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THE ARTICULATION EFFECT OF GOVERNMENT POLICY: HEALTH INSURANCE MANDATES VERSUS TAXES

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ABSTRACT

We examine how the articulation of government policy affects behavior. Our experiment compares a government mandate to purchase health insurance to a financially equivalent tax on the uninsured. Participants report their probability of purchasing health insurance under one of the two articulations of the policy. The experiment was conducted in four waves, from December 2011 to November 2012. We document the controversy over the Affordable Care Act's insurance mandate provision that changed the political discourse during the year. Pre-controversy, articulating the policy as a mandate, rather than a financially equivalent tax, increased probability of insurance purchase by 10.6 percentage points — an effect comparable to a $1000 decrease in annual premiums. After the controversy, the mandate is no more effective than the tax. Our results show that how a policy is articulated affects behavior and that persuasion and public opinion management can help achieve policy objectives at lower cost.

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1. Introduction

Governments aim to discourage or encourage certain behaviors of their citizens, and they employ a variety of policy levers to achieve this goal. Economists analyzing these policies typically assume that the efficacy of a policy is driven exclusively by the extrinsic incentives it creates.[1] For example, decision makers are assumed to care about the size of a penalty along with the probability of having this penalty imposed (Becker 1968). This assumption has a natural appeal, since it allows the analysis of government policy to be simplified to easily observable incentives (e.g. financial penalties in the form of fines, taxes, or subsidies, or criminal penalties such as forced community service or incarceration).

However, the way a policy is articulated to the public might also impact how individuals respond to it. Compliance with a given policy might depend not only on its explicit financial or criminal incentives, but also on how it is perceived by agents. For example, if the goal is to discourage a behavior, the government could prohibit the behavior and enforce the prohibition with a fine. Alternatively, the government could tax the behavior without an explicit prohibition. Traditional models of tax policy would treat the tax and the fine as equivalent so long as the magnitude and probability of their being imposed were equal. However, articulating the policy with a prohibition may emphasize a moral obligation or invoke different levels of moral suasion (see Lieberman, Samuels and Ross 2004). In addition, the prohibition could carry different information about social norms or directly shape social norms regarding a behavior (Benabou and Tirole 2011, Elster 1989). As a result, a penalty articulated as a prohibition and a fine might affect compliance differently than a penalty framed as a tax.

How a policy is articulated is determined both by political actors and popular discourse, as each influences how individuals understand a policy's meaning, motivation, authority, and/or legitimacy. Policy-makers act first, choosing, for example, whether a financial incentive should be initially articulated as a fine, a tax, or a price. For instance, a real-estate developer can face identical financial incentives articulated as either: (1) a "requirement" to include affordable housing or else pay a fine, (2) a "requirement" to include affordable housing but have the option to pay a fee instead, or (3) a "suggestion" to provide affordable housing through a discount on higher base development fees. Similarly, late tax filers may be assessed a "penalty" from the IRS

[1] A notable exception is Auerbach et al. (2010), which partially motivates this study, as well as the literature on tax salience (e.g. Chetty, Loony and Croft 2009; Finkelstein 2009).

or receive a “loan” from the IRS with a high interest rate. Parking can be regulated with fees or fines. More broadly, policy-makers can allocate the nominal assignment of tax liability to consumers or producers. While standard theory suggests that who you tax is irrelevant for tax incidence (which is simply determined by supply and demand elasticities), assigning a carbon tax to individuals as opposed to firms might affect behavior differently by highlighting the government’s goal of dissuading individuals from polluting. After policy-makers choose an articulation, popular discourse acts second: statements by political actors and commentators, as well as news media coverage, all influence the perceived meaning and legitimacy of a policy.

We study how the articulation of government policy affects behavior by analyzing the decision to purchase health insurance in the context of a policy that either taxes individuals who do not purchase insurance or mandates purchase and fines those who do not comply. This setting has a particular appeal for the study of the articulation of government policy. The individual mandate to purchase insurance was a cornerstone of the 2010 Patient Protection and Affordable Care Act (PPACA). Our study takes place before the policy was implemented, during a time of policy uncertainty.

The articulation of this policy was actively debated. At first, government officials attempted to articulate the policy as a *mandate* to purchase insurance, with an associated fine for disobeying the mandate, rather than as a *tax* on remaining uninsured; President Obama specifically denied it was a tax (Pear 2010). The stated logic for employing this articulation was that a mandate would affect behavior beyond the fine’s financial incentive in a way a tax would not, presumably because the mandate implies an obligation to comply with the law (Elmendorf 2011, Auerbach et al. 2010). During the months leading up to the U.S. Supreme Court’s ruling on PPACA, political opponents and discussions in the popular press undermined the government’s desired policy articulation. Positions articulated in the press suggested that the mandate had no particular moral suasion (i.e. it was unconstitutional). Throughout the paper we denote this period as a “controversy” over the policy, and we document its beginning using the frequency of mandate-related articles in the press. Third, Justice Robert's decisive opinion in the

