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Competing Frames for a Public Health Issue and Their Effects on Public Opinion

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This study examines the effects of goal framing on opinion about a public health issue. A content analysis of newspaper coverage regarding a New York City trans fat ban identified four frames, each of which invoked a policy goal (promoting public health or protecting business). An experiment tested the effects of goal framing on support for banning trans fat, as well as the effects of competition between frames invoking the same goal and competition between frames invoking different goals. The findings suggest that goal framing can shape opinion about public health issues but that competitive framing can undermine these effects.

Proponents and opponents of public health regulations have waged framing contests over a range of issues. For example, opposing sides have competed to frame the debates about tobacco regulation and gun control: In each case, one side has advanced frames to build support for government action,

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whereas the other side has advanced frames to build opposition to such action (Nathanson, 1999; for more on the framing of tobacco, see Magzamen & Glantz, 2001; Menashe & Siegel, 1998). Similarly, public health advocates and the food industry have waged a framing contest over whether the responsibility for causing and solving the problem of obesity rests with individuals or the environment (Lawrence, 2004). Such contests can play out for a public audience in both news coverage (Lawrence, 2004; Menashe & Siegel, 1998) and the opinion forums provided by the news media (Hoffman & Slater, 2007).

In recent years, a new controversy has emerged over proposals to ban artificial sources of trans fat that have been linked to heart disease. In December 2006, New York City became the first major city in the United States to ban artificial trans fat from restaurants. Other local governments—including those of Philadelphia; Boston; Montgomery County, Maryland; Nassau County, New York; King County, Washington; and Stamford, Connecticut—have implemented similar bans, and California passed the first statewide ban in July 2008. Proposals to ban trans fat have met with considerable resistance, however, and in some instances (such as Chicago's proposed ban) opponents have succeeded in blocking or diluting regulations.

This study uses the debate about banning trans fat as a context for examining the effects of *goal framing* (Nelson, 2004) on opinion about public health issues. In doing so, it builds on research regarding not only the effects of issue framing on public opinion (Iyengar, 1991; Kinder & Sanders, 1996; Nelson, Clawson, & Oxley, 1997; Nelson & Kinder, 1996; Nelson, Oxley, & Clawson, 1997; Shah, Domke, & Wackman, 1996; Shen & Edwards, 2005) but also the implications of competitive framing for such effects (Brewer, 2002, 2003; Brewer & Gross, 2005; Chong & Druckman, 2007a; Sniderman & Theriault, 2004). Specifically, the study examines the effects produced by frames that invoke specific policy goals (e.g., promoting public health or protecting business) when such frames appear in news coverage unchallenged, when they are challenged by a frame that invokes a different goal in advocating an opposing position, and when they are challenged by a frame that invokes the same goal in advocating an opposing position.

In the account that follows, we begin by discussing issue framing in general and goal framing in particular. We also discuss the potential for competition among frames, the effects of framing on opinion, and the potential for competitive framing to limit framing effects. We then present a content analysis of newspaper coverage regarding the New York City trans fat ban in order to identify a set of rival goal frames in the debate about the issue. Next, we present an experimental test of how these frames shaped public opinion in noncompetitive and competitive scenarios. We conclude by considering the implications of the results for our

understanding of framing effects as well as for our understanding of mass communication and public health.

FRAMES AND COMPETITION IN FRAMING

Framing is the process of selecting “some aspects of a perceived reality” and making them more “noticeable, meaningful or memorable to audiences” in a way that advances a certain definition of a problem, identifies causes, passes moral judgments, and offers solutions (Entman, 1993, p. 52). A frame, in turn, can be defined as “a central organizing idea or story line that provides meaning to an unfolding strip of events, weaving a connection among them. The frame suggests what the controversy is about, the essence of the issue” (Gamson & Modigliani, 1987, p. 143). Frames exist in four parts of the communication process: in the communicator, who understands and presents a topic using frames; in the message; in the mind of the receiver, who may adopt or reject frames encountered in communication; and in the culture itself, which can be described as an amalgamation of common frames (Entman, 1993; see also Scheufele, 1999).

Those who seek to shape public opinion about a policy issue typically compete with one another to frame that issue (Gamson & Modigliani, 1989). In doing so, they highlight interpretations of the issue that present their side as being right (and the opposing position as being wrong) in the hope that the news media will disseminate these frames and that audience members, in turn, will receive them, accept them, and use them to form opinions (Gamson & Modigliani, 1987, 1989; Kinder & Sanders, 1996). Much of the literature on issue framing focuses on value framing, which involves defining an issue in terms of a broad, abstract principle (e.g., egalitarianism, humanitarianism, individualism, morality; see Brewer, 2001, 2002, 2003; Brewer & Gross, 2005; Nelson, Clawson, et al., 1997; Nelson, Oxley, et al., 1997; Shah et al., 1996; Shen & Edwards, 2005).¹ Research also suggests, however, that would-be framers can highlight narrower considerations. In particular, Nelson (2004) argued that those who seek to shape opinion on an issue can frame that issue in a way that highlights a “specific *policy goal*” (p. 581). For example, one could frame adoption reform in terms of promoting the rights of adopted children to obtain personal information or in terms of protecting the privacy and confidentiality of birth parents (Nelson, 2004).

