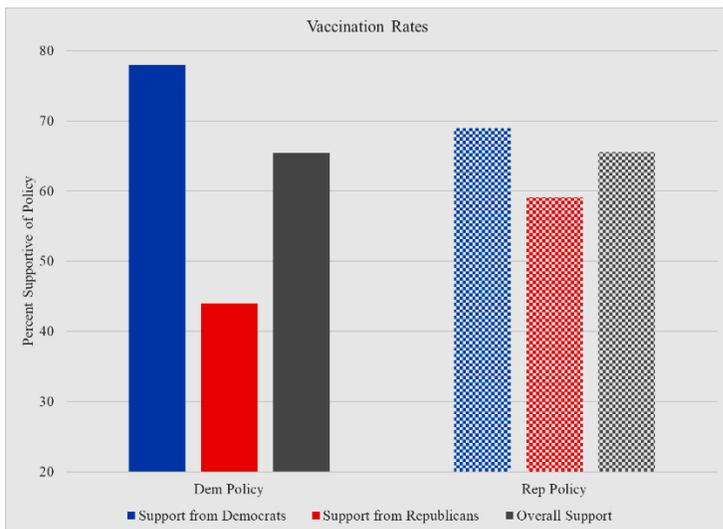
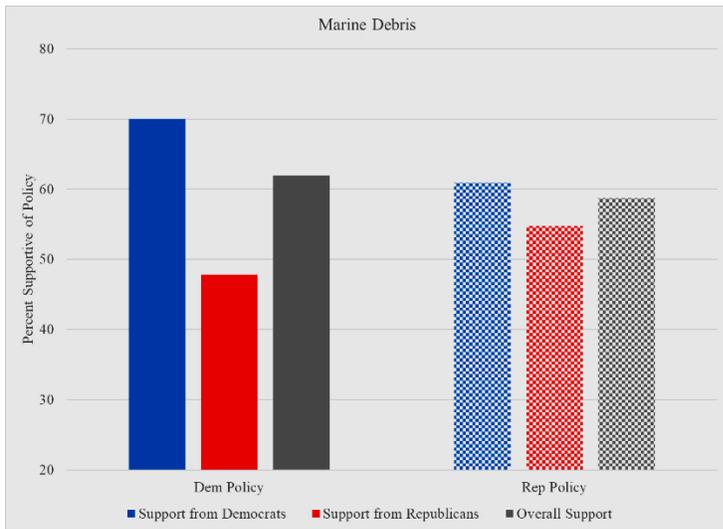
Figure 7. Policy Support by Sponsoring Party



Note: Bars show average support for policy solutions for all levels of scope and equivalence frame. Red bars show average support for policy proposed by Republicans; blue bars show average support for policy proposed by Democrats. The p -values are from t-tests for difference in means between bar pairs (shown above bars).

We gain further insight into these party cue effects by examining how the percentage of Democrats and Republicans who supported the policy depends upon the policy's party sponsor. Figure 8 displays these results, separately for each issue. (Support=scored > 4.0 on 1-7 point index.)

Figure 8. Percent Supporting Policy by Party Sponsor



Party cue effects are similar for each issue, with Republican sponsorship (vs. Democratic) diminishing the support of Democrats and increasing the support of Republicans. More interestingly, Republican sponsorship results in majority support from both Democrats and Republicans on each issue. Most Democrats still backed the policy even under Republican sponsorship, while Republican skepticism of government was tempered enough that a majority of Republicans did so too. Although overall support in the sample is hardly changed, the policy goes from one that under the sponsorship of Democrats was supported by a super-majority of Democrats and a minority of Republicans, to one that under the sponsorship of Republicans was supported by a bipartisan coalition of citizens from each party.

Conclusion

In this paper, we have presented results from a preliminary study aimed at understanding three distinct types of irrationality that we believe could play a significant role in shaping public opinion towards social problems and policy solutions: equivalency framing, scope insensitivity, and partisan cue-taking. The first and second of these elements of public opinion have received limited attention in previous literature, and thus their prevalence is largely unknown. And while partisan cueing has been well studied in existing scholarship, it has not been studied in the valence politics realm of problem-solving policies. Moreover, there has not yet been significant attention to how other types of irrationality might interact with partisan cues in shaping public responses to social problems and policy solutions.

