ATTITUDDINAL POLICY FEEDBACK AND PUBLIC OPINION
THE IMPACT OF SMOKING BANS ON ATTITUDES TOWARDS SMOKERS, SECONDHAND SMOKE, AND ANTISMOKING POLICIES

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Abstract How, if at all, do public policies influence the opinions of ordinary citizens? Using the longitudinal variation in the passage of state smoking bans in restaurants, I consider how policies influence views toward target populations, educate the public about what is good/bad, safe/dangerous, right/wrong, and so forth, and affect support for future policy interventions. I find that people view smokers with more antipathy and believe that secondhand smoke is more harmful post-enactment of smoking bans. Length of exposure matters for support of future policy interventions: people exposed to smoking bans for long periods of time are more supportive of additional smoking restrictions in public places. The theoretical framework offered here can be used to evaluate how other policies, particularly those that are tangible to a majority of citizens, influence public opinion.

How, if at all, do public policies influence the opinions of ordinary citizens? The answer holds implications for the origins of mass opinion, the sources of the government’s legitimacy and how that may be threatened, and the possibilities and limits for future policy interventions. Consequently, there has been a growth of research on how policies influence mass attitudes—a process called attitudinal policy feedback. Research on attitudinal policy feedback includes studies that look at how policy participants are influenced by policies using...
micro-level analyses (e.g., Barabas 2009) as well as those that explore how aggregate-level preferences of the entire country, not just policy participants, are influenced by policies (e.g., Soss and Schram 2007).^1^ The majority of research, however, has concentrated on redistributive or economic policies. While beneficial for participant-centered studies, mass feedback effects from these policies tend to be short lived or nonexistent since most people do not come into direct contact with the policy itself (Campbell 2012; Mettler 2011). As Soss and Schram (2007, 122) suggest, these policies have “design features and material effects [that] slip easily from public view because they lack concrete presence in most people’s lives.” Consequently, scholars have largely ignored a class of policies with which citizens regularly have direct and recurrent experiences. Take the regulation of trans fats in restaurants as an example. Trans fats regulations aim to improve the health of society by eliminating artificial trans fats in restaurants. The explicit long-term goals, however, are to educate the public about healthy eating, regardless of health status, and gradually build support for large-scale public health policies aimed to reduce obesity. Sin taxes, helmet and seatbelt laws, the regulation of recreational drugs and alcohol, nutrition labeling, civil rights legislation, and more are all policies that are directly experienced by the public and intended to change broad views about society and policy. These types of policies are highly tangible.

Highly tangible policies, I argue, affect mass attitudes in three ways: by defining target populations; by educating the public about what is socially acceptable; and by influencing support for analogous policies. This latter mechanism is an important alternative to previous research, as it implies steadily increasing support for “more” of a policy, rather than a negative feedback effect as suggested by aggregate studies (e.g., Wlezien 1995). It also implies that the impact of policy on support for analogous policies may be lagged, as it takes time for people to react to current policies. Although the three mechanisms may apply more or less to every policy, highly tangible policies exhibit all three simultaneously, which influences opinions about the broad policy environment and societal norms.

The paper proceeds as follows: I start by explaining how policies influence public opinion. I then theorize about the ways that tangible policies intentionally shape three facets of mass attitudes: affect toward target populations; beliefs about what is right/wrong, good/bad, and safe/dangerous; and judgments for future policy interventions. I illustrate these three mechanisms by examining how a tangible policy—smoking bans in restaurants— influences the attitudes of ordinary citizens. Gallup polls are coupled with state data to test the hypotheses. I find that people view smokers with more antipathy and believe that secondhand smoke (SHS) is more harmful post-enactment of smoking bans. Length of exposure matters for beliefs about analogous policies;
people exposed to smoking bans for long periods of time are more supportive of additional smoking restrictions in public places. I end with conclusions and implications including ideas for future work on attitudinal policy feedback.

Mechanisms of Mass Attitudinal Policy Feedback

How do policies influence mass attitudes? There are two pathways that scholars have considered. First, through its implementation, policies have the potential to change opinions as people experience policies directly. This is the main argument behind participant-centered studies. For instance, Soss (1999) finds that welfare participants extrapolate their views about the functioning of government from their own experiences. Over time, the mere exposure of a policy may cause people to be more comfortable with it and supportive of future policy actions (Gusmano, Schlesinger, and Thomas 2002).

Besides influencing preferences directly through experience, policies can also impact opinions indirectly through the information environment (e.g., Brewer 2003). Frames—or the ways that public policies are characterized by political elites—have a large influence over how people perceive the origins and outcomes of policies (e.g., Iyengar 1991). For instance, people exposed to television news stories that characterized the Iraq War as highly event oriented were more likely to support military as opposed to diplomatic interventions (Iyengar and Simon 1993). Similar results occur across a wide range of issues (Chong and Druckman 2007). Old issues can also be transformed into “new issues” simply by reframing the debate, which can influence how people view current and future policies (Chong 2006).

