

Partisan Responses to Public Health Messages: Motivated Reasoning and Sugary Drink Taxes

Sarah E. Gollust

University of Minnesota

Colleen L. Barry

Johns Hopkins University

Jeff Niederdeppe

Cornell University

Abstract This study examines the public's motivated reasoning of competitive messages about sugary drink taxes, a public health policy approach attempted with some recent success in the United States. In an experiment embedded in a nationally representative survey fielded in the fall of 2012, we randomized participants ($N=5,147$) to receive one of four messages: control, a strong protax message, a two-sided message, or a message refuting arguments made in soda company antitax messages. The protax message showed no effects on tax support, while the two-sided message depressed Republicans' support. The refutation message boosted independents' support but produced backlash among Republicans. This motivated response was pronounced among Republicans who were plausibly previously exposed to the sugary drink tax debate. These findings reinforce the communication challenges in an increasingly politicized US health policy discourse.

Keywords public opinion, motivated reasoning, health politics, health communication, sugar-sweetened-beverage tax

A large body of social science research shows how framing issues in certain ways—by emphasizing some facets over others during communication—can shape the public's interpretation of policy measures (Scheufele and Tewksbury 2007). In recent scholarship, researchers have brought two innovations into the framing research canon: *competitive framing* and the *conditional nature of framing effects*. Research on competitive framing responds to the common-sense observation that in the real world of politics

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issues usually have two or more sides, and these perspectives can differ in their strength and volume in competitive debates (Chong and Druckman 2007b). Research on the conditional nature of framing effects reveals that the influence of frames depends on both audience characteristics and source characteristics. In short, audiences will reject messages that are not communicated by a credible source (Lupia 2013) or that go against their predispositions—their political beliefs and values—assuming, of course, that they know enough about the issue to assess the congruency of the message with their priors (Druckman 2001; Zaller 1992).

Combined, these communication features—a competitive policy discourse and audience and source interactions in message effects—create the conditions for biased message selection and processing. When exposed to information, particularly from multiple and opposing viewpoints, people draw from heuristics or cues to figure out how to process and respond to that information. Salient cues include the credibility of the source, the resonance of the information with a political or values orientation, and/or a signal of a specific partisan endorsement. The broad class of literature encompassed under *motivated reasoning* suggests that people are motivated to process information selectively—namely, with the goal of confirming and maintaining their prior beliefs and worldviews (Kahan 2013; Lord, Ross, and Lepper 1979; Nisbet, Cooper, and Garrett 2015; Strickland, Taber, and Lodge 2011). Rather than responding in a strictly cognitive way to new information, individuals have an affective (often unconscious) response to whatever concepts that information evokes in them based on their prior beliefs (Kraft, Lodge, and Taber 2015). This emotional activation contributes to well-documented motivated responses: counterarguing attitudinally incongruent messages, seeking only affirming information, and—particularly after being exposed to two-sided information—coming away feeling more firmly resolved in one's prior belief (Taber and Lodge 2006). This latter process can enhance polarization in viewpoints even after attempting to provide clarifying or educational information, which is particularly challenging for health policy and public health (Hart and Nisbet 2011; Nyhan et al. 2014).

In this article we integrate literatures in competitive framing and motivated reasoning and apply them to public opinion formation around an important health policy issue—sugary drink taxes.¹ Taxes on sugary drinks remain high on the health policy agenda for states, cities, and jurisdictions

1. We use the term *sugary drink* in this article because we provided respondents with this term in the survey. It is also more inclusive than the colloquial *soda* (i.e., sugary drinks subject to taxation include energy drinks, sweetened lemonade, etc.) and is less technical than the term often favored in public health, *sugar-sweetened beverage* (SSB).

around the globe. New evidence from Mexico, for instance, suggests that a tax on sugary drinks can reduce the consumption of high-calorie beverages (Colchero et al. 2016): a major policy goal for public health advocates. However, the divisive public opinion toward such taxes has been a stumbling block in the United States. This article unpacks some of the communication mechanisms that explain this phenomenon. We do so by simulating protax advocacy and two-sided messaging about taxes. Specifically, we document the biased processing of messages about sugary drink taxes—that is, that people differentially respond to tax messages based on their political orientation—and show that this pattern occurs in the absence of identifying specific political sources (e.g., political cues). We also identify the importance of prior exposure to policy debate in the motivated response to messaging. Both the theories that inform this study and our key findings have implications for how the public understands other politically charged and controversial health policy issues, for which advocates on both sides seek to shape the public's perspectives.

Research Questions

Based on the characteristics of the real-life competitive framing context of sugary drink taxes and situated within the literatures of competitive framing and motivated reasoning, we ask the following two research questions. First, are sugary drink tax messages (protax, two-sided, and source refutation) processed in a biased way without explicit partisan cues provided to participants? We expect these messages to be processed in a biased way given the extent of prior politically charged discourse on these issues and the ideological implications of taxes and industry involvement in health policy. Second, we ask: Does previous likely exposure to political debate shape a polarized response to messaging? We expect that all respondents (regardless of political orientation) who have been previously exposed to political debate will respond to the treatment messages in ways different from those who have not.

Background and Theory

Communication in Competitive Contexts

Although single-sided messaging experiments provide strong causal inference about whether a message is persuasive for a given population, they rarely provide insight into the real-world dynamics of how policy discourse shapes public opinion. A cadre of researchers have recently explored the

effects of communication in competitive contexts (Chong and Druckman 2007b; Sniderman and Theriault 2004). This research offers important lessons that are beginning to coalesce. For instance, frames delivered simultaneously often differ in their strength such that stronger frames are more persuasive than weaker ones; equally strong frames delivered at the same time tend to cancel one another out (Chong and Druckman 2007a). The strength of a frame depends on how well it resonates with the audience, since a perspective is only strong if it is credible with that audience and especially its values (Brewer and Gross 2005; Sniderman and Theriault 2004). In a competitive context, the source of the message—particularly sources an audience finds familiar and trusts—signals important cues to the public about which side of the debate to attend.

Political source cues—that is, the mention of a source the public recognizes as partisan (e.g., an official identified as Republican or Democrat) are particularly influential and can activate motivated reasoning processes (Leeper and Slothuus 2014). Yet even without a specific political cue, individuals are good at connecting related concepts via “hot” (i.e., emotionally charged) associative processes. As Kraft, Lodge, and Taber (2015) argue by way of an environmental threat example, individuals’ responses to information follow a pathway of associations: for instance, an individual may be exposed to information about global warming, which leads that person to think about greenhouse gases, then Al Gore, and then Democrats in general. As a result the type of biased processing (toward accepting or rejecting the message) in which the individual engages after exposure to a message about global warming depends on how favorably the individual views Democrats. This initial emotionally charged association will shape the considerations from which the individual draws to form or maintain an opinion and ultimately a deliberation for or against some policy measure.

Timing of Frame Exposure

While competition in communication is often conceptualized as exposure to two opposing perspectives at once, competitive political contexts are dynamic and evolving. Most work examining the effects of two-sided or multiple frames examines these frames at a single point in time, but competition often occurs sequentially and over time in the real world of political debate (Druckman et al. 2010). This process can happen over days or even months and years of news coverage (Fowler and Gollust 2015). Scholarship aiming to understand competitive framing must then account for the natural history of message emergence and competition.