Our results related to both problems and public policy support point to the importance of examining public attitudes across a wide range of issue areas. We chose our set of policy problems in part to maximize variation. Yet we find surprisingly levels of consensus across partisan groups on some measures. In particular, we find remarkably similar levels of dissatisfaction and worry, as well as high levels of interparty agreement on the seriousness and priority of some problems—both high and low. On other issues, we find consistent differences in seriousness and priority, and we find clear and unsurprising differences by party in the extent to which dissatisfaction and worry translate into support for government action. These kinds of variations have rarely been studied and are deserving of more attention by political scientists.

In addition, our results suggest that different types of irrationality may operate in distinct and significant ways to influence public opinion, and may have important effects on public policy support within some policy domains. For instance, although we find that party cue-taking is (unsurprisingly) important—with both Democrats and Republicans more supportive of policies proposed by their co-partisans—we find that Democrats are more supportive of policy solutions across all three of our tested domains, even when the proposal is a Republican one. In contrast, we find large effects of equivalency frames only in the case of marine debris; respondents express significantly more support for the loss-framed policy relative to the gain-framed policy. We find no such effects for either hospital deserts or vaccines.

At the same time, we find little evidence of scope sensitivity. Scope sensitivity is only evident for loss-framed policies and even here it is very modest. This finding conforms to expectations from prospect theory. As that theory would also predict, we find the biggest effect of scopes that vary from small to moderate in size, with diminishing effects as we move from a moderate to large

scope. This curve in sensitivity aligns with the utility curve originally shown by Tversky and Kahneman and illustrated in our Figure 1.

Our results have practical implications for parties' and politicians' communications over proposed policies. First, we find extremely modest effects of equivalency framing of real-world problems. Unlike hypotheticals used in previous studies where framing effects were larger, these real-world issues may be better considered by voters and therefore less susceptible to framing effects. With one exception, our results suggest there is little to be gained or lost from framing of problems or policies and highlights the importance of using factual, real information in survey experiments. Our finding of scope insensitivity to the scale of proposed solutions suggest that politicians stand to gain the same amount of support from proposing modest or ambitious improvements. Coupled with the possibility of being held accountable for failing to deliver the proposed improvements, we would expect risk-averse politicians to propose and deliver incremental progress.

A caveat to this finding and implication is that framing may be consequential when it involves emotionally evocative language such as "contamination." Scope sensitivity may be activated by the use of emotionally charged language as well. On issues where this language can be used effectively, promising the moon may be a better strategy. Finally, we find that policies to remedy problem that both Democrats and Republican judge serious gain majority support only when proposed by Republicans. This suggests that policy entrepreneurs may be better off working with the Republican Party to get their priorities on the agenda in order to garner majority support in the electorate. Of course, many barriers remain to Republican politicians proposing policies not supported by a majority of their primary electorate. These three implications from our findings suggest that politicians can take advantage of voter irrationality to building support for their policies.

Our preliminary study represents just a small step towards a much larger and quite promising research agenda. In future work, we will test a different and potentially wider set of problems and policies in order to more rigorously document potential variation in party differences, salience, and emotional reactions. This would allow us to test an additional set of hypotheses. Specifically, we expect that scope sensitivity is likely to be less evident on emotionally-charged issues than on pallid issues. Preliminary evidence of this might be seen in our results for marine debris. We might similarly expect that source cues will matter less for highly emotional issues, where respondents are more likely to consider an issue serious.

In addition, we might easily build in other dimensions of policy variation; for instance, we would be interested in building a typology around who is harmed, the type of harm, and the perpetrator of harms. Other problems and policies we have already considered include:

1. Workplace injuries
2. Flu shots
3. Evictions
4. Racial profiling
5. Car crashes
6. Rhinoceros poaching
7. Bad roads
8. Wildfires

9. Gun violence
10. Uninsured veterans
11. Manufacturing jobs
12. Decline of family farms
13. Income inequality
14. Hurricane destruction
15. Climate Change
16. Pollution

As we expand our analysis, we will also look to test other equivalencies—for instance, substituting 40% vs 60% or 10% vs 90% for 20% vs. 80%. We might also move away from percentages altogether, testing both other numeric ways of showing these equivalencies (e.g., fractions) or non-numeric equivalencies (e.g., eliminating discrimination vs. achieving equality, or removing restrictions on choice vs. achieving freedom of choice).