The primary pathway linking policy to mass opinions depends on policy characteristics, such as the tangibility of a policy (e.g., its proximity) and the attention a policy receives (e.g., its visibility). As Soss and Schram (2007) theorize, as a policy moves from low to high proximity, the more likely it is that attitudinal policy feedback is due to direct experience and individual observation rather than political discourse. In addition, policies that are tangible to a majority of the public can have lasting impacts on society, often changing social norms and the policy environment simply because of its scope. As a policy moves from low to high visibility, the more likely it is that citizens will react to political discourse in forming their opinions. Policies that are largely distant and invisible are not likely to produce widespread public shifts in opinion (Soss and Schram 2007). Policies that are highly proximate and visible, such as Social Security, are likely to produce feedback effects over a large range of outcomes.

Empirical work concentrates on policies, such as redistributive or economic policies, that are highly visible, but distant from citizens. Consequently, scholars have struggled to find empirical support for large attitudinal feedback effects. For example, Soss and Schram (2007) find no evidence that the 1990s welfare reform influenced aggregate views on welfare policy, beliefs about recipients or the poor, support for the Democratic Party, or willingness to invest
in public aid (see also Morgan and Campbell [2011]). Others have found that aggregate preferences toward spending respond in a negative way—much like a thermostat—to broad changes in economic policies (Wlezien 1995; Erikson, MacKuen, and Stimson 2002). However, these feedback effects tend to be gradual and nonspecific to any one policy change.

I build on past research by focusing on the effects of tangible policies, those that a majority of citizens experience on a recurrent basis, on mass attitudes. As I describe below, these policies influence the broader social and policy environments by influencing affect toward the target population, educating the public about certain behaviors, and shaping judgments of current policy in hopes of building support for analogous policies.

THE DEFINITION OF TARGET POPULATIONS

Target populations are groups of citizens that share common traits that are linked to a government problem and are typically defined via the distribution of benefits and burdens (Schneider and Ingram 1997). Some policies may elevate the status of policy participants via the expansion or protection of citizens’ rights and responsibilities. Other policies that distribute burdens or punishments may signal to citizens that segments of the population are of lesser status (Mettler and Soss 2004). Thus, in identifying and treating target populations, the government plays a powerful role in how citizens are viewed among society (e.g., Donovan 2001) and the affect associated with segments of the population.

While all policies have the potential to influence affect toward groups, highly tangible policies will not just influence attitudes in the short term, but contribute to changing social norms by continuously reinforcing cues about target populations. The attitudes formed about policy participants are dependent on the exclusivity of the policy. If a policy is inclusive, expanding the status of target populations, then political attitudes are expected to be positive. If a policy is exclusive, alienates a segment of the population, or signals that policy targets are of lesser status, then attitudes about those people are expected to be negative.

THE EDUCATIVE EFFECTS OF POLICY

Besides influencing attitudes about target populations, policies also convey information to the public (Pierson 1993). Policies provide messages about what is socially acceptable through the restriction or recognition of certain social behaviors (Mead 1998). The policy choice reflects political and social values more broadly, which has the potential to further reinforce and strengthen societal norms. For instance, policymakers confronted with the problem of increased rates of teen pregnancy could increase contraceptive education and access in schools, or they could mandate abstinence-only programs (Luker 1996). When policymakers enact policy designs that go against societal norms, even slightly,
they have the potential to change opinion regarding what is acceptable behavior. Policies that have tangible effects on people’s lives contribute to changing social norms because citizens have a continuous reminder of the behaviors that are acceptable. Eventually, policies legitimize certain behaviors that contribute to how certain activities are perceived in society.

BUILDING SUPPORT FOR FUTURE POLICY INTERVENTIONS

Finally, tangible policies influence support for future policies because citizens clearly link the policy’s effects to government action. The way that policies influence public attitudes for future policies depends on how people view current policies. Support for future policies may be driven by objective conditions (e.g., Johnson, Brace, and Arceneaux 2005), subjective perceptions driven by elite framing (e.g., Hetling and McDermott 2008), or pure self-interest (Cook and Barrett 2002; Schneider and Jacoby 2007). While all of these mechanisms are plausible, policies that are highly tangible are most likely to influence support for future interventions through direct experience and less by elite framing, although both may be at work. Gusmano, Schlesinger, and Thomas (2002) refer to the former mechanism as the learning model whereby a favorable response to a policy depends on respondents’ own experiences (see also Gamson [1992]). Policies that produce positive experiences for a majority of citizens will elicit support for future interventions, whereas policies that produce negative responses from citizens tend to erode public support for analogous policies, regardless of the elite frames that are present.

To summarize, tangible policies influence mass opinions via three mechanisms. First, these policies influence affect toward segments of the population depending on the inclusivity of the policy. Second, tangible policies educate the public about what is socially acceptable through the recognition of behavior. Finally, tangible policies influence mass support for future policies mainly through direct experience. Furthermore, because tangible policies are directly experienced, citizens will clearly link the policy’s effects to government action, thus influencing future policy judgments. This last effect is dependent on whether respondents have positive or negative experiences with the policy. In the next section, I test whether a tangible policy—smoking bans in restaurants—influences mass opinions as suggested.