Supreme Court case on PPACA upheld the mandate as constitutional precisely because it could be re-articulated as a tax.[2]

We use an experimental survey to investigate whether the articulation of government policy affects behavioral intentions (rather than public opinion; see Jacoby 2000).[3] We find that before the controversy over the mandate, individuals behaved differently when the policy was articulated as a mandate with a fine compared to when it was articulated as a tax. Relative to the tax, the mandate articulation increased insurance purchase intentions by 10.6%, comparable to a $1,000 decrease in premiums. After the controversy, which undermined the legitimacy of the mandate, this effect was gone.

To estimate our effects, we asked a sample of U.S. residents to report their probability of purchasing health insurance at two different prices ($3000/year and $2000/year) under one of two government policies: either (1) a mandate with a fine of $700 for not having insurance, or (2) an uninsurance tax of $700 that must be paid by anyone without insurance. The two policies are exactly financially equivalent, as in each case the individual's wealth is reduced by $700 if insurance is not purchased (and by the insurance premium if it is purchased).[4] This methodology allows us to vary, in a controlled way, how the policy is articulated. While it would be ideal to investigate the articulation effect in practice by observing real insurance purchase decisions, such a test is infeasible. The ideal test would require variation in how a policy is articulated (i.e. what the government called the policy and how it was discussed in the news) among otherwise identical individuals. Furthermore, indirect evidence is sparse, particularly in the context of an insurance mandate. Before the passage of the 2010 federal health reform, Massachusetts was the only U.S. state to have a mandate to purchase individual insurance. Compliance with the Massachusetts mandate was high (Steinbrook 2008; Gruber 2011), but it is unknown whether the mandate was more effective than a similarly sized or tax or subsidy would have been. Similarly, while some U.S. states have mandates to purchase auto insurance, it is unknown whether these mandates would affect behavior differently if articulated as taxes.

[2] As Roberts wrote in the majority opinion: "it is reasonable to construe what Congress has done as increasing taxes on those who have a certain amount of income, but choose to go without health insurance..." (National Federation of Independent Business v. Sebelius 2012)

[3] Individuals may support or oppose a policy without it affecting their compliance with that policy.

[4] Moreover, the mandate and tax are both very similar to a $700 subsidy that is received if and only if an individual purchases insurance, except that the subsidy effectively increases the individual's wealth. This income effect is likely to have little effect on behavior if $700 per year is small relative to an individual's lifetime wealth.

As noted above, we find a strong effect of the mandate articulation in the first two waves of the study, which took place before the controversy and extensive debate about the insurance mandate that occurred leading up to the Supreme Court ruling. In these waves, calling the policy a mandate rather than a tax had the same 10.6 percentage point increase on insurance purchase intentions as decreasing the annual premium from $3000 to $2000.

We document an increase in news media mentions of the health insurance mandate beginning in March 2012, with the public debate continuing through the Supreme Court ruling on PPACA and its individual mandate in June 2012. The controversy has a complex effect, including challenging the legitimacy of the mandate and highlighting the financial equivalence of the mandate and tax. Because our study analyzes the effect of government policy articulation before, during, and after the controversy (including before and after the Supreme Court ruling on PPACA), we are able to examine how the relative effectiveness of the mandate changed during this debate. After the controversy surrounding the mandate, the relative effectiveness of the mandate disappeared.

These two sets of results demonstrate that there is (1) an articulation effect of government policy and (2) that it is malleable. The results suggest that policy makers who want to encourage or discourage a particular behavior have a lever to pull in the way they articulate policy, but that this framing is not entirely under the government's control.

Our finding that the articulation of policy affects behavior is similar in spirit to the hypothesis within Law and Economics that law has an "expressive function" (Sunstein 1995). The "expressive function" hypothesis suggests that a law can affect behavior by being codified even without being enforced (Funk 2007). Researchers have argued that the law has an expressive function because it provides information to people about what others think of a particular behavior (Dharmapala and McAdams 2003) or because it otherwise alters norms (Sunstein 1996). Here, we take this logic a step further and argue that even after a law has been codified, how it is articulated to the public can affect behavior. Moreover, we provide an empirical test of this effect.

Articulation is a broad concept. It includes framing manipulations that present identical information in different ways: for instance, describing probabilistic outcomes with frequencies versus probabilities (e.g. 1 in 25 versus 4%; see Hoffrage et al. 2000), or survival rates versus mortality rates for a surgical procedure (McNeil, Pauler and Tversky 1988). However, various

articulations of a given policy may also provide different information about intentions, beliefs, or norms. As noted above, articulations can vary in whether there is a moral component associated with the policy: setting a price does not necessary attach a moral dimension to a decision, but setting a fine typically implies that (at least someone) thinks the behavior is "wrong." An important dimension of articulation includes manipulations of loss aversion, as evidence shows that individuals can be loss averse regarding items they own or expect to receive (Kahneman, Knetsch and Thaler 1990, Ericson and Fuster 2011). For instance, an incentive can be presented as a fee plus a surcharge, or as a higher fee minus a discount. Loss aversion is not the focus of this paper, however, as we examine two different articulations in which the incentives are in the loss domain: fines and taxes.