Similarly, we will build on our scope conditions results by testing other versions of sensitivity. For instance, we might build in a “bandaid scope” that does very little to resolve the problem, since in our pilot study the smallest scope condition was still quite ambitious. We also anticipate expanding our research to incorporate risky choice. Doing so would ask people to evaluate two policies aiming to improve upon to the status quo, where one promises a modest but certain outcome while the other has a better up side but also risks making things worse.

Finally, our next steps will likely be to test other dependent variables, including a broader range of “actions” individuals might choose to take when confronted with a policy problem, and a wider range of attitudes and emotions that could plausibly be affected by our experimental manipulations. These and other items in our research agenda will allow us to continue exploring the potentially important consequences of irrationality for public opinion.

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Appendix 1. Problem Statements and Policy Solutions

Part 1. Problem Statements

Voter Registration

State voter registration records sometimes include people who are not eligible to vote, either because they have moved and are registered elsewhere, have died, have a felony conviction, or are non-citizens. According to one recent estimate, [at least 20%/ fewer than 80%] of the people on registration lists in the U.S. are actually [ineligible/eligible].

Domestic Violence

Violence between domestic partners is all too common in the U.S. and a difficult issue for victims to discuss. According to a recent estimate, [at least 20%/fewer than 80%] of American women are in relationships [that involve/free of] domestic violence.

Identity Theft

Many Americans have their identities stolen, resulting in the misuse of their credit card or bank accounts. According to a recent study, [at least 20%/fewer than 80%] of Americans had their financial information [hacked by/safe from] identity thieves last year.

High School Dropouts

High school graduation rates in the United States lag behind the rates in other developed nations. In the U.S., [at least 20%/fewer than 80%] of students who start high school [do not end up/end up] obtaining a high school diploma.

Vaccination Rates

Contagious diseases can spread quickly among children at school when even one child is not vaccinated. According to the Center for Disease Control, [at least 20%/fewer than 80%] of American children [are not/are] in compliance with standards on vaccination for preventable diseases.

Lead Poisoning

Many American families live in older homes, putting children at higher risk of lead poisoning from contaminated paint, which can produce lasting health damage. According to recent estimates, [at least 20%/fewer than 80%] of children living in older structures have blood lead levels that are considered [unsafe/safe].

Bad Bridges

Many bridges, built decades ago, are at the end of their lifespan and will collapse if not repaired or replaced. The Federal Highway Administration reports that [at least 20% percent/fewer than 80% percent] of the nation's bridges are in [poor/good] condition and [need/do not need] major repairs or replacement.

Overstayed Visas

Overstayed visas now outnumber illegal border crossings as the largest source of illegal immigration. According to recent estimates, [at least 20%/fewer than 80%] of visa holders [stay/leave] in the United States [after/by the time] their visas expire.

Rural Hospital Closures

Many hospitals, particularly in rural areas, have closed in recent years, leaving communities without advanced medical care. According to a recent report, [at least 20%/fewer than 80%] of Americans live [too far from/close enough to] a hospital to get adequate care in an emergency.

Marine Debris

Many marine organisms mistake plastic and bits of trash for food which can cause harm to ocean ecosystems and to humans who eat contaminated fish. According to recent estimates, [at least 20%/fewer than 80%] of fresh-caught fish sold at market are [contaminated/uncontaminated] by debris.

Opioids

Every day, more than 100 Americans die from an opioid overdose. According to the U.S. Surgeon General, [at least 20%/fewer than 80%] of the patients who receive opiate prescriptions for pain use [unsafe/safe] amounts of the drug.

Falls Among the Elderly

For older Americans, a fall can lead to loss of independence, serious injury, or death. Many of these falls are preventable. Every year, [at least 20%/fewer than 80%] of Americans over age 65 will [have/avoid] a serious fall requiring medical attention.