The Policy Intervention: State Smoking Bans in Restaurants

As of July 8, 2013, thirty-three states had banned smoking in restaurants (American Nonsmokers’ Rights Foundation 2013). Smoke-free laws have been most prolific on the East and West Coasts of the United States, although within the past few years other states have followed suit. California was the
first to adopt smoking bans in restaurants, in 1994, while Indiana is the most recent state to enact a 100-percent smoke-free provision in restaurants that went into effect on July 1, 2012. There is evidence that smoking bans in restaurants are highly tangible. A 2008 Pew Research Center poll finds that 63 percent report eating out at least once a week and directly experience smoking bans in restaurants. In addition, reported levels of smoking restrictions are considerably consistent with documented restrictions (Borland et al. 2006), suggesting that people are well aware of such policies after enactment. Antismoking policies also receive a lot of media attention; smoke-free policies are highly visible. Public health advocates push for smoking restrictions to protect nonsmokers from the harmful effects of SHS, but also to inform and persuade the public about the health consequences of smoking (Warner 2006). The tobacco industry works to change the public’s perception of smoking by discrediting the scientific evidence that SHS is dangerous (Ong and Glantz 2001) and suggesting that smoking restrictions have major negative economic effects on the hospitality industry (Dearlove, Bialous, and Glantz 2002). Content analysis of newspaper and magazine articles on SHS suggests that coverage reflects the arguments put forth by health advocates and the tobacco industry, although the tobacco industry tends to dominate attention (Magzamen, Charlesworth, and Glantz 2001; Harris et al. 2010).

In short, while individuals are directly experiencing antismoking policies, they are also exposed to various characterizations of the policy debate by political elites. Given that antismoking policies are highly tangible, direct experience will influence mass attitudes, particularly toward future policy interventions, more than the frames offered by political elites. In fact, public health research suggests this is the case. There is no association between the tone of news coverage on tobacco and attitudes toward antismoking legislation, and little evidence of a relationship between the volume of overall tobacco news and attitudes toward smoking bans (Smith et al. 2008). Ultimately, however, both direct experience and framing have the potential to change mass attitudes toward smokers, SHS, and future antismoking policies, as I explain below.

Hypothesizing the Feedback Effects of Smoking Bans in Restaurants

CHANGING SOCIAL NORMS THROUGH THE PERCEPTIONS OF SMOKERS

The primary aim of antismoking policies is to protect nonsmokers from the adverse effects of SHS by ridding public places of smoking behavior. Thus, smokers are the target population tied together by a shared characteristic: smoking behavior. The messages from these policies about smokers are clear; people who want to smoke are penalized for engaging in such behavior.
Moreover, the penalty (e.g., going outside) is evident to other patrons when it occurs. This has caused many to argue that antismoking policies have contributed to changing norms regarding the social acceptability of smoking (e.g., Alamar and Glantz 2006). Consequently, I pose the following hypothesis.

Target Population Hypothesis: Individuals will have more negative attitudes toward smokers after antismoking policies in restaurants are enacted.

EDUCATING THE PUBLIC ABOUT SECONDHAND SMOKE

Antismoking policies clearly convey to the public that smoking and SHS are unhealthy (Warner 2006). Much of the evidence-based public health campaigns to reduce exposure in private places, such as homes or cars, have relied on the effectiveness of tobacco control policies to increase awareness about the adverse health consequences of smoking and SHS (Zollinger et al. 2010). Public health studies generally find significant increases in health risk perceptions following anti-tobacco laws. However, the majority of these studies look at nonrepresentative samples; for example, bar patrons in California (Tang et al. 2003) or residents in Indiana (Zollinger et al. 2010). There is also evidence at the population level that SHS-risk perceptions have increased since 2000 (McMillen, Breen, and Cosby 2004; Pacheco 2011). However, these analyses do not differentiate among people living under various antismoking policies. Nonetheless, I put forth the following hypothesis:

Educative Effects Hypothesis: Individuals will view secondhand smoke as more harmful after antismoking policies in restaurants are enacted.

BUILDING SUPPORT FOR ADDITIONAL SMOKE-FREE POLICIES

Research suggests that antismoking policies in public places are achieving their intended objective goals to reduce exposure to SHS. Restaurants located in smoke-free cities also have less indoor-air pollution compared to establishments that do not have smoke-free protections (Hyland et al. 2005). There is also evidence that, amid the tobacco industry’s claims that antismoking policies hurt the hospitality industry economically, prohibiting smoking in restaurants does not damage restaurants’ revenues (e.g., Glantz and Smith 1994) and may even provide some economic benefits (Alamar and Glantz 2006). Clean indoor-air laws also are associated with a reduction in cigarette consumption (Levy, Chaloupka, and Gitchell 2004) and an increase in smoking cessation rates (Borland et al. 2006). They also act as deterrents to adolescent onset of smoking (Cummings and Orleans 2009).