Finally, our work is distinct from previous research that has found that the salience of a government policy can alter its effects. For instance, Chetty, Loony and Croft (2009) show that posting sales-tax inclusive prices lead people to respond to the tax-inclusive price, and Finkelstein (2009) shows that drivers who receive a monthly bill for tolls (EZ Pass) have worse recall of the toll amount.[5] In our experiment, the policy and its associated monetary incentives (a fine or tax for not purchasing insurance) are equally salient in both conditions.

2. Behavioral Model

This section formalizes how the articulation of policy affects behavior. In the standard economic model, individuals maximize utility subject to a budget constraint and do not care about how a government policy is described. Let p be the price of doing the action favored by the policy (in our example, purchasing insurance). Let f be the penalty (whether a tax or fine), paid with probability 1, for with failing to comply with the policy (here, remaining uninsured). Let an individual's wealth be given by w. We write utility as $U(w,i)$ where $i \in \{0,1\}$ indicates whether the person has purchased insurance and the term i in the utility function represents the standard utility component of having insurance (e.g. as derived from protection against risk).

In the standard model, an individual will take the desired action (e.g. buy insurance) if and only if:

$$U(w-p,1) > U(w-f,0)$$

[5] Similarly, attention (Lacetera, Pope and Syndor 2012) may matter.

Since U is strictly increasing in wealth, more people purchase health insurance when $f > 0$ than when $f = 0$. Notice that the model does not distinguish between a fine and a tax since only the penalty associated with failing to fulfill the government policy enters the utility function.

We augment this standard model to include an additional moral or normative motive for responding to government policy. This normative component is $v(a, i)$ that depends on the way the government policy is articulated, a, and whether the individual purchases insurance, i.

We assume for simplicity that this normative component of utility is separable from the rest of the utility function, but this is not essential. Now, the individual purchases insurance whenever:

$$v(a,1) - v(a,0) > U(w-f,0) - U(w-p,1)$$

As will be described in detail below, our experimental design holds constant the financial penalty *f* for remaining uninsured but changes the articulation a. Notice that the articulation a encompasses not only what the government calls the policy, but also how it is perceived by individuals as a result of public discourse. A policy called a "mandate" may or may not be perceived as legitimate (or, for example, constitutional) and that may affect whether a mandate carries normative weight. While the articulation a is the product of both what the policy is called and the broader political discourse, for simplicity in describing the experiment, we will simply refer to a as being an element of $\{mandate, tax\}$.

Since random assignment in each wave of our experiment will give us the same distribution of $U(w-f,0) - U(w-p,1)$ in both treatments, we will be able to identify the relationship between $v(mandate,1) - v(mandate,0)$ and $v(tax,1) - v(tax,0)$ in each wave. If people are more likely to buy insurance under the mandate condition than under the tax condition in a wave, we can conclude that

$$v(mandate,1) - v(mandate,0) > v(tax,1) - v(tax,0)$$

and consequently that the articulation of the policy as a mandate is more effective at generating the desired behavior in this wave than the articulation of the policy as a tax.

3. Experimental Design

In our experiment, all participants read a single policy vignette and decided how likely they would be to purchase health insurance. Participants were randomly assigned to a mandate or

tax condition (a between-subject design). Participants were told that the state of healthcare policy was in flux and asked to suppose that the government decided:[6]

- *Mandate Condition:* "to mandate everyone purchase insurance, or else pay a fine of $700 each year"
- *Uninsurance Tax Condition:* "to recommend that everyone purchase health insurance, and charge people without insurance an uninsurance tax of $700 each year"

Then, participants were asked what they would do if their current health insurance policy were no longer available and they were to become uninsured. Particularly, they were asked to choose between purchasing "coverage that is as good as the coverage that members of Congress get" at a market price of $3000 per year, or staying uninsured (i.e. this was the only insurance policy to which they had access). Participants indicated how likely they would be to purchase the policy on a 7 point scale, ranging from "almost certain to buy the policy (96-100% chance of buying the policy)" to "almost certain to stay uninsured (0-4% chance of buying the policy)"; see *Online Appendix* for the details of the question and response scale. After answering this question, participants were asked, on the same scale, how likely they would be to purchase the policy if it instead cost $2000 per year. They then saw a number of follow-up questions, which are described below and in the Appendix.

