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Symbolic Politics and the Prediction of Attitudes Toward Federal Regulation of Reduced-Exposure Tobacco Products[1]

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The present study relies on symbolic politics theory to predict public attitudes toward the federal regulation of conventional tobacco products (a familiar attitude object) and reduced-exposure tobacco products (a relatively novel attitude object). We predicted that attitudes toward most forms of regulation would be more strongly influenced by symbolic beliefs about the role of government in society than by self-interested concerns, with the exception of taxation. We predicted that the financial consequences of taxation policies would be less ambiguous for those who are affected, resulting in a stronger relationship between self-interest and policy attitudes. The results strongly supported our hypotheses, suggesting a process by which symbolic beliefs and self-interested concerns influence attitude formation. Theoretical and policy implications are discussed.

Classic economic theories hold that the individual pursuit of tangible material rewards is a primary motivating factor in most human behavior. One school of thought in contemporary political science, for example, characterizes voting as an avenue by which citizens maximize their material interests (see Mansbridge, 1990). Indeed, research in political and social psychology has suggested that people may use self-interest as a guide for their behavior because they believe that such thinking is normative. Miller and Ratner (1998) have shown that the layperson generally believes people's attitudes and behaviors are strongly influenced by monetary incentives and personal stakes. Moreover, participants in this research consistently overestimated the role of group membership in determining group members' attitudes toward policies affecting that group (e.g., believing women are more supportive of insurance coverage for abortion procedures), suggesting a general belief that people think they evaluate policies based on self-interest.

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By contrast, empirical research investigating the role of self-interest in political attitude formation has painted a much more complicated picture of this important psychological construct. In particular, research on the symbolic politics approach strongly suggests that people must be able to recognize their personal stake in a given policy in order for their self-interest concerns to play a strong role in their evaluation of that policy (Kinder, 1998). Otherwise, related symbolic beliefs are demonstrably more predictive.

Symbolic beliefs refer to affect-based, internalized social values that are formed early in life. Examples include the belief in fairness, equality, and self-sufficiency (Eagly & Chaiken, 1993; Kinder & Sears, 1981; Sears, Lau, Tyler, & Allen, 1980). As Sears and Funk (1990a, 1990b, 1991) discussed, the symbolic politics research literature reveals that symbolic beliefs are a significant predictor of a variety of policy attitudes, and are often more predictive than are self-interest concerns. For example, political ideology (liberalism vs. conservatism) is a stronger predictor of support for government-provided health insurance or privatized healthcare, even among those who do not have healthcare (Sears & Funk, 1990a). It is also a stronger predictor of a policy that would guarantee jobs for everyone, even among those who are personally affected by unemployment (for a comprehensive review, see Sears & Funk, 1991).

Why does self-interest appear to be less influential in predicting policy attitudes than value-based measures? Sears and Funk (1990a, 1990b, 1991) suggested that self-interest plays less of a role in most people's political behavior because politics tend to be distal for most people. In order for people to vote using their self-interest, Sears and Funk posited, people must first be able to recognize their personal stake in a particular issue. For most people, however, the political context often obfuscates the personal stake that people have in various policy outcomes. Self-interest is not always obvious or apparent to people, especially if it is embedded in the policy discussion in nuanced ways. In these cases, Sears and Funk (1990a, 1990b, 1991) argued, people are more likely to use their symbolic beliefs about related issues to guide their evaluations of relevant policies.

Thus, symbolic beliefs may play a more influential role in policy attitudes when the personal stakes are more ambiguous; whereas self-interest has a more powerful effect when the costs of the outcome are apparent and hit people between the eyes. If the implications of a policy are clear and substantial, individuals have the capacity to draw the link between their self-interests and the policy (Sears & Funk, 1990a, 1990b, 1991). Subsequently, it is more likely that their attitudes toward that policy will be substantially affected by their self-interest.

In particular, Sears and Funk (1990a, 1990b, 1991) suggested that policies that directly affect voters' pocketbooks are more likely to have substantial

self-interest effects because voters easily understand the material consequences of those policies. For instance, they reviewed previous work in which public employees were more strongly opposed to proposals to reduce taxes and spending than were nonpublic employees. The public employees' opposition was likely based on fears of pay cuts, job cuts, and reduced financial security. Because the costs of the policy were clear and substantial to public employees, their self-interest likely played a stronger role in their attitudes toward that policy.