There is evidence that people have positive experiences to smoking restrictions in public places post-enactment. Tang et al. (2003) find that approval
of a smoke-free bar law increased from 60 to 73 percent among California bar patrons post-enactment. Rayens et al. (2007) find that public support for a smoke-free law increased from 56 to 63 percent among Lexington-Fayette County, Kentucky, residents post-law. And, there is evidence that even smokers approve of smoke-free laws after enactment (Zollinger et al. 2010).

Consequently, I predict:

**Future Policy Intervention Hypothesis:** Individuals will support additional smoking restrictions in public places more after antismoking policies in restaurants are enacted.

To summarize, I expect attitudes toward smokers, SHS, and additional smoke-free policies to change post-enactment of smoking bans in restaurants. Because smoking bans exclude smokers from restaurants, citizens will view smokers more negatively post-enactment (target population hypothesis). Smoking bans in restaurants signal to citizens that smoking behavior and SHS are dangerous; consequently, individuals will view SHS as more dangerous post-enactment (educative effects hypothesis). Finally, even though they are exposed to multiple frames of influence dominated by the tobacco industry, citizens will nonetheless support analogous smoke-free policies in the future following enactment of smoking bans (future policy intervention hypothesis). Support will increase because the majority of citizens have positive experiences with smoking bans in restaurants.

**Empirically Testing the Effects of Smoking Bans in Restaurants on Public Opinion**

To test the hypotheses outlined above, I combine state-policy data with individual, cross-sectional data on opinions toward smokers, SHS, and support for antismoking policies in bars using various Gallup polls.2 The majority of the antismoking policy data are from the Centers for Disease Control and Prevention’s (CDC) State Tobacco Activities Tracking and Evaluation (STATE) System. Where there are gaps in the data (e.g., prior to 1995), I use the National Cancer Institute’s State Cancer Legislation Database Program to determine if and when states enacted certain smoking restrictions. Table 1 lists the states that have a smoking ban in restaurants and the enactment year. As can be seen from table 1, there is longitudinal variation in the passage of state smoking bans in restaurants.

I measure a person’s views toward smokers via Gallup questions asked in 1994, 2001, 2004, and 2007 to test the target population hypothesis (see table A1 for survey details). Respondents were asked the following:

“Which of the following statements better describes your view toward people who smoke—you are unsympathetic toward smokers because they

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2. All the Gallup polls are based on telephone interviews with random-digit-dialing. Cell phones were used in the 2008 and 2010 surveys. Interviews were conducted in English only.
continue to smoke even when they know it’s harmful to their health and the health of those around them, or you are sympathetic toward smokers because they are addicted and you understand that it is difficult to stop even if they want to?”

People who responded that they are unsympathetic toward smokers are coded as a 1, while those who indicated that they are sympathetic toward smokers are coded as a 0.3

To test the *educative effects hypothesis*, I measure a person’s views toward SHS from Gallup polls in 1994, 1997, 1999, 2001–2008, and 2010. Respondents were asked, “In general, how harmful do you feel secondhand

3. DKs and refusals are excluded from the analyses.
smoke is to adults?” to which they could reply “very harmful,” “somewhat harmful,” “not too harmful,” or “not at all harmful.” Higher values indicate increased risk perceptions toward SHS.

Finally, to test the future policy intervention hypothesis, I measure an individual’s support for smoking restrictions in bars from Gallup polls conducted in 2003, 2005, 2007, and 2010. Higher values indicate stronger support for smoking restrictions in bars. Public support for smoking restrictions in bars is significantly lower than support for restrictions in other public places (Pacheco 2011). This likely reflects the fact that the clientele of bars has a higher than average prevalence of smoking; bars also are viewed as places to go to for the express purpose of drinking and smoking without social disapproval (Warner 2006).

Table 2 provides descriptive information for the three dependent variables pooled across time and states. It also shows preliminary evidence through a difference-of-means test that opinions differ depending on whether smoking bans in restaurants are present. As shown in table 2, people living in states with smoking bans in restaurants believe that SHS is more dangerous and are more supportive of additional smoking restrictions in bars compared to people living in states without smoking bans in restaurants. There is no evidence, however, that views toward smokers changed post-enactment. Results are similar when comparing opinions towards smokers, SHS, and smoking restrictions in restaurants, pre- and post-enactment.

Table 2 provides preliminary evidence that opinions are influenced by antismoking policies, but the results are based on repeated, cross-sectional comparisons and do not provide support for a causal link between smoking bans and changes in mass opinion. While a longitudinal research design is ideal, I employ a difference-in-differences (DID) approach. The classic DID estimation compares the difference in outcomes after and before an intervention (policy enactment) for groups affected by the intervention to the same difference for unaffected groups (Card and Krueger 1994; Wooldridge 2009).