Participants' purchase intentions are hypothetical choices. Measuring actual choices is preferable but infeasible, as doing so would require policy makers to randomize how the actual policy is articulated to different individuals. Hypothetical choices are regularly used to provide valuable information when actual choices are unavailable, most often in valuing environmental attributes (Carson and Hanemann 2005) (e.g. pollution), but also in health insurance (Krueger and Kuziemko 2013). Evidence shows that reported intentions and hypothetical choices predict actual choices in a variety of contexts (Ajzen 1991, Camerer and Hogarth 1999), including in Medicare Part D insurance purchase (Kesternich, Heiss, McFadden, and Winter 2012). Indeed, in our data, higher prices are associated with lower reported probability of purchase and those who currently have insurance report significantly higher likelihood of purchase. Moreover, while the most common concern with hypothetical choices is inflated willingness-to-pay, our hypothesis is

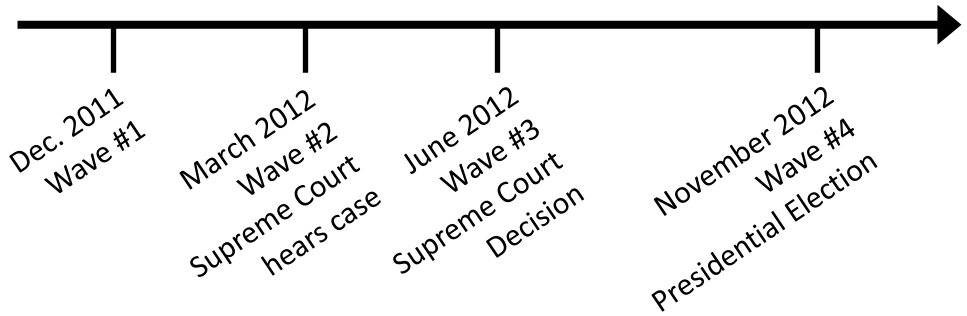
[6] In the first and second wave pilot, some participants were also assigned to a subsidy, or status quo condition. These conditions were discontinued as a result of a power calculation and because the status quo eventually became a mandate.

about differences between government policy articulations, rather than about absolute willingness-to-pay levels.

4. Data and Waves

We conducted our experiment in four waves from December 2011 to November 2012, which spanned the controversy about the constitutionality of the individual mandate in the PPACA. See Figure 1 for the timeline of events and when our survey waves were conducted.

Figure 1: Timeline of Survey Waves and Major Events



We analyze results from 1670 participants recruited for our study from an online labor market. Each participant completed our study in one of the four waves. Participation was limited to U.S. residents, and while not a representative sample of the U.S. population, this labor market (Amazon's Mechanical Turk) is regularly used for research studies (Horton, Rand, and Zeckhauser 2011; Paolacci, Chandler, and Ipeirotis 2010). We excluded participants aged 65 and over a priori because they are covered by Medicare. Our participants vary significantly on educational background, age, employment status, and are geographically diverse, as reflected in Table 1.

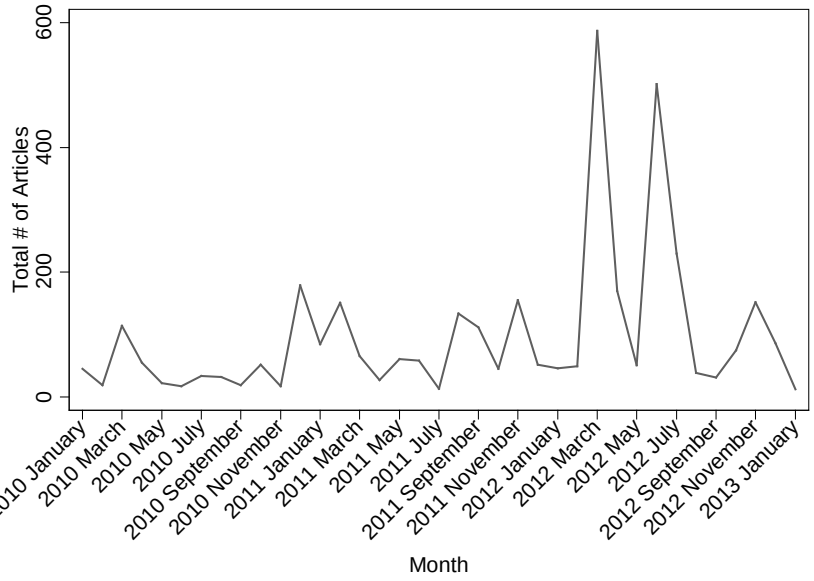
The individual mandate in PPACA was the target of much discussion and controversy in in 2012. In March 2012, the Supreme Court heard oral arguments regarding the constitutionality of elements of PPACA, including the individual mandate.[7] There was an increase in political discussion of the mandate in March, leading up to and following the hearings; that discussion became less intense in the April and May, but was followed by increased attention in June 2012

[7] The minimum coverage provision was argued March 27th in *Department of Health and Human Services, et al., Petitioners v. Florida, et al.* However other aspects of the case were argued before and after this, and news media covered the issue in advance of the arguments, with some discussion in late February and the first two weeks of March.

surrounding the release of the Court's ruling on PPACA. We will use this controversy to look for a changing effect of the policy articulation on insurance purchase behavior.