Thus, regulatory proposals regarding specific taxation strategies are most likely to elicit strong reactions based on voters' self-interest. Not surprisingly, Sears and Funk (1990a, 1990b, 1991) have shown that predicting attitudes toward particular taxation proposals yields significant, consistent, and strong self-interest effects. The beneficiaries of proposed tax cuts, they suggest, are much more supportive of the proposed policies than are those who would not benefit (e.g., car owners supporting a reduction in car taxes). Conversely, proposals for tax increases are strongly opposed by those who would suffer the most as a result (e.g., homeowners opposing a call to raise property taxes). Again, Sears and Funk (1990a, 1990b, 1991) pointed out that the monetary consequences of specific tax proposals directly affect voters; therefore, self-interest plays a larger role in their attitudes toward that policy than it would if the costs of the policy were less clear.

Other findings from political and social psychology support these claims. In a poll of Californian adults, for example, Green and Gerken (1989) reported great differences among current smokers, former smokers, and nonsmokers in their support of regulatory policies proposing smoking restrictions. The more respondents smoked, the less they supported policies that proposed the banning of public smoking or its restriction to "special areas." Conversely, nonsmokers were much more supportive of raising cigarette taxes, irrespective of the amount proposed, whereas smokers were less supportive, and were increasingly less supportive as the proposed tax amount was increased. Previous poll results suggested no differences in demographics or political party affiliations between smokers and nonsmokers. Green and Gerken argued that the reason for the effect of self-interest (i.e., smoking status) in their poll was because the effects of the proposed policies were unambiguous to those who would be affected (i.e., smokers).

Further research has more directly investigated the cognitive mechanisms by which self-interest affects policy attitudes, testing how the cognitive accessibility of one's self-interest affects the perception of various policies. Researchers (Young, Thompson, Borgida, Sullivan, & Aldrich, 1991; Chong, Citrin, & Conley, 2001) found evidence that priming participants' self-interest significantly increased the predictive power of participants' own self-interest when evaluating a variety of legislative proposals (e.g., Social

Security reforms). Such research suggests a process by which self-interest can influence attitude formation; namely, that a major reason that voters are influenced by their self-interest when accessing pocketbook policies is that their self-interest is cognitively salient to them at the time of evaluation.

It is important to note that there has been some criticism of the methodological and data-analytic approach characteristic of the symbolic politics research literature. In particular, Crano (1997a, 1997b) demonstrated that when self-interest is treated as a moderator variable, it significantly predicts behavior such that those who are highly self-interested are more likely to vote in accordance with their self-interest than are those who do not feel they are affected by a relevant policy.[3] More recently, Darke and Chaiken (2005) also found self-interest to have a powerful effect on policy attitudes. In their study, self-interest significantly predicted participants' policy preferences, and the researchers found that participants' self-interest significantly biased cognitive processing. Those who were more self-interested exerted more cognitive effort while evaluating a policy.

Thus, current research strongly suggests that people must be aware of how a policy personally affects them in order for them to use it as a guide for policy evaluation (either because their self-interest is cognitively accessible or because the outcome of the policy is consequential and unambiguous). Otherwise, voters tend to rely on their symbolic beliefs and values as guides to the expression of their policy preferences.

The purpose of the present research is to test these hypotheses, not only for theoretical reasons, but also because of their policy significance in the realm of tobacco harm reduction. *Tobacco harm reduction* refers to a relatively new strategy in the public-health domain to reduce harm from tobacco exposure, rather than to rely solely on smoking cessation (see Hatsukami et al., 2007). The Institute of Medicine refers to products designed to reduce smokers' exposure to tobacco toxins as *potentially reduced-exposure products* (PREPs; Hatsukami et al., 2007; Stratton, Shetty, Wallace, & Bondurant, 2001). PREPs include any product designed to reduce smokers' exposure to dangerous toxins. Nicotine-replacement products (e.g., nicotine gum, patches) are considered PREPs because they are products designed to help smokers quit. However, chewing tobacco and "light" cigarettes are also considered PREPs because they allegedly reduce the exposure to toxins that are associated with smoking regular cigarettes.

[3]Crano (1997b) also critiqued the use of proxy, objective measures of self-interest (e.g., group membership), rather than more subjective measures (e.g., respondents' own assessments of how they are personally affected by a policy). But other analyses presented by Sears and Funk (1991) employed subjective measures and still find support for symbolic politics theory. Thus, the resolution of these measurement issues is beyond the scope of this paper.

Although previous research has established that tobacco-control advocates disapprove of PREPs and believe they should be regulated (Warner & Martin, 2003), public opinion regarding these products and their regulation is less well known.[4] Testing the respective roles of self-interest and symbolic values in a new issue domain provides a unique opportunity to understand better the process by which self-interest and symbolic beliefs influence attitude formation.