Evaluating message timing is also important for understanding motivated reasoning. In contexts in which people are unfamiliar with a topic, the direction and magnitude of message effects can be assessed fairly simply in a randomized experiment, as study participants can be considered *treatment naïve*, to use a medical analogy.² However, for policy issues of which the public is aware that have significant public consequences—including health policy issues with the potential to influence many people—previous exposure to information or debates about these issues is likely to be very important. Researchers have begun to examine whether and how such “pretreatment” exposure to messages similar to those delivered in experimental contexts influences the likelihood of experimental message response (Chong and Druckman 2010; Druckman and Leeper 2012). If study participants are already intimately familiar with an argument, the experimental delivery of a (not novel) message may have no impact on attitudes or opinions. Alternatively, people who are already familiar with an argument may be more likely to reject it because they already have available considerations in memory, leading them to counterargue and experience an emotional arousal in response (both of which may trigger a backlash against the advocated position in the message) (Chong and Druckman 2007b; Dillard and Shen 2005). In contrast, a new message delivered experimentally may persuade those unfamiliar with the topic or the particular messaging used in public discourse. The result of these two subgroup responses (the familiar and the unfamiliar, combined) can also cancel each other out and appear to be a null effect in the aggregate, obscuring what are otherwise meaningful impacts on audiences.

The information processing theory underlying motivated reasoning also emphasizes the importance of message timing. Kraft, Lodge, and Taber (2015) present a model in which the emotions and considerations that a message arouses are stored in individuals’ memories for later retrieval. To return to their example above, the global-warming-Al-Gore-Democrats cluster of interconnected ideas will be available later when individuals encounter some related communication stimulus, and they will then draw from their affect toward Democrats in their response to that communication. According to their model of motivated reasoning, “activation from prior attitudes and incidental affect spreads to semantically and affectively

2. This does not, however, preclude the likelihood of effect moderators based on values, ideology, or partisanship. For instance, Shen and Gromet (2015) found biased processing of messaging even in an obscure scientific arena of neurolaw (the incorporation of brain science into legal and policy arenas) when the policy context concerned its use in criminal defense—a context in which Republicans hold stronger prior beliefs. See also Kraft, Lodge, and Taber (2015) for a discussion of this work.

related concepts stored in memory (*spreading activation* hypothesis). Accordingly, it is not only the frame itself, which influences the set of considerations that come to mind and are deemed important for evaluating the object, but also memory retrieval that is influenced by incidental affect (*affect contagion* hypothesis) and prior attitudes (*motivated bias*)” (Kraft, Lodge, and Taber 2015: 129–30).

All told, these perspectives emphasize that researchers studying communication and politics must take previous exposure to messages seriously, since this exposure can produce diverse patterns of information processing and effects in randomized experimental contexts.

Communication in Politically Polarized Contexts

Policy issues that have become associated with elite political contests—and most policy issues with broad public resonance have become politicized in this way—are particularly vulnerable to the motivated reasoning cascades described above. In most of the extant research on motivated reasoning that examines partisan-based argumentation, researchers provide their respondents with partisan cues (e.g., Republicans vs. Democrats) (see, e.g., Bullock 2011). These studies suggest that when members of the public know which elite partisan perspective is associated with the argument, they are especially likely to elevate the influence of partisan source cues in their opinion formation over the actual content of those arguments (Druckman, Peterson, and Slothuus 2013). Yet motivated reasoning and backlash responses can occur in contexts without specific partisan cues (Hart and Nisbet 2011). Our study adds to this literature base by exploring motivated reasoning processes on an issue without specific partisan cues in messaging and with a message source outside the elite partisan official category.

Sugary Drink Taxes as a Case

Each of these literature themes—competitive framing, pretreatment exposure, politically polarized communication, and motivated reasoning—is germane to communication around sugary drink taxes. As awareness of the public health problems of obesity and its associated costly chronic illnesses (i.e., type 2 diabetes, cardiovascular disease) has grown, researchers and policy makers have sought a range of solutions to address the issue (IOM 2012). The overconsumption of sugary drinks—drinks sweetened with caloric sweeteners, including sodas but also sweetened teas, sweetened

juices, and energy drinks—is a dominant source of extraneous calories in Americans’ diets (Han and Powell 2013). Such drinks are associated with many public health hazards, including excessive weight, dental caries, and type 2 diabetes (Malik et al. 2013; Vartanian, Schwartz, and Brownell 2007). Reducing Americans’ consumption of sugary drinks has thus been a focus in health policy circles since at least the mid-2000s. An often discussed policy proposal is an excise tax on sugary drinks, applied on a per-volume basis (e.g., a penny per ounce) (Brownell et al. 2009). Based on the economic theory of price elasticity of demand—and founded upon the success of taxes on tobacco products—the price increase as a result of the tax is expected to reduce purchases of the product. Sugary drink taxes have been proposed in over thirty US states and cities since 2009 (Mosier 2013). These US efforts were uniformly never passed into law until 2014, when a penny-per-ounce tax was passed in Berkeley, California. Mexico implemented a similar tax in 2014 (Colchero et al. 2016), and a tax on soda (including diet drinks) also passed in Philadelphia in June 2016 and in Seattle in June 2017, among others.

Although the politics of these taxes already make them an important topic to scholars of health policy, several characteristics of the communication environment surrounding sugary drink taxes make the issue particularly well suited for political communication inquiry. First, public opinion about sugary drink taxes has in recent years become politically polarized. Early survey research conducted in 2001 by Oliver and Lee (2005) showed that food and beverage taxes have not always been fully partisan issues. Democrats were only marginally more supportive of taxes on snack foods (the authors did not ask about beverage taxes) than independents, and no statistically significant differences existed between Republicans and independents. In contrast, survey data from 2011 and 2012 demonstrate partisan differences in support for a sugary drink tax and in agreement with pro- and antitax arguments (Barry, Niederdeppe, and Gollust 2013; Gollust, Barry, and Niederdeppe 2014). This emergent polarization could be because a sugary drink tax is easy to connect to the classic ideological flashpoint of taxes, suggesting that even people with little to no awareness of a sugary drink tax as a public health tool might filter their opinion on sugary drink taxes based on their political predispositions about taxation (see, e.g., Jerit and Barnabas 2012). In addition, multiple elite sources from a mix of partisan identities have weighed in on their opinion for and against sugary drink regulation, suggesting that the issue is not as uniformly polarized as other hot-button health policy issues such as the Affordable Care Act. For instance, former New York City mayor Michael

Bloomberg (a political independent who first ran as a Republican) remains a strong proponent of sugary drink taxes. Furthermore, 2016 Democratic primary election candidate for president Bernie Sanders opposed the Philadelphia sugary drink tax, while his rival Hillary Clinton supported it. Thus, the political communication-related partisan dynamics of the sugary drink policy issue are ripe for additional scrutiny.

Second, this issue has achieved widespread publicity but particularly in the areas where taxes have been introduced (Niederdeppe et al. 2013). Unlike some health policy issues that are national in scope (such as health reform), policy discussion about sugary drink taxes usually remains localized because these taxes are typically proposed and applied as state or local initiatives. For instance, between 2009 and 2011, local news outlets in the areas in which tax legislation had been introduced published at least 101 news stories about sugary drink taxes, while national news outlets published only 15 (Niederdeppe et al. 2013). Thus, debate over a tax proposal in Philadelphia is unlikely to generate widespread exposure to citizens in, say, Iowa City. In sum, previous exposure to information about a sugary drink tax will vary across settings of prior policy debate.