Figure 2 provides a proxy for the intensity of political discussion regarding the mandate. It reports the number of articles published in U.S. newspapers by month that mention the terms: "health insurance mandate", "mandate AND ACA", and "(individual mandate OR insurance mandate) AND unconstitutional".[8] The three individual measures are all highly correlated (pairwise correlations range from 0.63 to 0.81) and show the same pattern, so we simply display their sum.[9] The two peaks are occasioned by the oral argument (March 2012) and ruling (June 2012).[10]

Figure 2: Number of News Articles Relating to the Mandate, By Month.



Notes: Plots the sum of three measures of news activity. Constructed from the number of news articles in U.S. Newspapers indexed in Factiva matching the terms "health insurance mandate", "mandate AND ACA", and "(individual mandate OR insurance mandate) AND unconstitutional".

[8] Where "AND" and "OR" are the logical arguments commonly used in text-based search.

[9] Displaying the sum of the three measures double or triple counts articles that include more than one of our search terms. We think this is reasonable given that the individual mandate is more likely to be central to an article that involves multiple search terms. Regardless, the individual measures show a similar pattern.

[10] Moreover, there is evidence that individuals were paying attention to the controversy. The Kaiser health tracking poll asked individuals how much they had seen in the news about the health reform law twice: in Nov. 2011 and April 2012. Over that time, the fraction of people saying "a lot" rose from 18 to 36% and the fraction saying "a lot" or "some" rose from 41% to 60% (Kaiser Family Foundation 2012).

5. Results

Our primary analysis uses the reported probability of purchase from the participants' response scale. We set the probability of purchase to the midpoint of the probability range for the selected option. We present means by condition and linear regression estimates that control for individual characteristics. With these methods, differences in choices between conditions can easily be interpreted as differences in reported probability of purchase. We also replicate our results using an ordered probit specification, which treats the probability of purchase as an ordinal variable and simply assumes that higher choices reflect higher likelihood of purchase. This specification is more robust in a statistical sense, but it does not have a natural interpretation in terms of purchase probability.

When we regress reported probability of purchase on insurance price, we use two observations per participant, since each participant was asked about their likelihood of buying insurance at a high price ($3000) and a low price ($2000). In those specifications, standard errors are clustered at the participant level to account for interdependence between the participant's two choices. We obtain similar results if we limit our analysis to an individual's first choice.

Mandate versus Tax Pre-Controversy

Result 1: Before the controversy (i.e. in Waves 1 and 2), the mandate articulation generates more insurance purchase than a financially equivalent tax. The increase is comparable to a $1000 reduction in annual premiums.

Table 2 analyzes the effect of the mandate articulation, as compared to the tax articulation, in the first two waves. Columns 1 and 2 use a linear probability model, with probability of purchase set at the midpoint of the probability range that the participant selected. In each column, two choices per participant are used: probability of purchase at both the $3000 and $2000 premiums. This allows us to also estimate a price response and thereby put a dollar magnitude on the articulation effect.

The mandate articulation increases insurance purchase by 10 to 11 percentage points relative to the tax, a difference that is significant at $p<0.05$. The average probability of purchase

in the tax condition is 49.1%, so our estimated effect is equivalent to a 20% increase in probability of purchase. Comparing columns 1 and 2, we see that adding demographic controls improves precision but does not change the point estimate of the treatment effect. We pool Waves 1 and 2 together, since they predated the measured controversy over the mandate. When we estimate the model in column 2 separately for each of these waves, we get similar results: an 11.9 percentage point increase in purchase associated with the mandate articulation in wave 1 ($p<0.10$), and a 13.8 percentage point increase in wave 2 ($p<0.05$).

Because each person sees two different premiums, $3000 and $2000, we can estimate the effect of price on choice, as well as benchmark the articulation effect in dollar terms. Higher insurance premiums lead to significantly lower insurance purchase: a $1000 increase in annual premiums reduces insurance purchase by 8.6 percentage points. Dividing the coefficient on the mandate by the coefficient on price gives a dollar estimate of the mandate's articulation effect relative to the tax. Articulating the policy as a mandate rather than a tax has an estimated effect equivalent to an $1175 (column 1) or to a $1260 (column 2) decrease in price.