¹Much of this research, in turn, has focused on framing in terms of political values, though Hoffman and Slater (2007) explored the use of human values (openness to change vs. conservation and self-enhancement vs. self-transcendence) in the framing of health issues.

Many issues can be framed in terms of multiple values or goals (Nelson, 2004). In addition, there may be multiple—and even mutually contradictory—frames for the same value or goal in the context of a given issue (Brewer, 2003; Brewer & Gross, 2005; Kinder & Sanders, 1996). Thus, competition in framing may take one of two forms. The first involves two opposing frames that invoke different values or goals, whereas the second involves two frames that invoke the same value or goal to opposing ends. Frames may also reinforce rather than compete with one another by presenting two different values or goals as complementary.

FRAMING EFFECTS AND COMPETITIVE FRAMING

A sizable body of experimental research shows that issue frames can influence public opinion. A typical issue-framing experiment (e.g., Druckman, 2001b; Druckman & Nelson, 2003; Nelson, 2004; Nelson, Clawson, et al., 1997; Nelson, Oxley, et al., 1997; Shen & Edwards, 2005) involves randomly assigning participants to receive one of two rival frames embedded in news coverage, the first of which is intended to push opinion in one direction and the second of which is intended to push opinion in the opposing direction. In such an experiment, evidence of a framing effect takes the form of a contrast across conditions: Participants exposed to one frame should hold opinions that differ from the opinions of those exposed to the other frame. For example, Nelson (2004) found that participants exposed to a frame that invoked the goal of promoting adopted children's rights reported greater support for adoption reform than did participants exposed to a frame that invoked the goal of protecting birth parents' rights.

Research points to two psychological explanations for framing effects on public opinion. The initial view was that framing works through an accessibility-driven process (e.g., Kinder & Sanders, 1996). By this account, frames focus attention on certain considerations (e.g., specific values or goals), thereby increasing their cognitive accessibility (i.e., the likelihood that audience members will think about those considerations) in the opinion formation process. Subsequent research, however, suggests that framing works through a more deliberative psychological process. In particular, Nelson and his colleagues draw on expectancy value models of attitudes to argue that frames work by telling the receiver which considerations should receive greater weight and which should matter less. In a series of experiments, they showed that value framing influenced judgments about the importance of values and that these judgments mediated the effects of values on issue opinions, whereas the cognitive accessibility of values did not (Nelson, Clawson, et al., 1997; Nelson, Oxley, et al., 1997; Nelson &

Oxley, 1999). Similarly, Nelson (2004) found that goal framing shaped opinion by influencing the priorities that receivers attached to particular goals.

Findings of framing effects raise the prospect that audience members may be manipulated by elite efforts to frame issues (see Druckman, 2001a, for an overview). Then again, recent studies demonstrate that a variety of factors can limit the influence of framing on public opinion. For example, a frame that shapes opinion when attributed to a credible source may not shape opinion when attributed to a less credible source (Druckman, 2001b). Similarly, contextual factors such as the passage of time and interpersonal discussions with peers who have been exposed to alternative frames can attenuate framing effects (Druckman & Nelson, 2003).

Most importantly for our purposes, exposure to a competing frame may mitigate the impact of any one frame on public opinion. As Sniderman and Theriault (2004; see also Chong & Druckman, 2007a) observed, real-world exposure to issue framing often involves exposure to more than one frame at the same time. Building on this point, the authors argued that experimental studies of framing effects should account for the impact of exposure to multiple frames in addition to testing the impact of exposure to one individual frame or another. In keeping with earlier framing studies, they found that exposure to a single issue frame or its rival could sway opinion. They also found, however, that framing effects on opinion were essentially negated when two competing frames were presented *together*.

Research on competitive value framing suggests that exposure to two opposing frames that invoke different values (Brewer, 2002; Chong & Druckman, 2007a; Sniderman & Theriault, 2004) can dampen framing effects, as can exposure to two opposing frames that invoke the same value (Brewer, 2003; Brewer & Gross, 2005). As an illustration of the former, Sniderman and Theriault (2004) found that rival free speech and public order frames mitigated one another's effects on support for allowing a political rally. As an illustration of the latter, Brewer and Gross (2005) found that a pro-school vouchers equality frame and an anti-school vouchers equality frame neutralized one another's effects on support for vouchers.

One aim of this study is to extend research on the effects of goal framing to incorporate both types of competitive framing. Thus, we seek to test not only whether exposure to one goal frame or its rival can influence opinion but also whether the impact of one goal frame can be mitigated by exposure to an opposing frame that either invokes a different goal or invokes the same goal to a different end. A second aim is to test whether the effects produced by these two types of competitive goal framing differ. A third aim is to shed light on the effects of competitive goal framing in the domain of public health.

FRAMING THE NEW YORK CITY TRANS FAT BAN

We used the debate about banning trans fat as a test case for addressing these problems. Before studying the effects of goal framing on opinion about the issue, we first examined competing goal frames in news coverage of it. In doing so, we focused on news coverage of the New York City ban. Our goal here was not to provide a nationally representative portrait of framing in news about the trans fat issue; rather, it was to identify a set of competing goals frames that could plausibly find their way into news coverage as the battle over banning trans fat spreads from a few arenas to many and from the local level to the state and even national levels. Given that New York City was the first major battleground in the debate about banning trans fat, that it is the nation's largest media market, and that its media landscape includes two of the nation's most influential newspapers (the *New York Times* and the *Wall Street Journal*), it seems reasonable to expect that frames appearing in this setting might appear in coverage of future battles over the issue as well.