Sears and Funk (1990a) suggested that people use their symbolic beliefs as a default option to guide their evaluation of a policy when the outcome is ambiguous, and their self-interested concerns when the material impact of a policy is obvious or cognitively salient. However, previous work on symbolic beliefs and self-interest has been restricted to the examination of more or less familiar policy issues (e.g., busing, Social Security). Knowledge and experience with these issues is likely already linked to other cognitive and affective constructs, making it difficult to understand the relative impact of symbolic beliefs and self-interest independently in guiding the formation of new attitudes. That symbolic beliefs and policy attitudes are strongly associated in these domains may simply reflect post hoc associations between the attitude object and symbolic beliefs, rather than evidence on the extent to which symbolic beliefs guide information processing. In contrast, examining these two variables in an entirely new issue domain promises to shed more light on the processes by which they influence appraisals.

Previous research has suggested that if self-interest is not salient or accessible (Chong et al., 2001; Young et al., 1991), then symbolic beliefs are relied upon more heavily in expressing policy attitudes. Sears and Funk (1990a, 1990b, 1991) suggested that people may use their symbolic beliefs as a default option to guide their evaluation of a policy when the outcome is ambiguous, which is in line with the idea that symbolic beliefs may be more central to a person's self-concept and thus more accessible (Eagly & Chaiken, 1993). Thus, when considering a new attitude object, or a new policy, we hypothesize that a person's related symbolic beliefs should be especially relevant in guiding his or her policy evaluations. However, if the policy clearly affects perceivers' pocketbooks, then we hypothesize that their self-interest will more influential.

[4]Zaller (1992) argued that elites, who have "high information," should demonstrate more attitude constraint between their symbolic beliefs and policy attitudes than policy novices. Thus, tobacco-control advocates surveyed by Warner and Martin (2003) may demonstrate a very strong relationship between symbolic beliefs and their attitudes toward regulation. Moreover, the attitudes of such public-health experts might include other characteristics not shown in our sample (e.g., a tight knowledge structure about the tension between individual rights and public-health needs). Unfortunately, the present design does not allow a comparison between elites and the general public.

The present research directly tests these hypotheses about the comparative role of symbolic beliefs versus self-interest in predicting support for regulation of a known attitude object (conventional cigarettes) and a relatively novel attitude object (PREPs). Based on a mail survey of the Upper Midwest of the United States, we assessed people's understanding of, and attitudes toward, tobacco harm reduction and specific PREPs. We examined respondents' attitudes toward different possible types of regulation of PREPs, their smoking status, and symbolic beliefs about the role of government in society. For comparison purposes, we assessed respondents' attitudes toward different types of regulation of conventional tobacco products. Thus, the present study is designed to assess how respondents' symbolic beliefs about government and self-interest in PREPs influence their attitudes toward federal regulation of these products.

We predict that attitudes toward federal regulation of conventional and reduced exposure tobacco products will be most strongly predicted by participants' symbolic beliefs about the role of government in society, even among smokers who are most likely affected by these policies. We anticipate that participants who believe in less government will be significantly less supportive of regulation of harm reduction products than will participants who believe that such regulatory oversight is a valid role for government. However, we predict that when participants consider taxation of these products as a regulatory strategy, their self-interest will be most strongly predictive of their attitudes. Thus, current smokers should be significantly less supportive of the taxation of PREPs and conventional tobacco products because the implications of taxation on these products should be most apparent and cognitively accessible to them.

Method

Participants

With assistance from the Minnesota Center for Survey Research at the University of Minnesota, we conducted a mail survey in Fall 2003. Surveys were sent to a random sample of 1,300 households in the five-state Upper Midwest region of the United States (i.e., Minnesota, Iowa, North Dakota, South Dakota, and Wisconsin). We followed the standard three-wave mailing procedure associated with Dillman's (1978) model. Surveys were sent to all participants, followed up by a reminder postcard 1 week later, and then a second mailing of the survey after another week. Data collection began in mid-September 2003 and was completed by the first week of November 2003.

Participants were asked to have an adult smoker in the household complete the questionnaire. If there was no smoker in the household, then they

were told that any adult could participate instead. There were 438 adult participants (258 men, 162 women, 18 did not indicate sex) who completed and returned the survey, resulting in a minimum response rate of 33.7%. This response rate was calculated in accordance with American Association for Public Opinion Research (AAPOR) guidelines; complete interviews were divided by the total number of interviews sent out. This response rate is in line with non-incentive mail and telephone survey response rates (Curtin, Presser, & Singer, 2002; Keeter, Miller, Kohut, Groves, & Presser, 2000).

Consistent with U.S. Census data on the Upper Midwest region, the majority (97%) of the sample was Caucasian, with the rest of respondents indicating they were Black, Asian, Native American, or "Other." Most (59%) of the sample was male, respondents' mean age was 54.0 years ($SD = 16.7$), and 22% had reported smoking a cigarette in the last 30 days.