The ordered probit specifications in Table 2 treat the probability of purchase as an ordinal variable. The positive and statistically coefficient on mandate in columns 3 and 4 indicates that the mandate articulation induces more insurance purchase. In the ordered probit model, the coefficients represent changes in the probit index, with response cutpoints also estimated via maximum likelihood. A positive sign on mandate indicates that the model predicts that probability of purchase increases under the mandate. Comparing the coefficient on mandate to that on premiums confirms again that the effect of the mandate articulation is comparable $1000 change in premiums.

Mandate versus Tax Post-Controversy

Result 2: After the political controversy over the mandate, there is no longer a differential effect between the mandate and the tax articulations.

In response to the controversy that developed in March and April 2012, we decided to run additional waves of the experiment to identify how the relative effectiveness of the mandate and tax articulations were changing over this time period. We ran wave 3 on two subsequent days,

launching the evening of June 27 (the day before the Supreme Court ruling) and then the evening of June 28th (the day of the ruling).[11] Wave 4 began on October 31st, 2012 , ran through election day (Nov. 6th), and continued until Nov 8th.

Table 3 presents the results of regressions based on these waves. Each regression includes all four waves of the experiment. The coefficient on Mandate gives the relative effect of the mandate in the pre-controversy waves 1 and 2. The coefficient on "Mandate * [Wave 3 (June)]" gives the *change* in the mandate's relative effectiveness in Wave 3, compared to the pre-controversy waves; the coefficient in the row below gives the analogous comparison between wave 4 and the pre-controversy waves.

The positive pre-controversy articulation effect of the mandate is seen again in Table 3. The coefficient 10.18 on mandate in column 1 exactly replicates the unconditional pre-controversy effect of the mandate treatment estimated in Table 2, column 1. (The coefficient on mandate in column 2 differs slightly from that estimated in Table 2, column 2, since the coefficients on the demographic controls are slightly different when estimated combined with the post-controversy waves.)

Post-controversy, the articulation effect of the mandate disappears. The mandate has a significantly different effect pre- and post- controversy, as seen by the terms that interact the mandate articulation with waves 3 and 4. Post-controversy, the point estimate on net effect of the mandate, compared to the tax, is virtually zero in wave 3 (10.18 - 12.06 = -1.88; similarly for column 2) and in wave 4 (10.18 -11.28 = -1.10; similarly for column 2). In both post-controversy waves, we cannot reject the null hypothesis that the articulation effect of the mandate is zero (F-test; p=0.98 and p=0.33 respectively). Moreover, the estimated effect of the mandate is similar across the two post-controversy waves, and the coefficients on the wave 3 and 4 mandate interaction terms are not significantly different from each other (p=0.48). Finally, the ordered probit results again confirm the findings of the linear probability model.

[11] We increased the sample size and ran on subsequent days to see if we could identify a discrete change in the articulation effect of the mandate. The secular trend in the articulation effect turned out to be much more important than the event of any given day.

Channels Through Which Articulation Might Have an Effect

Result 3: The articulation effect of the mandate is not substantially affected when we control for three measures of social incentives to be insured: estimates of others' purchase, stated deservingness of the uninsured, and judgments of the social appropriateness of remaining uninsured.

The mandate articulation might affect behavior through moral suasion (a perceived individual obligation to comply with the law), but might also affect behavior through social channels. For instance, the social pressure to have insurance that an individual feels from other people might differ under the mandate versus tax articulation, and the level of support an uninsured individual receives might change across these articulations.

To examine these channels, each participant was asked to answer three additional questions, under the same mandate or tax articulation, after giving their purchase intentions:

1. Suppose an individual in your neighborhood was uninsured, but was given the opportunity to get themselves coverage by purchasing the same health insurance policy just described at the cost of $3000 per year. How likely do you think they would be to purchase this policy versus staying uninsured? (Same response scale as own purchase question.)

2. Suppose someone in your community of average income was offered health insurance but chose not to buy it, despite the government's recommendation. After showing symptoms of weight-loss, nausea, abdominal pain, they were diagnosed with pancreatic cancer and needed expensive treatment to stay alive. Because they were uninsured, they might not be able to pay for this care. How much support should this person get from charity care and/or government safety net programs, such as Medicaid? (6 categories of response, from "A very generous amount of support: 81-100% of medical bills," to "No Support: 0% of medical bills.")

3. Suppose someone in your community chose not to buy health insurance, despite the government's recommendation. How would you evaluate their decision not to buy health insurance? (Response options: "Very socially inappropriate," "Somewhat socially inappropriate," "Somewhat socially appropriate," "Very socially appropriate.")

Because these channels might be affected by the articulation of the policy, Table 4 includes them as control variables in a model of insurance purchase estimating an effect of the mandate articulation. The pre-controversy effect of the mandate drops slightly, from about 10 or 11

percentage points before controlling for these channels (Table 3) to about 8 percentage points with these controls (Table 4). To the extent that these questions capture the social incentives to get insured, the results indicate that the mandate has an additional effect beyond the social effect, which we interpret as moral suasion. This moral suasion effect disappears in the post-controversy waves.