DID estimation arises from using regression analyses on repeated, cross-sectional data on individuals in treatment and control groups for several years before and after the specific intervention (Wooldridge 2009). For a two-period

4. Specifically, respondents are asked, “What is your opinion regarding smoking in public places? First, in bars—should they SET ASIDE certain areas, should they totally BAN smoking, or should there be NO RESTRICTIONS on smoking?”

5. It is possible that these three survey questions are picking up on a common latent attitude toward antismoking behavior and policy. The data suggest otherwise. The correlation between the smokers question and the SHS question is .12, the correlation between the sympathetic smokers question and the bar ban question is .12, and the correlation between the SHS question and the bar ban question is .42. Similarly, reliability, as measured by Cronbach’s alpha, is quite low ($\alpha = .48$) when all three items are combined into one scale.

6. The difference-of-means test for the target population hypothesis is statistically significant when analyses do not use weights.
<table>
<thead>
<tr>
<th></th>
<th>Antipathy toward smokers</th>
<th>Risk perceptions toward secondhand smoke</th>
<th>Support for smoking restrictions in bars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>States without smoking bans in restaurants (N = 2,507)</td>
<td>States with smoking ban in restaurants (N = 803)</td>
<td>States with smoking ban in restaurants (N = 1,515)</td>
</tr>
<tr>
<td></td>
<td>States with smoking ban in restaurants (N = 803)</td>
<td>Overall (N = 3,310)</td>
<td>Overall (N = 3,921)</td>
</tr>
<tr>
<td>Mean</td>
<td>.37</td>
<td>.39</td>
<td>.95</td>
</tr>
<tr>
<td>Standard error</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Risk perceptions toward secondhand smoke</td>
<td>2.31 (N = 8,728)</td>
<td>2.43*** (N = 3,230)</td>
<td>1.14*** (N = 1,515)</td>
</tr>
<tr>
<td>Standard error</td>
<td>.01</td>
<td>.02</td>
<td>.02</td>
</tr>
<tr>
<td>Support for smoking restrictions in bars</td>
<td>.95 (N = 2,406)</td>
<td>1.14*** (N = 1,515)</td>
<td>1.02 (N = 3,921)</td>
</tr>
<tr>
<td>Standard error</td>
<td>.02</td>
<td>.02</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note.—Weights are employed to account for the complex survey design.

***p < .001 with a one-tailed test using a difference-of-means test
version, the DID effect is the interaction between a time indicator (for instance, the year in which a smoking ban is enacted) and an intervention group indicator (e.g., states with smoking bans). For this paper, however, I have Gallup data for three outcomes among individuals living in states with and without a smoking ban in restaurants where the year of enactment varies across states. Hence, I use a generalized difference-in-differences framework (e.g., Bertrand, Duflo, and Mullainathan 2004; Scheve and Stasavage 2012):

$$Y_{ist} = A_s + B_t + cX_{ist} + \beta I_{ist} + \epsilon_{ist},$$

where $Y_{ist}$ is the outcome of interest for individual $i$ in state $s$ at time $t$, and $I_{ist}$ is a dummy variable for whether a smoking ban in restaurants has been enacted in state $s$ at time $t$. $A_s$ and $B_t$ are fixed effects for states and years, respectively; $X_{ist}$ are relevant individual controls; and $\epsilon_{ist}$ is an error term. The estimated impact of smoking bans in restaurants on mass opinion is the estimate of $\beta$ (Bertrand, Duflo, and Mullainathan 2004).

A major advantage of a DID design is its ability to circumvent many of the endogeneity problems that arise when comparing heterogeneous individuals (Bertrand, Duflo, and Mullainathan 2004). This is particularly relevant for models testing attitudinal-policy feedback. Because state policies are likely to reflect aggregate state preferences (e.g., Erikson, Wright, and McIver 1993), it is difficult to parse out the effects of policies on opinions. It is entirely plausible, for instance, that a high correlation between policy and opinion reflects the fact that places in which antismoking sentiment is highest are more likely to have antismoking policies, not that policies influence attitudes toward smoking. The DID design makes inferring the direction of causality less problematic. While issues of reverse causation are never eliminated with the use of observational data, they are avoided further given the nature of the data. Because I am modeling individual public opinion as a consequence of state-level policy, it is unlikely that a single person’s opinion about a policy is influencing aggregate policy itself.