Primary Measures

Issue familiarity. All participants were first instructed to read the definition of *harm reduction* as defined by the Institute of Medicine (Stratton et al., 2001):

> *Harm reduction* is a policy, strategy, or a specific method that places priority on reducing the overall health, social, and economic consequences of tobacco use, rather than focusing on eliminating tobacco use entirely. Harm reduction allows for continued use of tobacco products, but at a level that minimizes the total harm caused. One potential method to reduce harm is by reducing exposure to tobacco toxins, that is, through the use of reduced exposure products.

To assess familiarity with the harm-reduction approach, respondents were asked whether they had previously heard of harm reduction and how familiar they were with this approach on a 7-point scale ranging from 1 (*not at all knowledgeable*) to 7 (*very knowledgeable*). Additionally, participants were provided with examples of specific types and brands of PREPs and were asked to rate their knowledge and familiarity with them. Copenhagen®, Skoal®, Redman, and Hawkens were provided as examples of chewing tobacco; Ariva was provided as an example of a tobacco lozenge; and Omni and Eclipse were provided as examples of novel tobacco products that heat rather than burn tobacco.

Symbolic beliefs about government. To assess symbolic beliefs about the role of government in society, we used three questions from the 1992

National Election Survey. Participants chose between three pairs of statements: *The less government, the better* versus *There are more things that government should be doing*; *The free market can handle these problems without government being involved* versus *We need a strong government to handle today's complex economic problems*; and *The main reason the government has become bigger is because it has gotten involved in things that people should do for themselves* versus *Because the problems we face have come bigger*. We created a symbolic-beliefs scale such that a low score indicates belief in a government with a smaller role in society.

Self-interest. Self-interest was measured by whether the participant had smoked in the past 30 days to indicate smoking status, which has been used in the past as an objective measure of self-interest (Green & Gerken, 1989). Those who indicated that they had smoked in the past 30 days reported that they smoked more regularly than those who had not. Thus, participants who had smoked in the past 30 days had a vested interest in these products.

Product knowledge. We included a measure of participants' objective knowledge about tobacco products and reduced exposure products. Participants responded to 11 statements adopted from previous work by Cummings et al. (2002). Responses were rated on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Statements include "Nicotine is the most harmful ingredient in tobacco products," and "Low nicotine means less addictive cigarettes." Alpha coefficient for the knowledge scale was .54.

Attitudes toward regulation. Participants were asked to indicate their agreement with statements about the regulation of both PREPs and conventional tobacco products. These items include statements about the regulation of marketing techniques, government evaluation of safety, and implementation of increased taxes. Regulatory items were adapted from Warner and Martin (2003); Appendix A presents all proposed regulatory options. Responses were rated on a 7-point scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*; reverse-coded as needed), and aggregated for a measure of overall attitudes toward regulation of both types of products. Alpha coefficients for the overall attitude measure for conventional and reduced harm products were .83 and .72, respectively.

Results

Issue Familiarity with Harm-Reduction Approach

As expected with a new issue domain, the majority of respondents (94%) reported not having heard of the harm-reduction strategy. Mean ratings for knowledge of the strategy were low ($M = 2.12$, $SD = 1.53$).

Attitudes Toward Regulation

Descriptive statistics (means, standard deviations, percentage agreements) are reported in Table 1. The statistics show respondents' attitudes toward specific proposed regulatory policies for each product type.

To assess the influence of self-interest and symbolic beliefs about government, the overall attitude toward regulation score and each of the regulatory statements were regressed on product knowledge, self-interest, and the scale measuring respondents' beliefs about government, controlling for gender, educational level, and age. Our predictions regarding symbolic beliefs are strongly supported. Table 2 shows unstandardized *b* coefficients for all predictors and significant demographic control variables. The referent policy is indicated in the far left column; the two columns to the right contain the

Table 1

Support for Individual Regulatory Measures for Conventional Tobacco Products and PREPs

	Smokers		Nonsmokers	
Product and regulation type	*M*	*SD*	*M*	*SD*
PREPS should be . . .				
Watched and banned as necessary	3.16	2.11	2.64	1.95
Subject to approval based on health evidence	2.19	1.73	2.11	1.59
Subject to government regulation of marketing techniques	2.97	2.00	2.74	1.97
Subject to taxes based on level of risk to user	4.43	2.22	3.22	2.13
Conventional tobacco products should be . . .				
Required by government to phase out nicotine	3.34	2.11	2.87	2.12
Subject to government evaluation of safety	2.90	2.37	2.37	1.90
Subject to government regulation of marketing techniques	3.26	2.27	2.68	2.08
Subject to taxes based on level of risk to user	4.46	2.37	3.18	2.31

Note. PREPs = potential reduced exposure products. Scales range from 1 to 7; lower numbers indicate stronger agreement.