Third, yet another characteristic of the communication surrounding sugary drink taxes is the imbalance of messaging resources. Although the issue exemplifies a competitive, two-sided framing contest, it is not balanced—far from it. In fact, it has been estimated that antitax lobbyists (predominantly the beverage industry and allied organizations) routinely outspend protax public health advocates by tremendous margins (tens of millions dollars) in jurisdictions considering sugary drink policy action (CCFPHA 2011). Prior to Berkeley's 2014 success, no other jurisdiction had seen a successful tax implementation. Health advocates recognize that they are outspent and in a vulnerable position related to messaging power and reach (Jou et al. 2014). They thus seek novel and persuasive messaging strategies to counteract the standard beverage company arguments that usually revolve around powerful ideologies: values of choice, freedom, individualism, and antigovernment (Nixon et al. 2015). One messaging strategy that advocates employ is to discredit the sponsor of antitax messages by revealing the profit and political interests of soda companies. For instance, as discussed in Nixon et al. (2015), the argument that “Big Soda undermines democracy” was the third most popular protax argument in 2012 in Richmond, El Monte, and Telluride, Colorado, after the argument of improving community health with the tax revenue and discussing the health drawbacks of soda. This advocacy approach was employed even

more explicitly in Berkeley in 2014, where the protax campaign—named “Berkeley vs. Big Soda”—highlighted soda company misdeeds and lobbying activities, rather than exclusively promoting the public health justifications.

This source-refutation strategy is representative of what Chong and Druckman (2013) call *counterframing* and exemplifies an overtime framing contest. What is interesting about this approach from a political communication perspective, however, is that the source derogation is not explicitly partisan: rather than calling out a “Republican” or a “Democratic” argument in a counterframing approach, sugary drink tax advocates call out the source as “industry.” Such a strategy could be a trigger for biased processing, presuming it solicits negative associations among proindustry members of the public (likely, Republicans). Understanding whether this strategic messaging works—and among whom—provides new information about the characteristics of competitive framing in polarized information environments and how these messages shift opinion. This strategic messaging also shares similarities to other issues in health policy where industry looms large, with increasing debate around the merits and limitations of health-related industries like Big Food and Big Soda joining the established health policy actors of Big Pharma and Big Tobacco.

Methods

Experimental Design

We conducted a randomized experiment designed to examine the impact of three different messages about a sugary drink tax compared to a control condition with no message (see table 1 and appendix A; see also Niederdeppe, Gollust, and Barry 2014). We selected messages based on previous research: a messaging pretest in which a nationally representative sample of US adults rated a series of pro- and antitax messages for their perceived message strength and interviews with protax advocates to identify their perspectives about the most compelling advocacy messages they employed in past sugary drink tax policy debates (Barry, Niederdeppe, and Gollust 2013; Jou et al. 2014). From these analyses we selected three messages to include in the experiment: a *strong protax message* (sugary drinks are the single largest driver of obesity, the strongest protax message rated by participants in the previous opinion study), a *two-sided message* using the same strongest protax frame (sugary drinks are the single largest driver of obesity) and the strongest antitax frame

Table 1 Study Design ($N=5,147$)

Experimental Group	Abbreviated Message
Control group ($N=1,319$)	No message exposure
Strong protax message ($N=1,157$)	Sugary drinks are the single largest driver of obesity; sugar is empty calories
Two-sided message ($N=1,312$)	[PRO] Sugary drinks are the single largest driver of obesity; sugar is empty calories [ANTI] A tax on sugary drinks is arbitrary; does not affect other high-calorie foods
Refutation message ($N=1,359$)	The main opponents of taxes on sugary drinks are soda companies. They try to trick the public and spend money on marketing, saying that a tax is arbitrary but sugary drinks are the single largest driver of obesity

Notes: See appendix for full messages.

as measured in the previous study (sugary drinks are an arbitrary target for taxation since other high-calorie foods exist), and a *source refutation message*. The source refutation message, one that public health advocates often employ in sugary drink policy debates, included the specific identification of the main antitax frame source (i.e., soda companies) combined with abridged versions of strong protax messages and a refutation or weakening of popular antitax messages (e.g., that sugary drink taxes are arbitrary). Note that we did not include a single-sided antitax message. As shown in table 1, all study participants were randomly assigned to view either one of the three sugary drink tax messages or no message at all. Demographic and political characteristics were balanced across these randomized groups.

After reading their assigned text, respondents answered questions about their support for sugary drink-related policies. Respondents in the control condition answered the key policy items directly. All question modules and items within modules were randomly ordered.

Data

Study participants were members of the GfK KnowledgePanel®. GfK recruits panel members through probability-based sampling; at the time of

the study, recruitment was primarily through address-based sampling in order to encompass households without telephones (formerly, the probability sample was established through random-digit dialing). Households without Internet or hardware access are provided with access to the Internet and a netbook computer, if needed. For this study, GfK invited 10,917 US adult panel members aged eighteen to sixty-four to participate in the survey between October 5 and December 4, 2012.³ Of these, 5,147 (47.1 percent) met the study inclusion criteria designed to ensure internal validity: they completed the survey in less than sixty minutes and spent more than ten seconds on the screen showing the experimental message.⁴ The overall response rate, multiplying the panel recruitment rate (16.6 percent) by the survey completion rate (47.1 percent), was 7.8 percent. The median survey completion time was four minutes.

Measures

Support for a Sugary Drink Tax. We asked respondents how much they supported or opposed a proposal to “require a penny-per-ounce tax on sugary drinks that would add twelve cents to the cost of a twelve-ounce can of soda.” Response options ranged from 1, *strongly oppose*, to 7, *strongly support*.

Political Party Identification. We measured political party identification with a single item asked at the conclusion of the survey: “Generally speaking, do you think of yourself as a . . .” Response options included “Democrat,” “Republican,” “Independent,” “another party,” or “no preference.” For the analyses, since our substantive focus was to compare the individuals who identified as Democrats and Republicans to all others and avoid inappropriately excluding individuals and thus threaten the randomization, we included “no preference” (of which there were $n=860$) and “another party” (of which there were 89) with independents. We then

3. The sample size is larger than we originally anticipated. The overarching design of this study was a two-wave messaging experiment. However, Hurricane Sandy caused major losses of electricity and Internet between October 22 and November 5, 2012, which occurred between survey waves for many East Coast participants. As a result, GfK refiled the surveys later in the time period to ensure reliable data, resulting in our large sample reported herein.

4. We prespecified these exclusion criteria with GfK, and they delivered to us the data set that met these criteria. Thus, we do not have access to the prefinal data set to assess any imbalance in randomization by the time spent on the survey (beyond one hour). We do know that the experimental groups are balanced by observed demographic characteristics; however, we cannot completely rule out the possibility of differential completion of the survey or differential length of time to complete the survey resulting from the condition to which respondents were randomized.

examined Democrats ($N=1,329$), Republicans ($N=1,707$), and independents ($N=2,080$) separately in all analyses.