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7. A strong assumption of DID estimation is that in the absence of the treatment, the average outcomes for treated and controls would have followed parallel paths over time; that is, the only reason that trends differ across states is because of the intervention; e.g., smoking bans in restaurants (Abadie 2005). This parallel-paths assumption may be implausible if state characteristics that are associated with changes in individual opinions are unbalanced between states with a smoking ban and those without a ban. This would be a problem, for instance, if individuals living in tobacco-producing states changed their opinions toward SHS differently from others and the majority of tobacco-producing states do not have smoking bans. There are various estimation techniques that can be used to relax this assumption; for example, a simple two-step strategy (e.g., Abadie 2005). I employ state-fixed effects, which control for state-specific heterogeneity not accounted for by the policy intervention and take advantage of the large temporal variation in when states enacted smoking bans to account for the parallel-paths assumption.
In each of the models, I control for other covariates. Smokers are less likely than nonsmokers to support smoking bans in nearly every public place (e.g., Green and Gerken 1989; Wilson, Duncan, and Nicholson 2004). I include a dummy variable indicating whether a respondent currently smokes. I also control for demographic variables, including gender (1 = female), race (1 = black, 1 = other, white is the reference category), age (continuous measure; centered at the mean), and education (1 = high school degree, 1 = some college, 1 = college degree, no high school degree is the reference category). Antismoking sentiment is typically higher among females and minorities and tends to decrease with age and increase with education (Osypuk and Acevedo-Garcia 2010). Finally, for the future policy intervention hypothesis, I conduct the analyses on states that do not have a smoking ban in bars to circumvent issues of endogeneity.  

I employ logistic regression for the smokers question since it is binary and OLS regression for the other two dependent variables. To account for potential problems of nonindependence of observations and of heteroskedasticity, I employ robust standard errors via the cluster procedure where observations are clustered by state. Finally, to account for the complex survey design, observations are weighted according to the survey weights provided by Gallup. Results are shown in table 3.

As shown in table 3, there is support for the target population hypothesis and the educative effects hypothesis; state residents view smokers with more antipathy and SHS as more dangerous post-enactment of smoking bans in restaurants. There is no evidence that residents increased support of smoking restrictions in bars post-enactment.  

Substantively, the model for the target population hypothesis in the first column predicts that residents are about 8 percentage points more likely to view smokers with antipathy post-enactment, keeping all other variables constant.  

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8. Antismoking policies are common at the local, city, and county levels. Hence, it is possible that a person is living in a state that does not have a smoking ban, but still experiences smoking bans at a local level. If that is the case, any differences in attitudes across state-level smoking bans are most likely underestimated. Furthermore, controlling for local-level smoking bans is nearly impossible with the current data, since county or zip codes are not available. Including a variable that measures the proportion of state residents under a smoking ban is highly correlated with the presence of a state smoking ban ($r = .93$); in fact, the proportion of state residents under a smoking ban is 100 percent once a state-level ban is enacted. I am able to account for local smoking bans, although not completely, with the use of the year variables, since there has been a growth over time of antismoking legislation at local levels.

9. Results are slightly different when employing an unweighted, non-nested, hierarchical linear model with state and year as the level-two covariates. The coefficient on the state smoking ban variable fails to reach statistical significance for the affect toward smokers outcome ($\beta = .03$), but is statistically significant for risk perceptions toward SHS ($\beta = .09, p < .001$) and attitudes toward smoking bans in bars ($\beta = .15, p < .001$).

10. This is the maximum effect size of the policy variable and is calculated from taking the difference in the probability of answering the antipathy smokers question in the positive when a state has a smoking ban in restaurants and the probability of answering in the positive when a state does not have a smoking ban in restaurants, keeping all other variables constant at their mean values.
Table 3. Difference-in-Differences Models Testing the Effect of Smoking Bans in Restaurants on Public Attitudes

<table>
<thead>
<tr>
<th></th>
<th>Target population hypothesis: Predicting antipathy toward smokers (N = 3,241)</th>
<th>Educative effects hypothesis: Predicting views about SHS (N = 10,793)</th>
<th>Future policy intervention hypothesis: Predicting support for smoking restrictions in bars (N = 2,635)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-level covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking ban in restaurants (t)</td>
<td>.36* (0.16)</td>
<td>.07** (0.02)</td>
<td>.08 (0.18)</td>
</tr>
<tr>
<td><strong>Individual-level covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>–1.53*** (0.12)</td>
<td>–.57*** (0.03)</td>
<td>–.48*** (0.04)</td>
</tr>
<tr>
<td>Age (mean centered)</td>
<td>–.01*** (0.00)</td>
<td>–.005*** (0.00)</td>
<td>.004*** (0.00)</td>
</tr>
<tr>
<td>High school degree</td>
<td>–.25 (0.24)</td>
<td>–.05*** (0.05)</td>
<td>.03 (0.05)</td>
</tr>
<tr>
<td>Some college</td>
<td>–.09 (0.26)</td>
<td>–.03 (0.04)</td>
<td>.05 (0.07)</td>
</tr>
<tr>
<td>College degree or higher</td>
<td>.01 (0.26)</td>
<td>–.02 (0.05)</td>
<td>.18** (0.06)</td>
</tr>
<tr>
<td>Black</td>
<td>–.26 (0.18)</td>
<td>.20*** (0.02)</td>
<td>.13** (0.05)</td>
</tr>
<tr>
<td>Other race</td>
<td>–.08 (0.19)</td>
<td>.07* (0.04)</td>
<td>–.03 (0.06)</td>
</tr>
<tr>
<td>Female</td>
<td>–.27*** (0.08)</td>
<td>.32*** (0.02)</td>
<td>.15*** (0.03)</td>
</tr>
<tr>
<td>Constant</td>
<td>–.12 (0.23)</td>
<td>2.09*** (0.05)</td>
<td>.95*** (0.07)</td>
</tr>
</tbody>
</table>

Note.—Age is mean centered. State and year fixed effects are included but not shown due to space. Weights are employed to account for the complex survey design. Logistic regression is used for the policy target hypothesis. Analyses only conducted for residents in states without smoking bans in bars for the future policy intervention hypothesis. Standard errors in parentheses.