The channel controls are included linearly in column 1 of Table 4, allowing us to see how responses to these questions are related to insurance purchase probability. The responses are sensible: own purchase is positively correlated with estimates of neighbor's purchase, and negatively correlated with judgments of how socially appropriate it would be to remain uninsured. (We do not find an association between "Deserving of Support if Uninsured" and probability of purchase.) Column 2 includes controls for each category of response to the three social questions, as the linearity assumption may be inappropriate. The estimated effect of the mandate is unchanged.[12]

6. **Discussion**

The experimental results presented here demonstrate that the way a government policy is articulated can alter the extent to which it affects behavior. Before the sustained controversy over the PPACA mandate, individuals are particularly inclined to obey a mandate to purchase health insurance, as compared to a tax with the same financial consequences. Our data suggest that this effect of the mandate is driven by moral suasion rather than perceptions of the social appropriateness of remaining uninsured. In addition, after the controversy about the individual mandate, we observe that the differential effect of the mandate disappears; the mandate and the tax then encourage insurance purchase at the same rate. This result demonstrates that the articulation of government policy can be influenced by political discourse.

Why might the articulation effect have dissipated in response to the political discourse between wave 2 in March and the later waves? We have two, potentially complementary, hypotheses. First, the political discussion may have changed individuals' beliefs about the mandate's legitimacy and moral claim. A related version of this first hypothesis is that the

[12] Table A1 in the appendix directly examines the effect of the mandate on these social measures, and how mandate's effect on these measures varies by wave. The results show that the mandate articulation has a small and insignificant impact on these questions. Moreover, the effect of the mandate articulation does not vary much by wave.

controversy gave individuals "moral wiggle room" (i.e. an excuse) to avoid complying with the mandate, even if they did not themselves dispute its legitimacy.[13] Second, the increased attention to the issue may have made the mandate and the tax equivalent in the minds of individuals — in fact, advocates for the mandate's constitutionality frequently pointed out this financial equivalence.

Our results give guidance to policymakers attempting to advance policy prescriptions and who may articulate their policy in different ways. The results suggest that the articulation of policy can substitute for financial incentives. Before the controversy, a larger tax would have been needed to achieve the same effect on behavior as a mandate with an accompanying fine. Individuals respond to these articulations in significant ways. Consequently, the effectiveness of a particular government policy depends not only on its financial incentives but on how it is articulated.

[13] See Dana, Weber and Kuang (2007) for an experimental demonstration that giving individuals moral wiggle room reduces pro-social behavior.

Table 1: Demographics

Age (Mean)	30.2
Female	43.1%
College graduate or above	47.8%
Political Affiliation	
..Republican	16.1%
..Democrat	43.6%
..Independent	40.3%
Unemployed	21.9%
Has Insurance	71.7%
Married	28.6%
Census Region	
..Midwest	24.2%
..South	33.7%
..Northeast	18.9%
..West	22.7%
Purchase Probability ($3000)	58.5%
Purchase Probability ($2000)	66.8%
Neighbor's Purchase Probability	50.1%
Support for Uninsurance (% of bills covered by charity/government)	53.9%
Socially Appropriate to be Uninsured (1-4), Mean	2.4
N: Pre-Controversy Waves	263
N: Supreme Court Wave	784
N: Nov Election Wave	623
Total N	1670

Table 2: The Pre-Controversy Effect of the Mandate Versus Uninsurance Tax

	OLS		Ordered Probit Coefficients	
	(1)	(2)	(3)	(4)
Annual Premium ($1000s)	-8.662***	-8.662***	-0.269***	-0.322***
	(0.940)	(0.966)	(0.031)	(0.037)
Mandate (v. tax)	10.18**	10.92***	0.311**	0.386***
	(4.376)	(4.133)	(0.128)	(0.138)
Controls	No	Yes	No	Yes
R^2	0.03	0.28	NA	NA
N Participants	263	263	263	263
N Observations	526	526	526	526

Caption: Columns 1 and 3 report results without demographic controls. Columns 2 and 4 report results with demographic controls (age, indicators for current insurance status and source, marital status, number of children, educational attainment, employment status, survey wave, and region of residence). Heteroskedasticity robust standard errors clustered at the participant level are included in parentheses. *** p<0.01,** p<0.05, * p<0.1.