Preexposure to Sugary Drink Policy Debate. We measured preexposure to policy debate through a combination of participants' states of residence and their reported frequency of consuming local news. Specifically, we coded as 1 every state that had introduced a soda tax at the state level or within a local jurisdiction (e.g., city) between 2010 and the 2012 fall data collection (for example, a major city within Pennsylvania—Philadelphia—debated a sugary drink tax twice during that time period). The tax had to be large (a penny per ounce or more) because they are the tax proposals that have been and remain politically controversial and the ones that public health advocates promote.⁵ Thirteen states and the District of Columbia fell into this group.⁶ Next, we used two items measuring local news media consumption available from the GfK panel data: "Please indicate how often you typically watch each type of program on broadcast TV," and the two items were "local morning news programs" and "local evening news programs." Response options were: never (1), less than once a month (2), one to three times a month (3), one or two times a week (4), and three times a week or more (5). Local television news is the dominant way Americans get their news (Pew Research Center for the People and the Press 2012). We created a dichotomous measure of high versus low news media consumption by coding as "high" anyone who was a 4 or 5 on either media item. We then multiplied the "residence in a state that considered a sugary drink tax" variable by the dichotomous measure of local news consumption to create a measure of plausible preexposure to policy debate. Thus, a study participant who reported a high consumption of local news—but who did not live in one of the fourteen states—would receive a 0 on this measure. In contrast, a participant who reported high local news viewing and lived in one of the states would receive a 1 on the measure. For sensitivity analyses, we also created a continuous specification of exposure by multiplying respondents' average news viewing by whether they lived in an SSB tax state, so the resulting measure ranged from 0 to 5. Results demonstrating message effect moderation by preexposure were robust to this continuous specification of exposure; however, we report the dichotomous measure for our moderation analyses (described below) because of

5. See UConn Rudd Center for Food Policy and Obesity for a technical discussion of how sugary drink taxes are applied, at www.uconnruddcenter.org/sugary-drinks-issue-overview-and-fact-sheets.

6. The states are VT; RI; WV; HI; TN; IN; IL; MS; CA; OR; WA; NY; PA (for Philadelphia); and Washington, DC.

concerns about the linearity assumptions and model-dependent results in interaction models (see Hainmueller, Mummolo, and Xu 2016).

Analysis

The first set of analyses examined the control group only to assess any (expected) political polarization in opinion about the sugary drink tax. To estimate message effects, we estimated ordinary least squares (OLS) regressions of sugary drink tax opinion on the randomly assigned treatment group (the three messages compared to the control group), stratified by political party. Models estimated with ordered logit regression were similar in direction and significance of effects, but we report OLS here given the interpretation difficulties with estimating interaction terms in nonlinear models (Karaca-Mandic, Norton, and Dowd 2012). Next, we specified regression models with interaction terms by message and political party to statistically test whether the messages had a differential effect on political partisan subgroups. To display these results visually, we estimated the mean support for the sugary drink tax for all four randomly assigned groups and constructed a measure of percent change in mean support from the control group for each message treatment.

Next, we examined whether the messages affected participants differently based on their previous exposure to policy debate. We estimated stratified models by political orientation, including interaction terms for each message and the dichotomous prior exposure measure. To interpret these findings visually, we estimated the mean sugary drink tax policy support for each political group at high and low exposure levels. For some models we also included a set of demographic control variables (gender, race, educational attainment, body mass index constructed from weight and height, and parent status—all self-reports) from the GfK Knowledge Panel panelist data set. We also included a dummy variable for whether the date of survey was October 22 through November 5, 2012 (when GfK reported disruption from Hurricane Sandy during fielding. See note 3).

All analyses applied GfK-provided survey weights to adjust for nonresponse and poststratification adjustments based on census demographics.⁷ We used STATA v.13 for all analyses.

7. The literature is ambiguous about whether to apply survey weights to experimental data. When we estimate the models without applying the weights, the results are consistent, and our main experimental results are in fact stronger (table 3). Unweighted results incorporating respondents' news exposure and state of residence (table 4) are less consistent, and the statistical associations become somewhat weaker, perhaps because of the GfK weighting on census region. To be consistent with our other studies using these data (Niederdeppe, Gollust, and Barry 2014), we chose to incorporate the survey weights in all analyses.

Table 2 Mean Sugary Drink Tax Support, by Treatment Group and Political Party Identification

	Democrats (<i>N</i> = 1,698)	Independents (<i>N</i> = 2,068)	Republicans (<i>N</i> = 1,325)
Control	3.34 (0.13)**	3.07 (0.10)	2.77 (0.14)
Strong protax message	3.61 (0.16)***	3.12 (0.13)**	2.57 (0.16)
Two-sided message	3.15 (0.13)***	2.83 (0.12)**	2.25 (0.13)
Refutation message	3.68 (0.14)***	3.56 (0.13)***	2.54 (0.13)

Notes: All estimates (means and standard errors) apply the GfK-provided survey weights. Support for a sugary drink tax was measured on a 7-point Likert scale from 1, *strongly oppose*, to 7, *strongly support*.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ for two-sided test of difference in tax support between Republicans and the indicated group within that treatment group.

Results

Table 2 shows the weighted mean sugary drink tax support across treatment groups and groups defined by partisanship. In general, tax support was below the midpoint on the seven-point scale; only for Democrats in the protax and refutation message groups and independents in the refutation message group did it rise above 3.5, reflecting the overall unpopularity of this policy proposal. Democrats had consistently higher support than independents and Republicans. For the control condition for instance, mean support among Democrats was 3.34, significantly higher than Republicans' support at 2.77 ($t = 2.99$, $p = 0.003$). Independents' support for the tax fell in the middle, at 3.07.

Table 3 presents regression results estimating political differences in sugary drink tax support in response to three types of tax messages, compared to the control group. The results reveal that exposure to strong protax messaging (connecting the consumption of sugary drinks with obesity) had no statistically significant effects relative to the control group for any of the three groups (although the effect was in the expected direction, toward higher tax support, for Democrats and the opposite for Republicans). Table 3 shows that the two-sided message reduced support compared to the control group for all partisan groups, but we were only able to reject the null hypothesis of no effect for this message for the Republicans ($\beta = -0.52$, $p = 0.007$). This indicates that for Republicans the anti-tax message (that a soda tax is arbitrary) was stronger than its paired protax message (antiobesity).

The refutation message boosted independents' support by 0.49 points (or 15 percent, comparing a mean of 3.56 to that of 3.07 in the control

Table 3 Partisan Differences in Message Effects on Sugary Drink Tax Support

	Stratified Models			Models with Interaction Terms
	Democrats	Independents	Republicans	Full sample
	Coeff (SE)	Coeff (SE)	Coeff (SE)	Coeff (SE)
Strong pro	0.28 (0.20)	0.05 (0.16)	-0.19 (0.22)	-0.19 (0.22)
Two-sided	-0.19 (0.18)	-0.24 (0.16)	-0.52 (0.19)**	-0.52 (0.19)**
Refutation	0.34 (0.19)	0.49 (0.16)**	-0.23 (0.19)	-0.23 (0.19)
Democrat				0.57 (0.19)**
Independent				0.36 (0.18)*
Strong pro × Democrat				0.47 (0.30)
Two-sided × Democrat				0.33 (0.26)
Refutation × Democrat				0.57 (0.27)*
Strong pro × Independent				0.24 (0.27)
Two-sided × Independent				0.28 (0.25)
Refutation × Independent				0.72 (0.26)**
Constant	3.34 (0.13)***	3.07 (0.10)***	2.77 (0.14)***	2.77 (0.14)***
N	1698	2068	1325	5091

Notes: All models are estimated with ordinary least squares regression, applying the GfK-provided survey weights.