Table 2

Predictive Strength of Knowledge, Symbolic Beliefs, and Self-Interest and Significant Control Variables on Each Proposed Regulation Type

Proposed regulation and predictor	Conventional tobacco products (*b*)	Potentially reduced exposure products (*b*)
Overall regulation		
Knowledge	0.05	0.02
Symbolic beliefs	–2.31**	–1.79**
Self-interest	–2.28*	–1.41*
Educational level	–0.20	–0.87**
Subject to approval based on health evidence		
Knowledge		.0002
Symbolic beliefs		–0.27**
Self-interest		0.10
Watched and banned as necessary		
Knowledge		0.04*
Symbolic beliefs		–0.51**
Self-interest		–0.35
Educational level		–0.22*
Subject to government evaluation of safety		
Knowledge	0.03†	
Symbolic beliefs	–0.65**	
Self-interest	–0.33	
Required by government to phase out nicotine		
Knowledge	0.04	
Symbolic beliefs	–0.54**	
Self-interest	–0.30	
Subject to government regulation of marketing techniques		
Knowledge	0.01	–0.02
Symbolic beliefs	–0.77**	–0.60**
Self-interest	–0.43	–0.13
Educational level	–0.01	–0.26*
Subject to taxes based on level of risk to user		
Knowledge	0.004	0.002
Symbolic beliefs	–0.32**	–0.40**
Self-interest	–1.27**	–1.04**

Note. Control variables include sex, educational level, and age.
†$p < .10$. *$p < .05$. **$p < .01$.

unstandardized *b* coefficients for each predictor and control variable, for conventional tobacco and for PREPs.

As can be seen in Table 2, overall support for regulation of both conventional tobacco products and PREPs was most strongly predicted by symbolic beliefs about the role of government in society (*b*s = –2.31 and –1.79, respectively, *p*s < .001). Individuals who believe in less government were less supportive of regulation. Self-interest had a smaller significant effect on the regulation of both types of products (*b*s = –2.28 and –1.41, *p*s < .05). Individuals who smoke were less supportive of regulation. Knowledge of tobacco products did not exert a significant effect, and educational levels were predictive of attitudes toward regulation of PREPs ($b = -0.87$, $p < .01$).

To compare the unique effects of symbolic beliefs and self-interest, we ran hierarchical regressions. First, we regressed overall attitudes toward regulation on product knowledge, self-interest, and the control variables in Model 1, adding symbolic beliefs about government in Model 2. Then, we ran the regressions again, including symbolic beliefs in Model 1 and adding self-interest in Model 2. We did this for both overall attitudes toward the regulation of conventional tobacco products and PREPs. For both types of products, adding symbolic beliefs to the model resulted in a higher change in R^2. Predicting support for the overall regulation of conventional tobacco products was significantly enhanced by adding symbolic beliefs ($\Delta R^2 = .17$, $p < .001$). Although the change in R^2 was also significant when adding self-interest, adding self-interest did not meaningfully improve the variance accounted for by the model ($\Delta R^2 = .02$, $p = .05$) This pattern was the same for attitudes toward regulation of PREPs. Adding symbolic beliefs in a second model explained much more variance than did adding self-interest ($\Delta R^2 = .15$, $p < .001$, as compared to $\Delta R^2 = .01$, $p = .05$).

With respect to the individual regulatory measures, support for both the regulation of conventional tobacco products and PREPs was strongly influenced by symbolic beliefs about the role of government in society. For instance, the proposal for government regulation of marketing techniques for both conventional tobacco products and PREPs is most significantly predicted by symbolic beliefs about government (*b*s = –0.77 and –0.60, respectively, *p*s < .01). Self-interest did not play a role (*b*s = –0.43 and –0.13, respectively, *p*s > .122). Educational level, a control variable, also emerged as a significant predictor for attitudes about watching and banning PREPs as necessary ($b = -0.22$, $p < .05$), and about the regulation of marketing techniques ($b = -0.26$, $p < .05$) such that more educated respondents were less supportive of both initiatives.

In fact, consistent with our hypothesis, self-interest played no significant role in any of the proposed regulation policies, with one exception: taxation. It is only in the case of taxation that self-interest emerged as a significant

predictor of attitudes for both the regulation of conventional tobacco products ($b = -1.27$, $p < .01$) and PREPs ($b = -1.04$, $p < .01$). Symbolic beliefs also predict attitudes, but to a lesser degree (taxation of conventional tobacco products, $b = -0.32$, $p < .01$; taxation of PREPs, $b = -0.40$, $p < .01$).