We began our analysis of the debate about the New York City ban by reviewing press releases, prepared statements, and opinion pieces from organizations that spoke on the ban at a key public hearing on October 30, 2006. When we could not find press releases or other communications for a given group, we relied on information from a New York City Board of Health report on the public hearing. The account that follows focuses on four frames identified by this examination, each of which is defined by two characteristics: the specific policy goal that it emphasizes and the position that it supports. The debate also included other frames, but we did not conduct further study of those frames because our purpose was merely to identify cases of competing frames that invoked different goals and cases of competing frames that invoked the same goals so that we could use them in our tests of framing effects.

Of the four frames of interest, two emphasize the goal of promoting public health, with one supporting the ban and the other opposing it. The pro-ban public health frame justifies restricting trans fats in terms of the negative effects of trans fats on health. For example, Health Commissioner Dr. Thomas R. Frieden invoked this frame in a press release announcing the proposed ban: "New Yorkers are consuming a hazardous, artificial substance without their knowledge or consent. . . . Trans fat causes heart disease" (New York City Department of Health and Mental Hygiene, 2006a, para. 3). In contrast, the anti-ban public health frame argues against the ban by suggesting that restricting trans fat could fail to produce health benefits or even result in negative health consequences. A New York City Department of Health and Mental Hygiene report on a public hearing regarding the proposal includes

an example of this frame: “The American Heart Association . . . submitted a written comment that acknowledged the scientific grounds for restricting trans fat but raised concerns that restaurants might switch to saturated fats if healthier oils were not readily available” (Silver & Angell, 2006, p. 5).

The other two frames emphasize the goal of protecting business. Again, one supports the ban and one opposes it. The pro-ban business frame argues in favor of restricting trans fat by suggesting that businesses will not be harmed by a ban on the substance. A New York City Department of Health and Mental Hygiene press release quotes Carnegie Deli owner Sanford Levine’s invocation of this frame: “It’s easy to replace artificial trans fat, it costs the same, and the food tastes great. Our cakes and other baked goods are already trans fat free. If we can do it, so can other restaurants” (New York City Department of Health and Mental Hygiene, 2006a, para. 11). In contrast, the anti-ban business frame justifies opposition to restricting trans fat by suggesting that a ban will harm business. In remarks prepared for a public hearing regarding the proposal, the New York State Restaurant Association advanced this frame: “The Department of Health clearly has not considered the impact to the small businesses of New York City . . . [which would] be hit the hardest—facing dramatic changes to their menus, their pricing and their business models” (New York City Department of Health and Mental Hygiene, 2006b, p. 43).

GOAL FRAMES FOR THE TRANS FAT BAN IN NEWS COVERAGE

To establish that these four frames were not only advanced by contestants in the debate but also appeared in news coverage of it, we examined newspaper articles from five daily newspapers serving New York City: the *New York Times*, the *Wall Street Journal*, the *New York Daily News*, the *New York Post*, and the *New York Sun*. We looked at articles from August 10, 2005, to December 7, 2006. This period spans from when the New York City Department of Health and Mental Hygiene called for a voluntary shift away from trans fat on August 10, 2005, through the announcement of a proposed mandatory ban on September 26, 2006, and the Board of Health’s approval of the ban on December 5, 2006. We found articles by conducting a Lexis-Nexis guided news search for “trans fat” or “trans fats” in the full text of articles. We used the ProQuest database to search for articles in the *Wall Street Journal* given that they were not available through LexisNexis. We analyzed every article returned from the search—including news stories, opinion columns, editorials, and letters to the editor—that mentioned those terms because previous research indicates that frames for public health issues can appear in both “straight” news stories (Lawrence, 2004; Menashe

& Siegel, 1998) and opinion forums provided by the news media (Hoffman & Slater, 2007).

We treated the article as the unit of analysis given that newspaper consumers typically encounter frames in the context of reading articles and that our experimental manipulations revolved around exposure to frames embedded in an article (see next). Appendix A presents the coding scheme. We first coded for whether the article mentioned the city's efforts to reduce or restrict trans fats. To test the reliability of this step in the analysis, a second coder coded a randomly selected subsample that included 10% of the articles returned by the search. Inter-coder reliability was excellent (1.00 using Cohen's kappa, a statistic for agreement between two coders that corrects for chance agreement).

Next, we coded articles that mentioned the ban for the presence or absence of the four frames. We coded for each of the frames separately; thus, an article could include one frame, multiple frames, or no frame. To test the reliability of this second step in the analysis, the second coder coded a randomly selected subsample that included 25% of the articles mentioning the ban. Inter-coder reliability scores for the four frames indicated high levels of reliability (Cohen's kappa was .91 for the pro-ban public health frame, .93 for the anti-ban business frame, .94 for the pro-ban business frame, and 1.00 for the anti-ban public health frame).