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ indicates significant differences from the control group (received no message) for stratified models and the control × Republican for interacted models.

condition, $p = 0.003$). Figure 1 illuminates the percent differences in tax support compared to the control group for the three treatment messages. The differences across political groups in response to the refutation message are striking, showing a divergent pattern of response to this message for Republicans compared to both Democrats and independents. Indeed, in models estimated with interaction terms for each message and political party (table 3), the differences in Republicans' responses to this message compared to responses among independents (interaction $\beta = 0.72$, $p = 0.006$) and Democrats (interaction $\beta = 0.57$, $p = 0.034$) were

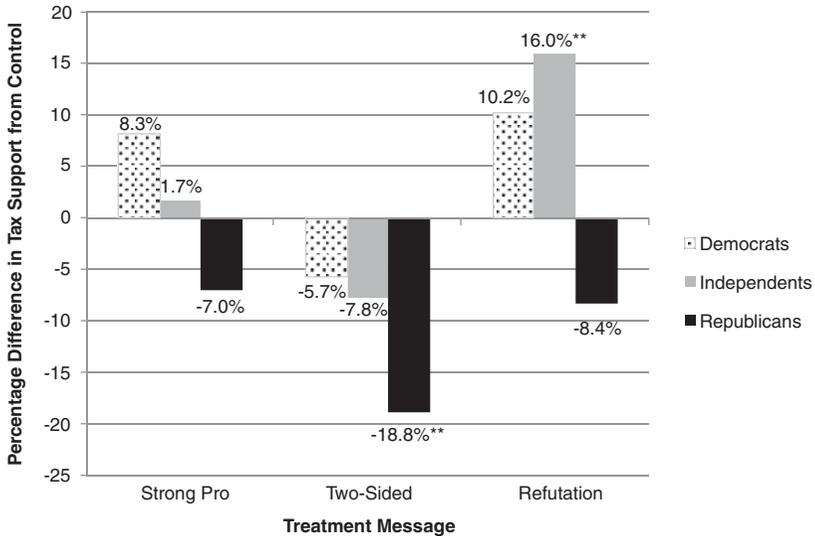


Figure 1 Message Effects on Sugary Drink Tax Support, by Political Party

Notes: Figure shows percent differences from the control group for mean sugary drink tax support.

** $p < 0.01$; indicates significant differences from the control group for that treatment message. Within the refutation condition, the differences between the Republican and the Democrat groups and the Republican and the Independent groups are also both significant (i.e., significant interaction terms in table 3).

statistically significant. No other party-frame interaction terms were statistically significant.

Next, we assessed whether message effects differed for partisans based on their likely prior exposure to political debate about a sugary drink tax (table 4). The coefficient for previous exposure was insignificant for all groups, signifying that within the control condition (the reference category) there were no differences in sugary drink tax support based on respondents' likely level of prior exposure to the issue. However, table 4 indicates that prior exposure to sugary drink tax debates moderated message effects. Specifically, there was a statistically different response to the refutation message based on prior exposure for Republicans ($\beta = -1.16$, $p = 0.03$), whereas there was no statistically significant interaction by exposure for that message for Democrats or independents. Figures 2a, 2b, and 2c illustrate these effects, showing the differences in support for the tax by high and low exposure within each partisan group (the figures also

Table 4 Prior Exposure as a Moderator of Message Effects on Sugary Drink Tax Support

	Democrats				Independents				Republicans			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	Coeff (SE)											
Strong pro high exposure	0.26 (0.25)	0.25 (0.24)	0.08 (0.19)	0.12 (0.19)	0.08 (0.19)	0.08 (0.19)	0.12 (0.19)	0.08 (0.19)	0.08 (0.19)	0.12 (0.19)	0.08 (0.19)	0.12 (0.19)
Two-sided Refutation	-0.18 (0.21)	-0.22 (0.21)	-0.26 (0.18)	-0.27 (0.18)	-0.26 (0.18)	-0.26 (0.18)	-0.27 (0.18)	-0.26 (0.18)	-0.26 (0.18)	-0.27 (0.18)	-0.26 (0.18)	-0.27 (0.18)
Previous high exposure	0.38 (0.22)	0.33 (0.22)	0.50 (0.19)**	0.52 (0.18)**	0.50 (0.19)**	0.50 (0.19)**	0.52 (0.18)**	0.50 (0.19)**	0.50 (0.19)**	0.52 (0.18)**	0.50 (0.19)**	0.52 (0.18)**
Strong pro × high exposure	-0.10 (0.31)	-0.03 (0.32)	-0.23 (0.24)	-0.20 (0.25)	-0.23 (0.24)	-0.23 (0.24)	-0.20 (0.25)	-0.23 (0.24)	-0.23 (0.24)	-0.20 (0.25)	-0.23 (0.24)	-0.20 (0.25)
Two-sided × high exposure	0.01 (0.46)	0.08 (0.45)	-0.08 (0.39)	-0.16 (0.40)	-0.08 (0.39)	-0.08 (0.39)	-0.16 (0.40)	-0.08 (0.39)	-0.08 (0.39)	-0.16 (0.40)	-0.08 (0.39)	-0.16 (0.40)
Refutation × high exposure	0.06 (0.43)	0.05 (0.44)	0.45 (0.36)	0.47 (0.36)	0.45 (0.36)	0.45 (0.36)	0.47 (0.36)	0.45 (0.36)	0.45 (0.36)	0.47 (0.36)	0.45 (0.36)	0.47 (0.36)
Constant	0.03 (0.44)	-0.02 (0.45)	0.06 (0.40)	0.07 (0.40)	0.06 (0.40)	0.06 (0.40)	0.07 (0.40)	0.06 (0.40)	0.06 (0.40)	0.07 (0.40)	0.06 (0.40)	0.07 (0.40)
Demographic controls	3.32 (0.15)***	3.18 (0.29)***	3.09 (0.11)***	2.99 (0.23)***	3.09 (0.11)***	3.09 (0.11)***	2.99 (0.23)***	3.09 (0.11)***	3.09 (0.11)***	2.99 (0.23)***	3.09 (0.11)***	2.99 (0.23)***
N	No 1628	Yes 1610	No 1932	Yes 1932	No 1628	No 1628	Yes 1932	No 1628	No 1628	Yes 1932	No 1628	Yes 1932

Notes: Reference group for messages is the control group. Demographic controls include gender, age, race (nonwhite vs. white), educational attainment, income, and respondents' body mass index, as well as whether they are the parent of a child under eighteen years old and whether the survey timing took place during Hurricane Sandy. All models are estimated with ordinary least squares regression, applying the GfK-provided survey weights.
* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

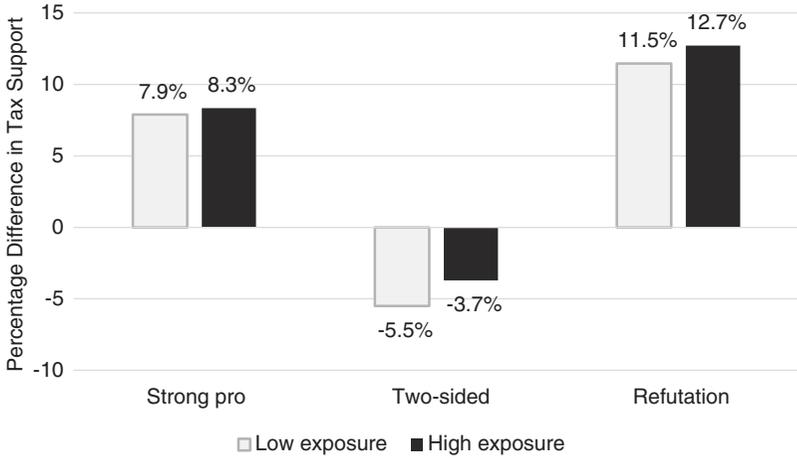


Figure 2a Message Effects on Sugary Drink Tax Support for Democrats, by Prior Exposure

Notes: Figure shows percent differences from the control group for mean sugary drink tax support for Democrats with high versus low potential exposure to sugary drink taxes (high exposure is a 1 on the dichotomous indicator of high reported local television news consumption and living in a state that has considered an SSB tax). None of the differences between exposure groups or between the treatment group and the control group are statistically significant.