Children in Poverty

Research shows that growing up in poverty has serious negative consequences for children's health, education, and life chances. Recent estimates put the percentage of American children living in households [below/above] the poverty threshold at [20%/80%].

Robbery

Many robbery victims suffer physical and psychological effects long after the incident. According to the U.S. Bureau of Justice Statistics, [at least 20%/fewer than 80%] of Americans will [be/avoid being] the victim of a violent robbery or assault at some point during their life.

Teenage Bullying

Research indicates that persistent bullying can lead to feelings of isolation, rejection, exclusion, and despair. The U.S. Department of Justice reports that [at least 20%/fewer than 80%] of America's teenagers have [experienced/escaped] serious bullying by their peers.

Gun Safety

Improperly secured guns in the home can be accessed by children and lead to accidents and even death. According to recent estimates, [at least 20%/avoid being] of guns kept in the home are stored [unsafely/safely] (loaded or not locked up).

Part 2. Policy Solutions

Rural Hospital Closures

Many hospitals, particularly in rural areas, have closed in recent years, leaving communities without advanced medical care. According to a recent report, [at least 20%/fewer than 80%] of Americans live [too far from/close enough to] a hospital to get adequate care in case of an emergency.

[Democrats/Republicans] in Congress have proposed a policy that would reduce the number of Americans that live [too far from/close enough to] a hospital to get adequate care. The policy proposal calls for a coordinated effort across the 50 states, the creation of public-private partnerships, and a combination of tax incentives, regulatory reforms and outreach initiatives. The price tag is estimated to be \$10 billion. The policy is expected to [reduce/increase] the number of Americans [too far from/close enough to] hospitals from [20% to [10%/5%/1%] / 80% to 90%/95%/99%]] over the next 10 years.

Marine Debris

Many marine organisms mistake plastic and bits of trash for food which can cause harm to ocean ecosystems and to humans who eat contaminated fish. According to recent estimates, [at least 20%/fewer than 80%] of fresh-caught fish sold at market are [contaminated/uncontaminated] by debris.

[Democrats/Republicans] in Congress have proposed a policy that would [reduce/increase] the number of fish [contaminated/uncontaminated] by marine debris. The policy proposal calls for a coordinated effort across the 50 states, the creation of public-private partnerships, and a combination of tax incentives, regulatory reforms and outreach initiatives. The price tag is estimated to be \$10 billion. The policy is expected to reduce the number of [contaminated/uncontaminated] fish from [20% to [10%/5%/1%] / 80% to [90%/95%/99%]] over the next 10 years.

Vaccination

Contagious diseases can spread quickly among children at school when even one child is not vaccinated. According to the Center for Disease Control, [at least 20%/fewer than 80%] of American children are not in compliance with standards on vaccination for preventable diseases.

[Democrats/Republicans] in Congress have proposed a policy that would reduce the number of children [not in compliance/in compliance] with vaccination standards. The policy proposal calls for a coordinated effort across the 50 states, the creation of public-private partnerships, and a combination of tax incentives, regulatory reforms and outreach initiatives. The price tag is estimated to be \$10 billion. The policy is expected to [reduce/increase] the number of [non-complying/complying] children from [20% to [10%/5%/1%] / 80% to [90%/95%/99%]] over the next 10 years.

Appendix 2. Dependent Variables

Part 1. Problem Questions

Using the scales below, tell us how you feel about this problem:

1. Angry (Not at all – Extremely)
2. Sad (Not at all – Extremely)
3. Worried (Not at all – Extremely)
4. Satisfied (Not at all – Extremely)

In your opinion, how serious is this problem?

Not at all serious – Extremely serious

In your opinion do you think the U.S. government should put any effort into solving this problem?

Yes

No

[if Yes] What Priority should the U.S. government give to addressing this problem?

Lowest priority – Highest priority

Part 2. Policy Questions

What is your view of this policy proposal?

Strongly approve – Strongly disapprove

If asked, how likely would you be to sign a petition supporting this policy?

Not at all likely – Extremely likely

One element of the outreach is to engage citizen volunteers in efforts to solve the problem. Would you be willing to lend your time and effort to this effort?

Definitely would not – Definitely would