Of the 261 articles returned by our search, 142 mentioned the city's efforts to restrict trans fat. The pro-ban public health frame appeared in 37% of the articles in the full sample (67% of articles that mentioned the ban), the anti-ban business frame appeared in 19% (35%), the pro-ban business frame appeared in 16% (30%), and the anti-ban public health frame appeared in 8% (14%). Within the entire sample, each of these proportions differed significantly from the others ($p < .01$) except for the proportions for the two business frames.²

Almost half (66, or 46%) of the 142 articles that mentioned the ban included multiple frames. The pro-ban public health frame and the anti-ban business frame appeared together in 40 articles (28%), making this instance of competition between two opposing frames invoking different goals the most common frame combination. In contrast, the pro-ban business frame and the anti-ban public health frame appeared together in only four articles. The combination of the anti-ban business frame and the pro-ban business frame—an instance of competition between two opposing frames invoking the same goal—appeared in 26 articles (18%). The combination of the pro-ban public health frame and the anti-ban public health frame, another

²We used two-tailed tests here given that we did not have clear directional hypotheses.

instance of this form of competition in framing, appeared in 12 articles (8%).³ In sum, the content analysis results indicated that all four frames appeared in news coverage of the trans fat ban and that competition in framing frequently appeared within individual articles. Coverage included both competition between two opposing frames invoking different goals and competition between two opposing frames invoking the same goal.

TESTING THE EFFECTS OF COMPETING FRAMES FOR THE TRANS FAT ISSUE

We proposed four hypotheses about the effects of these frames on public support for banning trans fat. The first hypothesis focused on the relative effect of exposure to one frame or a rival frame on opinion. Drawing on previous research regarding the impact of such exposure (Druckman, 2001a; Druckman & Nelson, 2003; Nelson, 2004; Nelson, Clawson, et al., 1997; Nelson, Oxley, et al., 1997), we derived the following prediction:

- H1: Those exposed to a pro-ban frame will express more support for a ban than will those exposed to an anti-ban frame.

Our test of this hypothesis, as well as our tests of the next two hypotheses, focused on the pro-ban public health frame (the more common of the two pro-ban frames within the coverage that the content analysis examined) and the anti-ban business frame (the more common of the two anti-ban frames within the same coverage). Here, we compared those who received the former to those who received the latter.

Our second hypothesis focused on the absolute effects of exposure to particular frames. Chong and Druckman (2007b) argued that tests of framing effects should include a control condition to isolate the effects of individual frames (by comparing the framing conditions to the control condition) in addition to capturing their relative effects (by comparing one framing condition to another). Previous research (Brewer, 2002; Chong & Druckman, 2007a; Sniderman & Theriault, 2004) suggests the following prediction regarding such absolute effects:

- H2: Those exposed to a pro-ban frame will express more support for a ban than will those not exposed to any frame. Similarly, those exposed to an anti-ban frame will express less support for a ban than will those not exposed to any frame.

³We also found cases where mutually reinforcing frames appeared together.

Our tests of this hypothesis compared those exposed to either the pro-ban public health frame or the anti-ban business frame to those in the control condition.

The third hypothesis focused on the impact of exposure to two competing frames invoking different goals. Here, previous research on competitive value framing (Brewer, 2002; Chong & Druckman, 2007a; Sniderman & Theriault, 2004) suggests the following prediction:

- H3: Those exposed to a pro-ban frame and an anti-ban frame that invoke different goals will express less support for a ban than will those exposed only to the pro-ban frame and more support than will those exposed only to the anti-ban frame.

Our tests of this hypothesis compared those who received both the pro-ban public health frame and the anti-ban business frame to those who received only one or the other.

The fourth hypothesis focused on the impact of exposure to two opposing frames invoking the same goal. Drawing on research regarding the impact of such competition when it involves value framing (Brewer, 2003; Brewer & Gross, 2005), we expected the following:

- H4: Those exposed to a pro-ban frame and an anti-ban frame that invoke the same goal will express less support for a ban than will those exposed only to the pro-ban frame and more support than will those exposed only to the anti-ban frame.

We tested the first part of this hypothesis by comparing those who received both the pro-ban and anti-ban public health frames to those who received only the pro-ban public health frame. We tested the second part by comparing those who received both the anti-ban and pro-ban business frames to those who received only the anti-ban business frame.

Finally, we considered whether the effects of the two forms of competition in goal framing differed. Specifically, we addressed the following question:

- RQ1: Do the opinions of those exposed to one form of competition in goal framing differ from the opinions of those exposed to the other form of competition in goal framing?

Put another way, we looked at whether support for the ban differed depending on whether receivers were exposed to competition between two opposing frames invoking different goals (the pro-ban public health frame

and the anti-ban business frame) or to competition between two opposing frames invoking the same goal (either the pro-ban and anti-ban public health frames or the anti-ban and pro-ban business frames).

EXPERIMENTAL PROCEDURE

To test our hypotheses, we conducted a posttest-only experiment in March and April of 2008. The study took place in a Midwestern city where a ban had not been proposed at the time; thus, the setting minimized the likelihood of prior exposure to the frames. We recruited 197 undergraduate students at a public university to participate in the study. The sample was 61% female and 93% White. The participants skewed Democratic and liberal, with 67% identifying as Democrats or Democratic-leaning independents, 20% as Republican or Republican-leaning independents, and 13% as independents who leaned toward neither party. Those identifying as liberal or very liberal accounted for 50% of the participants, whereas 40% identified as moderates and 10% indicated that they were conservative or very conservative. Although the sample consisted of students and differed from the broader public in ways that may limit the generalizability of the results, prior research suggests that the framing process works similarly in student and non-student samples (Druckman & Nelson, 2003).