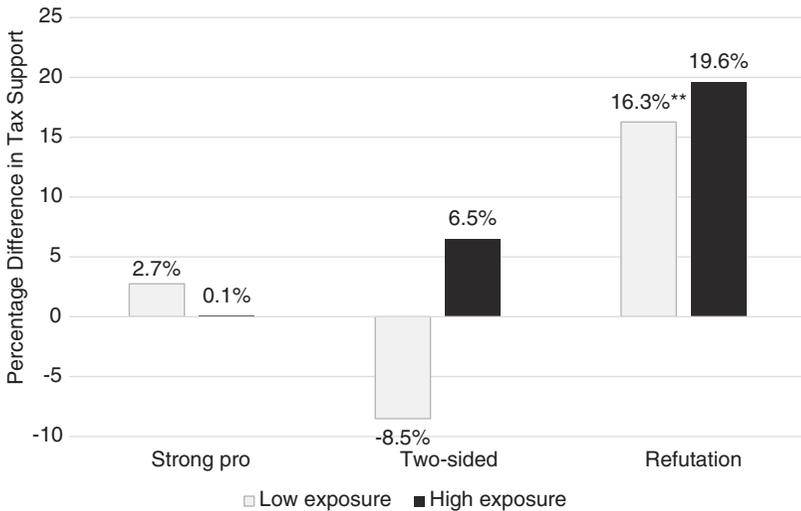


Figure 2b Message Effects on Sugary Drink Tax Support for Independents, by Prior Exposure

Notes: Figure shows percent differences from the control group for mean sugary drink tax support for Independents with high versus low potential exposure to sugary drink taxes (high exposure is a 1 on the dichotomous indicator of high reported local television news consumption and living in a state that has considered an SSB tax).

** $p \leq 0.01$; indicates significant differences from the control group for that treatment message within that exposure group. None of the differences between exposure groups for a particular message are statistically significant.

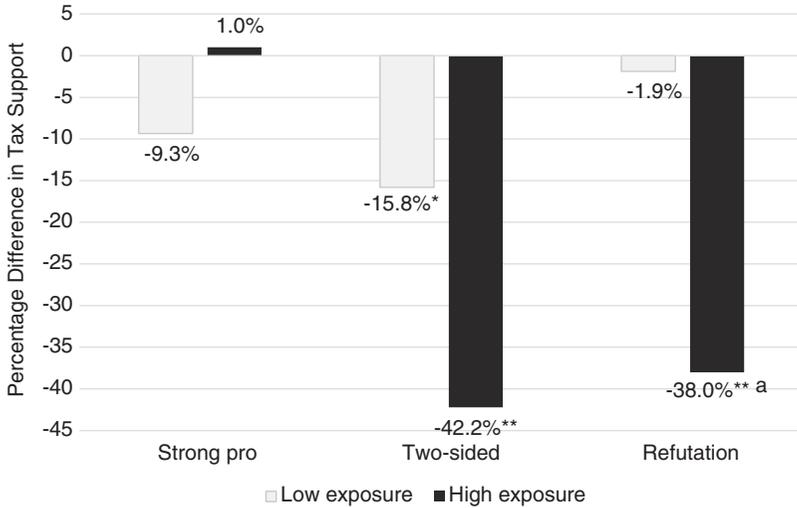


Figure 2c Message Effects on Sugary Drink Tax Support for Republicans, by Prior Exposure

Notes: Figure shows percent differences from the control group for mean sugary drink tax support for Republicans with high versus low potential exposure to sugary drink taxes (high exposure is a 1 on the dichotomous indicator of high reported local television news consumption and living in a state that has considered an SSB tax).

^aIndicates that the effect of the message (refutation message) is significantly different for the high-exposure group compared to the low-exposure group.

$p < 0.05$; * $p \leq 0.05$; ** ≤ 0.01 ; indicates significant differences from the control group for that treatment message within that exposure group.

indicate whether there are significant differences in message effects based on this exposure stratification). For Democrats and independents (fig. 2a and fig. 2b), prior exposure to sugary drink tax debates did not modify the message effects: the bars for high- and low-exposure groups were not statistically different from one another (these differences were not statistically significant per the interaction term coefficients displayed in table 4).

In contrast, figure 2c illustrates that Republicans with high previous exposure to sugary drink tax debates showed a much stronger and negative response to both the two-sided and the refutation message. The difference in support for high- versus low-exposure Republicans was statistically significant for the refutation message (as indicated by the interaction term in table 4). Those Republicans who viewed the refutation message and were plausibly previously exposed demonstrated a level of tax support that was 38 percent lower than the control group, compared to only 2 percent

lower among those Republicans who were not plausibly previously exposed to the SSB tax.⁸

As a sensitivity analysis, we also estimated models regressing sugary drink tax support on the interaction of message and high news consumption and the “average local news” consumption variable (not combined with state of residence). There were no significant coefficients for the interaction terms for these variables (results are not shown). This analysis enhances our confidence that we are not just measuring the propensity to consume news but plausible exposure to the policy debate in the relevant states.

Finally, although experimental analyses typically do not require the inclusion of covariates (Mutz 2011), exposure to previous tax debates is not randomly assigned and varies by various demographic and political characteristics, and it is important to adjust for the potential confounding influence of these characteristics. Thus, in the final set of models (model 2 of table 4), we included a set of demographic controls identified in previous work (Gollust, Barry, and Niederdeppe 2014) as predictive of sugary drink tax policy opinion: age, gender, race (nonwhite vs. white), income, educational attainment, body mass category, and whether the respondent is a parent of a child under eighteen (as well as an indicator variable for the survey date as noted above). The inclusion of these covariates affected neither the magnitude nor the significance of the interaction terms. Thus, we conclude that Republican backlash to a source refutation message was most pronounced among those who were plausibly previously exposed to policy debate, and this previous exposure construct is not simply a proxy for some demographic characteristic that correlates with news exposure or state of residence, such as educational attainment, gender, own body size, or parent status.