As before, we assessed the unique effects of self-interest and symbolic beliefs in predicting each of the individual regulatory measures by running hierarchical regressions. We first included self-interest in Model 1 and then added symbolic beliefs in a separate step in Model 2, then ran the reverse order, including symbolic beliefs in Model 1 and then adding self-interest in Model 2. For each of the non-taxation regulatory measures, the addition of symbolic beliefs about government significantly improved predictive power for both types of products, whereas adding self-interest in a separate step did not.

Adding symbolic beliefs resulted in a change in R^2 of .19 ($p < .001$) for the regulation of marketing for conventional tobacco products, but adding self-interest when symbolic beliefs was already accounted for only resulted in a change in R^2 of .01 ($p = .12$). Similarly, predicting support for government evaluation of safety of conventional tobacco products was enhanced by adding symbolic beliefs ($\Delta R^2 = .17$, $p < .001$), but not self-interest ($\Delta R^2 = .01$, $p = .18$); and predicting support for government phasing out nicotine in conventional tobacco products was also enhanced by adding symbolic beliefs ($\Delta R^2 = .10$, $p < .001$), but not self-interest ($\Delta R^2 = .004$, $p = .31$).

The same was true for the individual regulatory items regarding PREPs. Support for requiring health evidence before approval was better predicted by symbolic beliefs ($\Delta R^2 = .04$, $p < .01$) than self-interest ($\Delta R^2 = .001$, $p = .66$); government surveillance of PREP health effects was better predicted by adding symbolic beliefs ($\Delta R^2 = .09$, $p < .001$) than adding self-interest ($\Delta R^2 = .01$, $p = .19$); and agreement with the need for regulation of marketing techniques was also enhanced by adding symbolic beliefs ($\Delta R^2 = .14$, $p < .001$) more than self-interest ($\Delta R^2 = .001$, $p = .62$).

Once again, the only deviation from this consistent pattern of results is demonstrated by the taxation policy for both types of products. When self-interest was already accounted for in predicting attitudes toward the taxation of conventional tobacco products, adding symbolic beliefs resulted in a 2.7% increase in variance accounted for ($p < .05$). Conversely, when symbolic beliefs were already accounted for, adding self-interest resulted in a relatively trivial 5.4% increase in accounted variance ($p < .001$). Thus, it appears that when predicting attitudes toward the taxation of conventional tobacco products, both self-interest and symbolic beliefs contributed significantly. The same pattern is true for predicting attitudes toward the taxation of PREPs, an unfamiliar attitude object. Adding symbolic beliefs when self-interest was already accounted for resulted in a change in R^2 of .048 ($p < .001$), whereas

Table 3

Predictive Strength of Knowledge, Symbolic Beliefs, and Self-Interest and Significant Control Variables on Non-Taxation Regulatory Policies

Predictor	Conventional tobacco products (*b*)	Potentially reduced exposure products (*b*)
Knowledge	0.04	0.02
Symbolic beliefs	–1.98**	–1.38**
Self-interest	–1.03	–0.38
Educational level	–0.04	–0.64**

Note. Control variables include sex, educational level, and age.
**$p < .01$.

adding self-interest when symbolic beliefs were already accounted for resulted in a change in R^2 of .042 ($p < .01$).

Finally, to assess the role of symbolic beliefs in the prediction of attitudes toward the regulation of conventional tobacco products and PREPs, independent of taxation, responses to the non-taxation regulatory measures were summed and regressed on the same predictors and controls. For the regulation of both types of products, symbolic beliefs were the strongest predictor (bs = –1.98 and –1.38, ps < .01), and self-interest was not significant (bs = –1.03 and –0.38, ps > .125). Additionally, education emerged as a significant predictor (b = –0.64, $p < .01$) for the non-taxation regulation of PREPs. These results are shown in Table 3.

Education analyses. The emergence of education, one of our control variables, as a significant predictor of policy attitudes raised the question of whether smokers and nonsmokers evaluated policy differentially as a function of their educational status or product knowledge. Thus, we conducted additional regression analyses predicting overall attitudes toward the regulation of both conventional tobacco and PREPs, including our standard predictors and control variables (e.g., smoking status, symbolic beliefs about government). We included interaction terms between smoking status and educational level, and smoking status and product knowledge. Smoking status did not significantly interact with educational level to predict overall attitudes toward the regulation of either conventional tobacco (b = –0.14, p = .86) or PREPs (b = –0.69, p = .26). Smoking status also did not interact with product knowledge in predicting overall attitudes toward regulating conventional tobacco (b = 0.53, p = .63) or PREPs (b = –0.17, p = 0.85).

Additional analyses on each of the individual regulatory items reveal one marginal interaction between smoking status and educational level: Smokers with higher educational levels were slightly less favorable toward subjecting PREPs to approval based on health evidence ($b = -0.32$, $p < .10$). With that exception, smoking status did not significantly interact with either educational level or product knowledge in predicting the other individual regulatory items, including taxation.