Participants were randomly assigned to either a control group or one of five treatment groups. Those in the control group received an edited version of a real newspaper article that explained details about a proposal to ban trans fat but did not include any frames for or against it. Treatment groups received an article that was identical to the control group article except for the insertion (in the middle of the article) of individual frames or frame pairings shown by the content analysis to have appeared in newspaper coverage of the New York City ban. We constructed the frames for the treatment groups from statements that appeared in news articles from the content analysis but edited them to make each frame approximately the same length. Appendix B presents the text of the base article and the framing treatments.

Given that people do not normally read newspapers in the classroom, the experimental setting may limit the external validity of the results (Kinder, 2007). On the other hand, the treatments were constructed from actual newspaper articles, thereby enhancing the study's realism. In addition to the treatment article, participants were given an additional article (about the homeless) to disguise the purpose of the study. To further disguise this purpose, the posttest included questions unrelated to the topic at hand.

TABLE 1
Support for a Law Banning Restaurants from Using Cooking Oils that Contain Trans Fat,
by Experimental Condition

	<i>No anti-ban frame</i>	<i>Business anti-ban frame</i>	<i>Public health anti-ban frame</i>
No pro-ban frame	4.28 (1.31) <i>N</i> = 29	3.71 (1.44) <i>N</i> = 28	—
Public health pro-ban frame	4.83 (1.22) <i>N</i> = 58	4.31 (1.67) <i>N</i> = 26	4.41 (1.22) <i>N</i> = 27
Business pro-ban frame	—	4.07 (1.41) <i>N</i> = 28	—

Note. Table entries are means; standard errors are in parentheses. Means differed significantly across conditions in a one-way analysis of variance, $F(5, 190) = 2.94$, $p = .01$.

Our design did not include all possible framing scenarios. Instead, it included only those needed to test specific hypotheses. The experimental conditions were as follows (see Table 1):

- A control condition in which participants did not receive any frame.
- A condition in which participants received only the pro-ban public health frame.⁴
- A condition in which participants received only the anti-ban business frame.
- A condition in which participants received both the pro-ban public health frame and the anti-ban business frame.
- A condition in which participants received both the pro-ban public health frame and the anti-ban public health frame.
- A condition in which participants received both the anti-ban business frame and the pro-ban business frame.

When more than one frame appeared in the article, we randomized the order of the frames to eliminate any potential order effects. Age, sex, and party affiliation did not differ across groups, indicating successful randomization on these factors. Race and ideology differed across groups,

⁴In an additional manipulation, participants who received the pro-ban public health frame were exposed to a version of this frame that either included a passage establishing knowingly created risk (see Lawrence, 2004) or did not include this passage (“The Board of Health vote comes a year after it conducted an unsuccessful campaign to persuade restaurants to eliminate trans fats . . . about half the city’s restaurants continued to serve trans fats, about the same as before the campaign”). The inclusion or exclusion of this passage did not affect the results, implying that the presence or absence of knowingly created risk was not responsible for the effect that this frame produced. Accordingly, we combined participants who received the two versions into one condition.

but these characteristics were not significantly correlated with support for banning trans fat ($p > .20$ in each case; see the next section for our measure of support).

EXPERIMENTAL RESULTS

To gauge the effects of the frames and frame pairings on opinion about banning trans fat, we examined participants' responses to the following posttest question: "Would you support or oppose a law banning restaurants from using cooking oils that contain trans fat?"⁵ The response options for this item included 1 (*strongly oppose*), 2 (*oppose*), 3 (*somewhat oppose*), 4 (*somewhat support*), 5 (*support*), and 6 (*strongly support*). Table 1 presents means and standard deviations for the item by condition. A one-way analysis of variance (ANOVA) indicated that opinion differed significantly across conditions, $F(5, 190) = 2.94$, $p = .01$. We tested our hypotheses by conducting a series of between-groups difference of means comparisons.⁶

The test of H1 revolved around comparing participants who received the pro-ban public health frame by itself to those who received the anti-ban business frame by itself. Support for a ban was more than a full point higher among the former than among the latter ($p < .01$, $t = 3.57$), a result that is consistent with H1. This finding suggests that goal framing for the issue of banning trans fat had the capacity to produce substantial effects on public opinion.

To test H2, we compared participants who received an unchallenged frame to control group participants. As anticipated, those who received the pro-ban public health frame by itself expressed greater support for a ban than did control group participants. The difference was significant at the .05 level ($p = .04$, $t = 1.79$). Moreover, those who received the anti-ban business frame by itself expressed less support than did control group

⁵We used this measure as the dependent variable in our analysis because numerous studies of issue framing effects (e.g., Druckman, 2001a; Druckman & Nelson, 2003; Nelson, Clawson, et al., 1997; Nelson, 2004) have treated overall policy opinion as the ultimate outcome variable of interest. The same studies have typically treated other variables that may be influenced by framing (e.g., value or goal priorities) as mediators of framing effects on overall policy opinion. Our purpose in this study was not to replicate previous research regarding the psychological processes governing framing effects but to test the effects of competitive goal framing on policy opinion; thus, our analysis did not focus on potential mediators of such effects.