*p < .05, **p < .01, ***p < .001 with a one-tailed test.
than the effect of race or gender on affect toward smokers; females and blacks are about 6 percentage points less likely to view smokers with antipathy compared to males and whites. The smoking-status variable has the largest impact on how people view smokers; smokers are 30 points less likely to view smokers with antipathy. The model for the educative effects hypothesis in the second column predicts that people view SHS as .07 more dangerous post-enactment. Table 3 also shows that females and minorities are more likely to perceive SHS as dangerous, while age is negatively related to SHS perceptions. Being a smoker has the largest impact on people’s risk perceptions toward SHS. Results in the last column provide no evidence for the future policy intervention hypothesis. Echoing previous research (Green and Gerken 1989), table 3 shows that smoking status is the largest predictor of support for smoking restrictions in bars; females and blacks are more supportive than males and whites; and age is positively related to support for smoking restrictions in bars.

To summarize, people are more likely to view smokers with antipathy and believe that SHS is more dangerous after states enact smoking bans in restaurants. There is little evidence that public support for additional smoking restrictions in bars is influenced by smoke-free policies. The model, however, is ill equipped to explore heterogeneity in public opinion among those people living under the same policy enactments but for different lengths of time. This is a particular problem for the future policy intervention hypothesis, which suggests that it takes time for people to develop opinions about current policies before making judgments about future policies.

Length of Exposure to Smoking Bans in Restaurants

To explore whether length of exposure influences attitudes, I replace the smoking-ban variable used in previous analyses with a variable that measures the number of years that a state has had a smoking ban in restaurants at $t - 1$. The logic here is that policies may take time to influence public opinion as people gradually experience the policies’ effects. Analyses are conducted identically to the previous section. Results are shown in table 4.12

As shown in table 4, length of exposure matters little to opinions toward smokers or SHS. However, as shown in the third column in table 4, support for

11. Results are nearly identical with an ordered logistic regression. This is the maximum effect size of the policy variable and is calculated from taking the difference from the predicted value on the SHS question when a state has a smoking ban in restaurants and the predicted value on the SHS question when a state does not have a smoking ban in restaurants, keeping all other variables constant.

12. Results are nearly identical when estimated with an unweighted, non-nested, hierarchical linear model with state and year as the level-two covariates. The coefficient on the state smoking-ban variable is not significant for the affect toward smokers outcome ($\beta = .003$), but is significant for the SHS ($\beta = .01, p < .001$) and opinion toward smoking bans in bars outcomes ($\beta = .014, p < .001$).
Table 4. Regression Models Testing the Effect of Length of Exposure to Smoking Bans in Restaurants on Public Attitudes

<table>
<thead>
<tr>
<th></th>
<th>Target population hypothesis: Predicting antipathy toward smokers (N = 3,241)</th>
<th>Educative effects hypothesis: Predicting views about SHS (N = 10,793)</th>
<th>Future policy intervention hypothesis: Predicting support for smoking restrictions in bars (N = 2,635)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-level covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of years state has banned smoking in restaurants (t – 1)</td>
<td>.003 (0.01)</td>
<td>−.002 (.005)</td>
<td>.04* (.02)</td>
</tr>
<tr>
<td><strong>Individual-level covariates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoker</td>
<td>−1.53*** (.12)</td>
<td>−.57*** (.03)</td>
<td>−.48*** (.04)</td>
</tr>
<tr>
<td>Age (mean centered)</td>
<td>−.01*** (.00)</td>
<td>−.005*** (.00)</td>
<td>.004*** (.00)</td>
</tr>
<tr>
<td>High school degree</td>
<td>−.27 (.24)</td>
<td>−.05*** (.05)</td>
<td>.02 (.05)</td>
</tr>
<tr>
<td>Some college</td>
<td>−.11 (.26)</td>
<td>−.03 (.04)</td>
<td>.04 (.07)</td>
</tr>
<tr>
<td>College degree or higher</td>
<td>.00 (.26)</td>
<td>−.02 (.05)</td>
<td>.17*** (.06)</td>
</tr>
<tr>
<td>Black</td>
<td>−.25 (.19)</td>
<td>.20*** (.02)</td>
<td>.13** (.05)</td>
</tr>
<tr>
<td>Other race</td>
<td>−.08 (.19)</td>
<td>.07* (.04)</td>
<td>−.03 (.06)</td>
</tr>
<tr>
<td>Female</td>
<td>−.26*** (.08)</td>
<td>.31*** (.02)</td>
<td>.15*** (.03)</td>
</tr>
<tr>
<td>Constant</td>
<td>−1.81*** (.23)</td>
<td>3.10*** (.05)</td>
<td>.94*** (.07)</td>
</tr>
</tbody>
</table>

**Note.**—Age is mean centered. State and year fixed effects are included but not shown due to space. Weights are employed to account for the complex survey design. Logistic regression is used for the policy target hypothesis. Analyses only conducted for residents in states without smoking bans in bars for the future policy intervention hypothesis. Standard errors in parentheses.