Discussion

One fundamental assumption of research on symbolic politics is that politics are distal for most people, so the relevance of most policies to people's daily lives can be obtuse much of the time. Unless the effects of the proposed policies are clear to those affected—hence, more cognitively accessible—individuals will use related symbolic beliefs and values as a default guide in their evaluation of social policies. The effects of taxation, however, are more obvious to those who are affected.

The present research obtains support for these predicted effects in both a known and novel attitude domain. Consistent with the theory of symbolic politics, we predicted that respondents' symbolic beliefs about government would be most strongly predictive of their attitudes toward most forms of regulation such that those who believe in less government would be opposed to most forms of regulation. As expected, we found that respondents' symbolic beliefs about government were most predictive of their attitudes toward the regulation of both conventional tobacco products and PREPs, especially compared to their self-interest in the policy. That is, whether a respondent was a smoker was less influential of his or her evaluation of the regulation policies, even though those policies directly affect him or her. Rather, respondents' symbolic beliefs about the role of government in society were most predictive of their attitudes toward regulation, with those who believe in less government being less supportive of regulation.

Furthermore, based on previous findings from the research on symbolic politics, we predicted that taxation would be an exception, even in a novel issue domain. In the case of taxation, we predicted that respondents' self-interest would be most predictive of their attitudes toward taxation, with those who have higher personal stakes in the policy more opposed to taxation as a strategy for regulating new reduced-exposure products. Again, the results support our prediction. Self-interest significantly predicted respondents' evaluation of taxation as a regulatory policy for both conventional tobacco products and PREPs. Hierarchical regression analyses reveal that both symbolic beliefs about government and self-interest significantly predicted

attitudes toward taxation, whereas when predicting attitudes toward non-taxation regulation, only symbolic beliefs contributed significantly.

This study has some limitations that should be addressed. First, to increase the number of smokers in our sample, we asked to have an adult smoker in the household complete the survey; otherwise, any adult could participate. Thus, both groups of respondents knew that we were interested in the responses of smokers, which may have sensitized some of their answers to questions regarding smoking behaviors and smoking products.

Second, we employed a dichotomous measure of self-interest (smoked in past 30 days or not), which may not be as sensitive as a continuous measure of self-interest in this domain (e.g., a composite of how frequently one smokes, intention to quit). Such a variable may have improved our ability to predict attitudes toward regulation of conventional tobacco products and PREPs and should be included in future research that focuses on measurement issues in this survey context.

Taken together, our findings are robust and provide a unique opportunity to compare the predictive strength of symbolic beliefs versus self-interest when evaluating a relatively established attitude object (regulation of conventional tobacco products) versus a novel attitude object (regulation of PREPs). No other research has examined both of these attitude objects in the same study. Although research on symbolic politics has suggested that symbolic beliefs are important in attitude formation, traditional symbolic politics research has been limited to evaluating the roles of symbolic beliefs and self-interest in predicting policies that are already familiar to individuals (e.g., busing, Social Security reform, healthcare). Because many individuals have most likely already formed their views of these policy issues, the role of symbolic beliefs in forming their attitudes toward these policies has been difficult to gauge previously. However, we asked participants to evaluate the regulation of a relatively unknown attitude object (PREPs) and a relatively familiar attitude object (conventional tobacco products), and assessed the relative strength of participants' symbolic beliefs and self-interest in evaluating those regulatory policies.

Our finding that symbolic beliefs are strongly predictive in a novel attitude domain is suggestive of a process by which symbolic beliefs influence attitude formation. When assessing their attitudes toward the regulation of PREPs—real products that were relatively unknown—respondents seemed to rely more heavily on their symbolic beliefs about government and less on their self-interested concerns. This suggests that when evaluating a novel attitude object, symbolic beliefs that are most pertinent to the attitude domain were most accessible to perceivers. In our case, when evaluating regulatory policies about an unfamiliar attitude object, respondents' symbolic attitudes about government regulation in general guided their interpretations.

Our findings that self-interest is (at least) equally influential in predicting attitudes toward taxation are in keeping with previous research on the mediating role of cognitive accessibility in this context. Past research has shown that when the costs of a policy are cognitively accessible, individuals are more likely to use their self-interest to evaluate those policies (Chong et al., 2001; Young et al., 1991). Thus, it appears that self-interest is more cognitively accessible when evaluating pocketbook policies (e.g., taxation) and, as such, influences people's evaluations of taxation proposals. In our study, smokers' self-interest was ostensibly more accessible to them when they evaluated the proposed taxation policy, so it was easier to express their self-interest-based opposition.