⁶We used one-tailed tests here given that we proposed directional hypotheses.

participants. Here, the difference fell just short of significance at the .05 level ($p = .06$, $t = 1.56$).⁷ Both findings are consistent with H2.

At the same time, competition between frames invoking different goals appeared to mitigate these framing effects. Consistent with H3, participants who received both the pro-ban public health frame and the anti-ban business frame expressed less support for a ban than did those who received the pro-ban public health frame by itself and greater support than did those who received the anti-ban business frame by itself. The former difference was significant at $p = .05$ ($t = 1.62$), and the latter difference fell just short of significance at this level ($p = .06$, $t = 1.61$). Furthermore, support among participants who received both the pro-ban public health frame and the anti-ban business frame was statistically indistinguishable from support among control group participants ($t = .09$). Put simply, competition between the two frames seemed to neutralize the effects of each.

The evidence was less clear on whether competition between frames invoking the same goal mitigated framing effects. In one instance of such competition, the results provided partial support for H4: Participants who received both the pro-ban and anti-ban public health frames expressed marginally less support for a ban than did those who received only the pro-ban public health frame ($p = .09$, $t = 1.33$). In addition, support among participants who received both public health frames was statistically indistinguishable from support among control group participants ($t = .36$). Thus, exposure to the anti-ban public health frame may have diminished the impact of the pro-ban public health frame on opinion.

We did not find evidence that exposure to the pro-ban business frame mitigated the impact of the anti-ban business frame. Although the difference across conditions was in the expected direction, participants who received both of these frames did not express significantly greater support for a ban than did those who received only the anti-ban business frame ($t = .98$). Then again, support among participants who received both business frames did not differ significantly from support among control group participants, either ($t = .57$).

⁷Apart from our test of H1, our hypothesis tests revolved not around capturing the relative effects of exposure to one rival frame or another (as in the standard framing experiment design previously described) but around capturing the effects of (a) exposure to a single frame versus exposure to no frame, (b) exposure to a single frame versus exposure to competitive framing, or (c) exposure to one form of competitive framing versus exposure to another form of competitive framing. The standard two-condition framing manipulation essentially captures the maximum possible effect of framing, which makes it relatively easy to find a statistically significant difference across conditions. Most of our tests, in contrast, focused on subtler—and, thus, more difficult to find—differences across conditions. Given this, we report differences that were significant at the .10 level.

Other comparisons across conditions provide additional evidence that framing mattered. As a case in point, participants who received both public health frames expressed greater support for a ban than did those who received only the anti-ban business frame ($p = .03$, $t = 1.89$). Likewise, participants who received both business frames expressed less support than did those who received only the pro-ban public health frame ($p < .01$, $t = 2.42$). In both instances, the differences were consistent with what one might expect: Each test compared opinion under a competitive framing scenario to opinion under a noncompetitive scenario.

Turning to RQ1, we found no significant differences across conditions when we compared opinion under one competitive scenario to another.⁸ Participants who received the pro-ban public health frame and the anti-ban business frame did not differ significantly in their level of support from those who received both public health frames ($t = .27$) or both business frames ($t = .64$). Thus, the effects of the two forms of competition—competition between frames invoking different goals and competition between frames invoking the same goal—were statistically indistinguishable. Participants who received both public health frames also did not differ significantly in their level of support from those who received both business frames ($t = .92$).

CONCLUSION

Our content analysis results established the presence of four different goal frames in news about the New York City trans fat ban: a pro-ban public health frame, an anti-ban public health frame, an anti-ban business frame, and a pro-ban business frame. Individual news articles presented frame combinations that involved competition between frames invoking different goals and competition between frames invoking the same goal. To be sure, this analysis neither provided an exhaustive, nationally representative portrait of framing in the debate about banning trans fat (though providing such a portrait would be a worthy goal for future research) nor captured frames to which our participants would necessarily have been exposed at the time of our study. The analysis did, however, capture frames that emerged in a key early battle over the issue—frames that may eventually reach a wider audience as the debate about banning trans fat expands.

⁸We used a two-tailed test for RQ1, which did not posit expected differences across conditions.

Our experiment, in turn, demonstrated that these frames had the capacity to shape public opinion. Specifically, exposure to the pro-ban public health frame fostered support for banning trans fat, whereas exposure to the anti-ban business frame reduced support. At the same time, exposure to competition between these frames mitigated the effects of each. Our evidence also suggested that competition with the anti-ban public health frame may have neutralized the effect of the pro-ban public health frame. We did not find, however, that competition with the pro-ban business frame mitigated the impact of the anti-ban business frame. It could be that the pro-ban business frame is a relatively weak frame compared to the anti-ban business frame; that is, it may emphasize an interpretation of the issue that receivers cannot readily recall from memory or that they judge to be inapplicable (see Chong & Druckman, 2007a). Additional tests to measure the relative availability and applicability of these frames would be needed to determine whether this is the case.

Before we consider the implications of our findings, we should note several limitations of the study. To begin with, our analyses only considered frames that revolved around the goals of promoting public health and protecting business. Future research could examine the effects of other sorts of goal frames for public health issues. Our analyses also considered only one issue. A logical next step would be to extend our approach to other public health issues, particularly given that the public health and business frames that we examined could be readily applied in a variety of contexts.