*p < .05, **p < .01, ***p < .001 with a one-tailed test
additional smoking restrictions in bars increases as people are more exposed to smoking bans in restaurants. In substantive terms, the model predicts that for every year residents live in a state that has a smoking ban in restaurants, support for additional smoking restrictions in bars increases by .03, keeping all other variables constant. In other words, a California resident in 2010, where a smoking ban has been in effect for fifteen years, supports restrictions in bars .45 (e.g., 15 * .03) more than individuals who live in a state without a smoking ban and .42 (e.g., 1 * .03) more than residents in South Dakota, where smoking bans have existed for one year. This is strong evidence that length of exposure matters for the future policy intervention hypothesis; the longer people experience a policy enactment, the more they are likely to react to current policies, which influences their opinions for future policies.

Conclusion and Implications

The results presented here underscore the effects that tangible policies may have on ordinary citizens in changing the broad social and political environments. Tangible policies, like smoking bans in restaurants, contribute to social norms by identifying target populations and regulating acceptable behavior. In the case of smoking bans in restaurants, people view smokers more negatively and SHS as more dangerous, post-enactment. This has contributed to changing social norms regarding smokers and smoking behavior. Tangible policies also aim to influence support for analogous policy interventions; if people have successful experiences with a policy, they are likely to support similar policies in the future. The results presented here suggest that over time people tend to like smoking bans in restaurants and support similar policies in other public places, such as bars. This feedback effect, however, is not immediate and takes time to develop.

The implications are twofold. First, policies contribute to how people and behaviors are viewed in society, playing a fundamental role in either eradicating or legitimizing stereotypes, stigmas, and discrimination over time. Policymakers have the ability to change society simply by passing legislation that goes against, even if slightly, social norms. This ability is strengthened if policymakers concentrate on making policies tangible—or directly experienced—for a majority of citizens. Second, the results suggest that policymakers are strategic in crafting legislation with hopes of changing the broader political climate and gradually build support for analogous policy interventions. Sometimes the most strategic choice is an incremental policy aimed at boosting support for future interventions. This strategy will work best if people have positive and recurrent experiences with the policy’s effects.

More broadly, the results suggest that the presence and mechanisms of attitudinal policy feedback effects depend on issue characteristics. Although scholars have suggested that tangibility is an important characteristic that
influences mass feedback effects, previous research tends to concentrate on redistributive or economic policies. Consequently, feedback effects have been negligible or exhibited a thermostatic pattern. The results presented here suggest that highly tangible policies or those that are directly experienced on a concurrent basis by a majority of citizens can have large feedback effects on various facets of public opinion and build support for future policies.

Empirical analyses of other policies would help further determine which policies influence mass opinions, how, and when. To this end, scholars can benefit from taking advantage of the longitudinal variation in policies across states, as I have done in this paper, to determine if and when attitudinal policy feedback occurs. Longitudinal research designs are particularly beneficial to assess a causal link between policy enactments and opinion changes. Finally, detailed information about how people experience policies could help identify the mechanism by which evaluations about the broader social and political environments are developed across generations.

Appendix

Table A1. Detailed Information about Gallup Surveys used in Analysis

<table>
<thead>
<tr>
<th>Name of survey</th>
<th>Date of survey</th>
<th>Response rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallup/CNN/USA Today Poll</td>
<td>March 11–13, 1994</td>
<td>30%</td>
</tr>
<tr>
<td>Gallup/CNN/USA Today Poll</td>
<td>June 26–29, 1997</td>
<td>26%</td>
</tr>
<tr>
<td>Gallup News Service Poll</td>
<td>September 23–26, 1999</td>
<td>26%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 19–22, 2001</td>
<td>17%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 9–11, 2002</td>
<td>17%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 7–9, 2003</td>
<td>18%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 8–11, 2004</td>
<td>18%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 7–10, 2005</td>
<td>17%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 6–9, 2006</td>
<td>16%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 12–15, 2007</td>
<td>16%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 10–13, 2008</td>
<td>11%</td>
</tr>
<tr>
<td>Gallup Consumption Habits Questionnaire</td>
<td>July 8–11, 2010</td>
<td>11%</td>
</tr>
</tbody>
</table>

Note.—Response rates were calculated using the AAPOR 3 method (e.g., CASRO rates).

References