Another possible explanation of these effects is based on theory and research on the functional underpinnings of attitudes (Eagly & Chaiken, 1993; Katz, 1960). According to this perspective, people hold attitudes because they serve a particular function; for example, to fit in with others (i.e., social adjustive), to express their values (i.e., value-expressive), or to maximize material gain (i.e., utilitarian). Value-expressive attitudes are more central to the self-concept, and thus are linked to other attitudinal constructs linked to the self (Eagly & Chaiken, 1993). Thus, it could be that the activation and use of symbolic beliefs to guide people's understanding of ambiguous policies increases the likelihood that the policy attitude becomes linked to other symbolic beliefs that are important to the person's core self-concept (e.g., beliefs about the role of government in society and beliefs about individual responsibility). In our study, this could explain why individuals' symbolic beliefs about government were a stronger predictor of attitudes toward a known attitude object (regulation of conventional tobacco products) than for a novel attitude object (regulation of PREPs). The cross-sectional survey nature of our design, however, limits our ability to compare these predictors objectively and directly.

Both explanations for the obtained pattern of results suggest implications for persuading consumers about the regulation of PREPs, which has had a complicated history on Capitol Hill (Hulse, 2004). Research by Chong et al. (2001) and Young et al. (1991), for example, has suggested that priming participants to consider their values or their self-interest can influence which of those constructs affects policy attitudes. This raises the question of whether the effects of legislation can be made clear and accessible, so that even though the legislation does not specifically affect the pocketbook, consumers can more easily see the ways that they are affected by regulatory policy. Once consumers determine that the policy is personally relevant, they are more likely to engage in biased processing of the policy (Darke & Chaiken, 2005) and pay more attention to relevant messaging. In the case of the regulation of PREPs, if policy messaging emphasizes how nonsmokers

are affected by PREPs, then nonsmokers may become more supportive of their regulation.

Functionalist theorists have also presented arguments for changing attitudes toward the regulation of PREPs. According to this approach, changing attitudes involves matching the persuasive message to the underlying function of the target attitude (Clary, Snyder, Ridge, Miene, & Haugen, 1994; Herek, 1987; Petty, Wheeler, & Bizer, 2000; Shavitt, 1990; Snyder & DeBono, 1985). Successfully changing an attitude depends on understanding the motivational function that the attitude serves for the individual. If the attitude is value-based, then the persuasive message should be more effective if it, too, was value-based. Because people's opposition toward the regulation of PREPs is based on their symbolic beliefs about government in society, policy messaging that encourages their regulation should be valued-based as well, perhaps emphasizing public safety, or ensuring the safety of children from these products (which would also alert the public to how they are personally affected by these products). By the same logic, because opposition to taxation policies is based on self-interest concerns, persuasive messages should be more effective to the extent that they emphasize utilitarian reasons. Attitudes serving a utilitarian function can be changed by targeting these utilitarian concerns. In the case of opposition toward taxation policies, these attitudes may be changed by de-emphasizing the loss to smokers, or by emphasizing other ways that smokers gain from such policies.

Thus, it may be possible to propose the regulation of PREPs (products about which consumers currently do not know much) in a way that maximizes their understanding of how they are personally affected by these products. Our data suggest that in the absence of information regarding these products, consumers are likely to base their attitudes about PREP regulation on their symbolic beliefs because the relevance of PREPs to their lives is not well understood. In these ways, the psychology of public attitudes has the potential to provide the scientific foundation for thinking about health and policy communication in this issue domain. Future research should examine the specific ways that regulatory messages and persuasive communications can be framed so that their costs and benefits enable the public to make well informed health decisions.

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Appendix

Study Survey

Proposed Regulatory Options for Potentially Reduced Exposure Products

1. Reduced exposure products should be subject to approval based on evidence that the new product significantly reduces health risks, compared to smoking conventional cigarettes, before these products are advertised and put on the market.
2. The government should establish surveillance of reduced exposure product uses and health effects after these products are advertised and placed on the market, with the authority to ban products that are eventually found to create unacceptable health risks or attract children.
3. Reduced exposure products should be subject to government regulation of marketing techniques (e.g., advertising or product distribution).
4. Reduced exposure products should be subject to taxes based on level of risk to users, with higher taxes on products believed to be more dangerous.

Proposed Regulatory Options for Conventional Tobacco Products

1. Conventional tobacco products should be subject to government regulation of marketing techniques (e.g., advertising or product distribution).
2. Conventional tobacco products should be subject to government evaluation of safety.
3. Conventional tobacco products should be subject to tax rates based on relative danger to consumers, with the more dangerous products more heavily taxed.
4. Conventional tobacco products should be required by government to gradually phase nicotine content down to nonaddicting levels.

Note. Items adapted from Warner and Martin's (2003) survey of tobacco health advocates.

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