Discussion

Our findings offer important insight into the competitive communication context of sugary drink taxes and our understanding of motivated reasoning in competitive framing contests more generally. First, we show that a strong protax public health argument in support of a sugary drink tax is weak on its own, failing to boost support for taxes among all groups

8. We also tested for three-way interactions by running the regression model of sugary drink tax support, pooled by party identification and including all political party x message interactions and party x message x exposure interactions. This model reveals the significant coefficient ($b = -0.64$, $SE = 0.29$, $p < 0.05$) on the refutation message x Republican x high exposure term that fig. 2 signaled.

including Democrats, who should be the most favorably predisposed given their higher tolerance for taxation as a means of achieving societal objectives. The comparative weakness of the protax frame is evident in the two-sided messaging context, where support for taxes was lower than the control group among Republicans. This indicates that when pro- and antitax frames are paired, the antitax frame dominates. We speculate that this could be because soda companies have brought substantially greater messaging resources to the sugary drink tax policy context. These antitax messages may be more available and thus resonate more with the general antitax sentiment that is particularly pronounced among Republicans.

Second, we also find evidence of motivated reasoning in response to the soda company refutation message. This message was the only one of the three to boost support among any political group. For independents, the message did what advocates expect it would: by casting aspersions on the soda company's role in sugary drink antitax lobbying, it increased support for sugary drink taxes—more than a protax message describing the health benefits of such a tax. This refutation message also produced increased polarization between political groups, with the gap between Republicans and both Democrats and independents increasing after exposure to this message compared to the control group. This polarization in response to the message occurred without the use of any explicit political endorsements or cues.

What explains this response to the soda company refutation message? Our results show that previous plausible exposure to policy debates may be one contributor to this apparent motivated response. Backlash to the refutation message was prominent among Republicans with prior plausible exposure to sugary drink tax debates: among high-exposure participants, support was 38 percent lower than Republicans in the control condition, compared to only 2 percent lower for low-exposure participants. This suggests that Republicans—based on previous exposure to the competition over sugary drink taxes, largely between health advocates and soda company message sponsors—may have been motivated to reject and/or counterargue the soda company refutation message in order to defend prior positions. Perhaps a sugary drink tax message would activate the probusiness, antitax sentiment among Republicans regardless of previous exposure. However, the pattern of findings suggests that the refutation message in particular may have activated Republicans' motivations to sustain a probusiness perspective in response to what they presumed was an antibusiness refutational threat (a refutation they would presume comes

from an antibusiness source: Democrats who have proposed such taxes in previous jurisdictions). This pathway offers support for Kraft, Lodge, and Taber's (2015) model of biased processing, in which an event (previous exposure to anti- and protax messaging) triggers a processing stream of mainly affective reactions and some cognitive considerations that are then drawn on in future reactions to stimuli—in this case the experimental intervention we implemented in this study. However, without measuring information processing directly (as we discuss below, in limitations), this is only a speculative explanation worthy of further study.

Our results also offer evidence that could suggest an asymmetry in motivated reasoning—namely, that Democrats did not respond in a parallel fashion to protax messages. Specifically, we show that Democrats attentive to media in states that have seen policy debate were no more likely than those living in lower exposure states to support taxes in response to either the protax message or the source refutation message. This could be because of the relative unpopularity of the tax: Democrats in the control group had mean support below the scale midpoint, and at the time of the survey, no jurisdictions had passed a tax. Many Democrats, therefore, either did not know about the policy proposals or had either weakly supported or not supported taxes in the past, signifying they had no strong protax belief they were trying to defend or maintain when confronted with the experimental messaging. We caution, however, that without a one-sided antitax message—a message solely consisting of an attack on the typical public health advocate promoting a sugary drink tax—our data are not well equipped to comprehensively examine the possibility of symmetrical responses.

Our findings offer implications for communication strategies about obesity prevention. Rhetoric against soda companies (Big Soda) has lately featured more prominently in media discourse. Although explicit parallels between soda company tactics and those of the tobacco industry have been circulating in the scientific and health literature for several years (Brownell and Warner 2009; Dorfman et al. 2012; Koplan and Brownell 2010), these messages are still relatively infrequent, albeit growing, in the popular media (Moss 2013; O'Connor 2015). Our findings suggest that this explicit communication tactic—calling out the negative role of soda companies in lobbying against or funding scientific studies—may be effective among independents and Democrats but may backfire for Republicans, as we have seen in communication about other health issues (Gollust, Lantz, and Ubel 2009). Public health advocates who want to reach likely opponents of

sugary drink policy intervention with their message might need to look for other communication approaches.

Limitations

Our study has several notable limitations. First, despite the efforts of GfK in random sampling from the national population, this was an Internet study using a defined panel of participants who, due to their experience with surveys, may not be representative of the United States in ways we might not be able to observe or weight for using demographic variables. However, these concerns are alleviated somewhat given that our goal is not to establish general population estimates but to test causal hypotheses using randomly assigned messages.

Second, our survey instrument did not measure some respondent personal characteristics or behaviors that may influence their message response. For instance, we did not measure respondents' own consumption of sugary drinks. This behavior could help explain motivated reasoning and message backlash in addition to the political variables we did measure (see, e.g., Gollust et al. 2017, for how soda consumption may moderate message effects). Researchers studying defensive processing in the health context have found that people counterargue scientific evidence more readily when the behavior is personally relevant to them—for instance, people who are avid coffee drinkers are more likely to refute evidence about its harmful effects on health (Liberman and Chaiken 1992; Reed and Aspinwall 1998). Thus, high consumers of sugary drinks may respond in defensive ways to messages about the health disadvantages of these beverages or the misdeeds of the industry they likely support. Another important variable to understanding the effects of communication over time is the *need to evaluate*, a measure of individuals' attitude formation and information processing. Researchers have found that whether individuals update their attitudes through *online* or *memory-based* processing shapes how the timing of messaging affects later judgment and opinion formation (Chong and Druckman 2010; Druckman and Leeper 2012). In our study we only measured exposure via news consumption and state of residence, but additional individual characteristics like style of information processing could help to further unpack the reasons that health messaging—even in the absence of partisan cuing—can lead to polarizing responses.

Third, we did not measure the cognitive or affective processes involved in motivated reasoning or reactance to messaging, such as counterarguing or the elicitation of negative emotions (Dillard and Shen 2005). These

responses would need to be measured directly (i.e., via open field thought-listing measures that allow researchers to assess respondents' counter-arguing). In this study we only observe the outcome (policy support) and presume the processing that led to this outcome, but future research should aim to measure this directly. Understanding the public's processing of the demonization of Big Soda in health media messaging offers a fruitful research arena at the intersection of health policy and communication.

Finally, we relied on the combination of a respondent's state of residence and his or her self-reported news consumption as a proxy for prior exposure to soda tax debates in the news media, an indirect and somewhat imprecise way to assess prior exposure. At the same time, this form of hybrid measure between self-reporting and strictly ecological measurement has significant advantages over some alternatives (see, e.g., Niederdeppe 2014). Specifically, by combining their states of residence with the respondents' propensity to consume news media in general, our measure avoids some of the potential biases of a self-report survey measure (i.e., people may under- or overreport exposure in ways that may be associated with key outcomes such as policy support; see Jerit et al. 2016 for a recent examination of the validity of survey-based self-report measures). That said, a more sophisticated approach here would have been to use detailed ecological measures of news volumes at the local media market (DMA) level matched to respondents' DMA of residence (as we have done in other work. See, e.g., Fowler et al. 2017), rather than just an indicator variable for living in an SSB tax state. Lacking such detailed local news data, however, we relied on the state-of-residence approach.