Given that six conditions (compared to two in the classic framing experiment design) were required merely to test the hypotheses of interest, the inclusion of other framing scenarios was not feasible. As a result, our experimental design precluded tests of the impact of the unchallenged anti-ban public health frame and the unchallenged pro-ban business frame, as well as tests of whether competition diminishes the impact of these frames. Likewise, our design precluded tests of how exposure to complementary frame combinations (e.g., the pro-ban public health and business frames or the anti-ban public health and business frames) affects opinion along with tests of whether competitive framing mitigates the impact of mutually reinforcing frame combinations. Conducting such tests might provide additional insights into framing effects. By the same token, it might be useful to test for interactions between our framing manipulations and manipulations of other frame characteristics (e.g., source credibility; see Druckman, 2001b) or contextual factors (e.g., interpersonal discussion with peers exposed to alternative frames), though doing so would require an even larger number of conditions. It might also be useful to extend previous research on the individual-level mediators (e.g., priorities attached to specific goals; see Nelson, 2004) and moderators (e.g., knowledge and need

to evaluate; see Druckman & Nelson, 2003) of framing effects to the context of competitive goal framing for public health issues.⁹

Replicating our approach with a more representative sample and a more naturalistic environment might allay concerns about the generalizability of our findings that stem from the student sample and artificial setting. Although it is likely that time would mitigate the effects observed here (Druckman & Nelson, 2003), even short-term effects may have important consequences if they occur close to a critical period, such as a vote or public hearing. It is also worth noting that the effects observed here emerged after only one exposure to the frames and that our framing manipulations appeared only in the middle of the treatment article (whereas some experimental studies of framing effects—see, e.g., Druckman, 2001b; Nelson, Clawson, et al., 1997; Shen & Edwards, 2005—have included their framing manipulations in both the headline and text of the treatment article).

Keeping in mind their limitations, our findings carry important implications for the study of framing effects as well as the study of mass communication and public health. In regard to the former, the results add to the growing body of evidence that competitive framing can dampen framing effects while also extending research on the topic to include competitive goal framing. As such, our findings reinforce the emerging view of framing effects as being subject to a range of potential limitations. In normative terms, those who value public deliberation may welcome the evidence here that people weigh competing goal frames. Then again, the frames that we examined seemed to sway opinion substantially when audience members received only one side of the debate in news coverage. Furthermore, our findings highlight the contestability of goals in debates over public policy.

In regard to our understanding of mass communication and public health, the findings show that goal frames can shape opinion about public health issues. In particular, those who seek to sway opinion about public health policies can do so by invoking either the promotion of public health

⁹In light of Haider-Markel and Joslyn's (2001) finding that the impact of exposure to one rival frame or another can vary with receivers' political predispositions, we used a pair of regression analyses (support = condition + predisposition + (condition × predisposition)) to test whether the relative impact of exposure to the pro-ban public health frame or the anti-ban business frame (see H1) varied across ideology or partisanship. Neither the key multiplicative term nor the predisposition term (ideology or partisanship) attained significance in either model. Looking across all six conditions, the pattern of means among liberals paralleled the pattern among moderates and conservatives; likewise, the pattern of means among Democrats paralleled the pattern among independents and Republicans. Still, it is important to note that Haider-Markel and Joslyn's tests for variation in framing effects across predispositions used an experiment in survey question wording that allowed for a much larger total sample size per condition.

or the protection of business as goals to consider. On one hand, our research suggests that framing may provide a tool to those who advocate government regulation in the name of public health. The same tool is also available, however, to who oppose such regulation. In keeping with this, our findings indicate that it is possible to fight framing with framing in the realm of public health. This conclusion may offer little comfort to public health officials seeking to win support for measures to protect public health, but it follows from the logic of framing as a competitive process. Moreover, it highlights the importance of winning the battle over framing in news media coverage when it comes to shaping opinion about public health policies.

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APPENDIX A: CODING SCHEME

1. Does the article mention either a voluntary program in New York City to eliminate trans fat from food in restaurants or a mandatory proposal in New York City to restrict or ban its use? If yes, then continue.
2. If the article includes a statement that uses health reasons to justify or explain a trans fat ban, then code it as including the *pro-ban public health*

frame. Examples include statements that link trans fat to heart attacks or obesity, call it “artery clogging,” “deadly,” “toxic,” “poisonous,” or suggest that its ingestion could have negative health consequences. Statements to the effect that eliminating trans fat would benefit health also indicate the presence of this frame. Statements that cite health reasons for the ban but argue that the ban does not go far enough should be treated as indicating the presence of this frame.