Conclusion

Sugary drink taxes, like many other public health policy issues, are politicized—that is, associated with political perspectives and ideological sentiment. The inclusion of elite political endorsements in the news media, such as Republican and Democratic leaders providing their perspectives on childhood vaccination (as we saw during the measles outbreak in 2015) or weighing in on screening mammography recommendations (Fowler and Gollust 2015), can turn messaging about these issues explicitly partisan. We show that communication in such polarized arenas can lead to biased processing, even without specific partisan cues. This finding demonstrates that messages designed to educate in politically charged contexts— as most health policy debates are— can either persuade or trigger the motivation to maintain one's belief more firmly.

■ ■ ■

Sarah E. Gollust is an associate professor of health policy and management at the University of Minnesota. Dr. Gollust is a social scientist studying the intersections of communication, politics, and health policy. Her past research has examined the roles of news media and public opinion within significant health policy issues, including obesity, health disparities, the Affordable Care Act, and cancer screening. The American Cancer Society, the Robert Wood Johnson Foundation, and the National Institutes of Health have funded her work. She is the associate director of the Interdisciplinary Research Leaders, a new Robert Wood Johnson Foundation program to support leaders engaged in research to advance health equity. sgollust@umn.edu.

Colleen L. Barry is the Fred and Julie Soper Professor and Chair of the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health. Her research focuses on how health and social policies affect a range of outcomes for individuals with mental illness and substance use disorders, including access to medical care and social services, care quality, health care spending, financial protection, and mortality. She also conducts empirical research to understand how communication strategies influence public attitudes toward health care policy and politics, opioid addiction, mental illness, gun policy, and obesity and food policy. Dr. Barry codirects the Johns Hopkins Center for Mental Health and Addiction Policy Research.

Jeff Niederdeppe is an associate professor of communication at Cornell University. His research examines the mechanisms and effects of mass media campaigns, strategic health messages, and news coverage in shaping health behavior, health disparities, and social policy. He has published over one hundred articles in communication, public health, health policy, and medical journals, and his work has been funded in recent years by the National Institutes of Health, National Science Foundation, Environmental Protection Agency, and Robert Wood Johnson Foundation. He is an associate editor of *Communication Methods and Measures* and serves on the editorial boards of eight other journals.

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Appendix A

Treatment Messages and Questionnaire

Please carefully read the message on the following page. After you have finished reading it, click “next” and answer the questions that follow.

Strong Pro Treatment

Some cities and states are considering a penny-per-ounce tax on sugary drinks like non-diet sodas, energy drinks, and fruit drinks.

Supporters of a tax say that sugary drinks may be the single largest driver of obesity in the United States.

More children are obese today than in previous generations. Rates of obesity have more than tripled among children and teens over the past 30 years. And children and teens drink twice as much soda and other sugary drinks as they did 30 years ago.

Supporters of a tax say drinking a 20-ounce soda is equivalent to eating 16 packets of sugar. That’s 240 empty calories in a single bottle. When people consume sugary drinks, they do not feel full, so they tend to eat more food. Children who drink sugary beverages also prefer foods with higher calories, leading to worse overall nutrition.

Two-Sided Treatment (Order of Strong Pro and Strong Anti Were Randomly Rotated)

Some cities and states are considering a penny-per-ounce tax on sugary drinks such as nondiet sodas, energy drinks, and fruit drinks.

Supporters of a tax say that sugary drinks may be the single largest driver of obesity in the United States.

More children are obese today than in previous generations. Rates of obesity have more than tripled among children and teens over the past thirty years. And children and teens drink twice as much soda and other sugary drinks as they did thirty years ago.

Supporters of a tax say drinking a twenty-ounce soda is equivalent to eating sixteen packets of sugar. That’s 240 empty calories in a single bottle. When people consume sugary drinks, they do not feel full, so they tend to eat more food. Children who drink sugary beverages also prefer foods with higher calories, leading to worse overall nutrition.

Opponents of a tax say obesity is a matter of how many calories people consume, not where those calories come from. A tax on sugary drinks is

arbitrary because it does not affect other unhealthy foods, such as donuts, cookies, and candy bars.

Obesity is a complex problem that cannot be solved by focusing on just one small part of a person's diet. Sugary drinks account for only 7 percent of calories in the average American's diet. Science shows that obesity is caused by an imbalance between the calories we consume through food and drinks and those we burn through daily activities and exercise.

Opponents of a tax say focusing on one type of product—sugary drinks—ignores the bigger problem and doesn't offer real solutions.

Refutation Treatment (Order of Strong Pro and Strong Anti Were Randomly Rotated)

Some cities and states are considering a penny-per-ounce tax on sugary drinks like non-diet sodas, energy drinks, and fruit drinks.

The main opponents of taxes on sugary drinks are soda companies. These companies spend millions each year on sophisticated tactics to market products with no nutritional value to kids.

Soda companies will say and do almost anything to protect their profits, and they do it at the expense of children's health. In 2009 alone, these companies spent 19 million dollars lobbying against taxes on sugary drinks since they know these taxes will affect their bottom line.

Soda companies will try to convince you that a tax on sugary drinks is arbitrary because it does not affect foods like donuts, cookies, and candy bars. They will say that these taxes are just a quick way for politicians to fill budget holes. They will say that they are an unacceptable intrusion of government into people's personal choices. They will call them "food taxes" to try to confuse people.

But sugary drinks are not food—they have no nutritional value. In fact, research suggests that sugary drinks are the single largest driver of obesity in the United States. Nobody is telling anyone what to drink. But, by adding a few pennies to the price of a soda, many people will choose differently.

A tax on sugary drinks would also provide new money that could be used to combat obesity. Money raised by a tax on sugary drinks could be used to fight obesity in many ways, including by improving school lunches and creating more parks and open spaces for children to play. The result will be healthier children, families, and whole communities.

Survey Items

There are many different ways that we as a society could deal with the issue of obesity in children. Which of these strategies would you support and which would you oppose?

Strongly oppose	Oppose	Somewhat oppose	Neither support nor oppose	Somewhat support	Support	Strongly support
1	2	3	4	5	6	7

1. Require a penny-per-ounce tax on sugary drinks that would add 12 cents to the cost of a 12-ounce can of soda
2. Require a tax on unhealthy foods such as a donut or a candy bar that would add 12 cents to the cost of these products
3. Prohibit advertising of sugary drinks during TV programs watched primarily by children
4. Prohibit schools from selling sugary drinks on school property
5. Require TV stations to provide free air time for public service announcements on healthy eating and exercise equal to the time used advertising sugary drinks
6. Require large and prominently placed calorie labels on sugary drinks
7. Prohibit the sale of any sugary drink larger than 16 ounces

Generally speaking, do you think of yourself as a . . .

- Republican1
- Democrat2
- Independent3
- Another party, please specify: _____ ...4
- No preference5

[Ask if “Republican”]

Would you call yourself a . . .

- Strong Republican1
- Not very strong Republican2

[Ask if “Democrat”]

Would you call yourself a . . .

- Strong Democrat1
- Not very strong Democrat2

[Ask if “Independent” or “Another party” or “No preference” or refused]
If you had to choose, do you think of yourself as closer to the . . .

Republican Party1
Democratic Party2

In general, do you think of yourself as . . .

Extremely liberal1
Liberal2
Slightly liberal3
Moderate, middle of the road4
Slightly conservative5
Conservative6
Extremely conservative7