3. If the article includes a statement suggesting that a trans fat ban is not needed or should not be enacted because the threat from trans fat is exaggerated or because banning trans fat could have unintended negative health consequences, then code it as including the *anti-ban public health frame*. Examples include statements that restaurants would switch to other unhealthy fats for food, that people may gain a false sense of security about the health of food if trans fat is banned, that trans fat poses no worse of a health risk than other substances or fats commonly found in food, that there is insufficient evidence to conclude that trans fat is a significant health threat, or that the science concerning the health effects of trans fat is flawed.
4. If the article includes a statement that cites negative effects on business as a reason to oppose a ban on trans fat, then code it as including the *anti-ban business frame*. Examples include statements that replacement oils are more expensive and do not last as long, that the taste or texture of food would be negatively affected in a way that could hurt business, that businesses would not be able to comply due to inadequate supplies of replacement oils, that restaurant owners would be inconvenienced or required to devote resources to make new recipes, that some restaurant owners would not receive proper education to make the switch, or that some owners do not speak English and would not be able to follow or learn about the rules regarding trans fat. If a statement cites taste as an issue, then it must link taste to business success (e.g., satisfying consumer demand) in order to be treated as indicating the presence of this frame. Statements of opposition to the ban based on rights arguments, “nanny state” criticisms, or legal issues should *not* be treated as indicating the presence of this frame.
5. If the article includes a statement that a ban would not harm or burden businesses, then code it as including the *pro-ban business frame*. Examples include statements that healthy replacement oils are available, that the cost of replacement oils is not substantially more than the cost of trans fat oils, that trans fat can be easily removed from food, that no one will miss trans fat, that recipes can be altered in ways to preserve the taste and texture of food, that the city will provide education to make the switch, that the best restaurants have never used trans fat, or that other restaurants have made the switch without significant difficulty or negative consequences.

APPENDIX B: EXPERIMENTAL TREATMENTS

Note: The sources of quotations and paraphrases in the treatments were altered for purposes of the study and should not be taken to represent the actual views of the individuals and/or organizations to whom they are attributed.

Base article*City Plans to Place Sharp Limits on Restaurants' Use of Trans Fats*

NEW YORK—The New York City Board of Health voted unanimously yesterday to move forward with plans to prohibit the city's 20,000 restaurants from serving food that contains more than a minute amount of artificial trans fats.

The New York prohibition would affect the city's entire restaurant industry, by far the nation's largest, from McDonald's to fashionable bistros to street corner takeouts across the five boroughs.

The city would set a limit of a half-gram of artificial trans fats per serving of any menu item. The fats are commonly found in baked goods, like doughnuts and cakes, as well as breads and salad dressing.

Trans fats, derived from partially hydrogenated oils, became popular in the 1950s as an alternative to the saturated fats in butter.

[Framing treatment or treatments inserted here. If the treatment involved competitive framing, then the order of the treatments was randomized.]

If the measure is adopted in December, health officials said, the restrictions would be phased in. Restaurants would be given until July to eliminate oils, margarines and shortening from the recipes that contain more than a half-gram of trans fat per serving.

Health officials said that the regulations would be enforced by restaurant inspectors, who would examine kitchens for products with trans fat, but that there would be no attempt to test prepared foods.

Framing treatments

Pro-ban public health frame

The Board of Health vote comes a year after it conducted an unsuccessful campaign to persuade restaurants to eliminate trans fats from their recipes

voluntarily. It said yesterday that despite mass mailings about the hazards of trans fats and training programs for 7,800 restaurant operators, about half the city's restaurants continued to serve trans fats, about the same as before the campaign. Health officials say trans fats are more dangerous than saturated fats because they reduce levels of beneficial cholesterol while increasing levels of bad cholesterol, leading to increased risk of heart attacks and strokes. "New Yorkers are consuming a hazardous, artificial substance without their knowledge or consent," Health Commissioner Dr. Thomas R. Frieden said. "Trans fat causes heart disease. Like lead in paint, artificial trans fat in food is invisible and dangerous, and it can be replaced."

Anti-ban public health frame

The proposal met immediate resistance from the New York State Restaurant Association. "Today's decision by the Board of Health shows an ignorance of the challenges New York's 24,000 restaurants will face in trying to eliminate trans fat and may well take a step backward for public health," said E. Charles Hunt, executive vice president of the New York State Restaurant Association. "It takes time to develop, plant, grow, harvest and process new alternative crops and to test new oils," Mr. Hunt said. "Because of this supply problem, with such a limited timetable, many of the city's restaurateurs will have no choice but to switch to oils high in unhealthy saturated fats, a move opposed by health advocacy groups." Mr. Hunt said the National Restaurant Association has "serious concerns" about the Board of Health's ability to educate restaurants on this issue.

Pro-ban business frame

Health Commissioner Dr. Thomas R. Frieden said trans fats can be replaced without harming businesses. "While it may take some effort, restaurants can replace trans fat without changing the taste or cost of food," Dr. Frieden said. "No one will miss it when it's gone." Dr. Frieden pointed out that many restaurants and several restaurant chains have already reduced or eliminated artificial trans fat, adding that most of the city's finest restaurants never used it in the first place. He said artificial trans fat can be replaced with readily available oils like corn, canola, and soybean oil without changing the taste of foods. By using these products, he said, restaurants can switch to trans fat-free products with no significant increase in cost. Dr. Frieden pledged to work with restaurant owners to help them make the switch.

Anti-ban business frame

The proposal met immediate resistance among restaurant owners, who said banning trans fats would raise their costs and change the taste of some items. "It takes time to develop, plant, grow, harvest and process new alternative crops and to test new oils," said E. Charles Hunt, executive vice president of the New York State Restaurant Association. Mr. Hunt said city officials had not considered the fact that many restaurant products are produced by national manufacturers that use trans fats. "They may not be willing to suit the specifications of just New York City," he said. Mr. Hunt said there is an inadequate supply replacement oils and wondered how small restaurants would adapt. "For a health inspector to walk into a mom and pop restaurant in Queens, and fine them \$1,000 for having a can of Crisco," he said, "well, that's unreasonable."