Table 3: The Relative Effectiveness of the Mandate over Time

	Probability of Purchase OLS		Ordered Probit	
	(1)	(2)	(3)	(4)
Annual Premium ($1000s)	-8.304***	-8.304***	-0.267**	-0.298***
	(0.374)	(0.375)	(-0.012)	(0.014)
Mandate (v. tax)	10.18**	9.711**	0.324**	0.343**
	(4.365)	(3.971)	(0.133)	(0.133)
+ Mandate * [Wave 3 (June)]	-12.06**	-9.770**	-0.388**	-0.349**
	(4.950)	(4.518)	(0.152)	(0.153)
+ Mandate *[Wave 4 (Nov.)]	-11.28**	-12.12**	-0.346**	-0.418***
	(5.132)	(4.703)	(0.156)	(0.157)
Effect of Survey Wave	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes
R^2	0.03	0.19	NA	NA
N Participants	1670	1670	1670	1670
N Observations	3,340	3,340	3,340	3,340

Caption: "Mandate" reports the effect of the mandate in the pre-controversy waves. The interactions capture how that effect changes in later waves. Columns 1 and 3 report results without demographic controls. Columns 2 and 4 reports results with demographic controls (age, indicators for current insurance status and source, marital status, number of children, educational attainment, employment status, survey wave, and region). Heteroskedasticity robust standard errors clustered at the participant level are included in parentheses. *** p<0.01,** p<0.05, * p<0.1.

Table 4: The Effect of the Mandate, Controlling for Social Incentives

	Probability of Purchase OLS	
	(1)	(2)
Annual Premium ($1000s)	-8.304***	-8.304***
	(0.375)	(0.376)
Mandate (v. tax)	7.923**	7.765**
	(3.246)	(3.218)
+ Mandate * [Wave 3 (June)]	-6.836*	-6.785*
	(3.708)	(3.679)
+ Mandate *[Wave 4 (Nov.)]	-10.18***	-10.34***
	(3.732)	(3.701)
Probability Neighbor Would Purchase	0.496***	As Categories
	(0.0239)	
Deserving of Support if Uninsured (% of Medical Bills)	0.0319	
	(0.0242)	
Social Appropriateness of Uninsurance (1 to 4)	-12.42***	
	(0.876)	
Effect of Survey Wave	Yes	Yes
Controls	Yes	Yes
R^2	0.472	0.488
N Participants	1670	1670
N Observations	3340	3340

Caption: "Mandate" reports the effect of the mandate in the pre-controversy waves. The interactions capture how that effect changes in later waves. Controls include age, indicators for current insurance status and source, marital status, number of children, educational attainment, employment status, survey wave, and region. Heteroskedasticity robust standard errors clustered at the participant level are included in parentheses. *** p<0.01,** p<0.05, * p<0.1.

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Online Appendix

Appendix A1: The effect of mandate articulation on social aspects of insurance purchase

	Probability of Purchase OLS		
	Probability Neighbor Would Purchase	Deserving of Support if Uninsured (% of Medical Bills)	Social Appropriateness of Uninsurance (1 to 4)
Mandate (v. tax)	3.138	0.509	-0.0172
	(3.864)	(3.194)	(0.101)
+ Mandate * [Wave 3 (June)]	-3.659	-0.409	0.0890
	(4.317)	(3.680)	(0.115)
+ Mandate *[Wave 4 (Nov.)]	-2.193	-2.817	0.0617
	(4.514)	(3.788)	(0.120)
Effect of Survey Wave	Yes	Yes	Yes
Controls	Yes	Yes	Yes
R^2	0.075	0.055	0.093
N Participants	1670	1670	1670

Controls include age, indicators for current insurance status and source, marital status, number of children, educational attainment, employment status, survey wave, and region. Heteroskedasticity robust standard errors clustered at the participant level are included in parentheses. *** p<0.01,** p<0.05, * p<0.1.

Experimental Materials

Vignettes: *Participants were shown the text below and then one of the treatments, named in {Brackets}, which were randomly assigned to each subject.*

Please read the following carefully: The law around health insurance is currently in flux, and changes from year to year. Many people are concerned about the health consequences of being uninsured and the effects this has on health care costs of other people.

Imagine that the following were true:

{Mandate}

The government considered a number of options to reduce the uninsurance rate. Ultimately, the government decided to mandate everyone purchase insurance, or else pay a fine of $700 each year. Thus, if you purchased insurance that cost $3000 per year, you would simply pay its cost: $3000. If you did not purchase insurance, you would pay a fine of $700 each year.

{Shown on following pages:} Recall: The government decided to mandate everyone purchase insurance, or else pay a fine of $700 each year.

{Uninsurance Tax}

The government considered a number of options to reduce the uninsurance rate. Ultimately, the government decided to recommend that everyone purchase health insurance, and charge people without insurance an uninsurance tax of $700 each year. Thus, if you purchased insurance costing $3000 per year, you would simply pay its cost: $3000. If you did not purchase insurance, you would pay the uninsurance tax of $700 each year.

{Shown on following pages:} Recall: the government decided to recommend that everyone purchase health insurance, and charge people without insurance an uninsurance tax of $700 each year.

Questions: *All participants then answered these questions below:*

1. Imagine the following scenario: Suppose your current health insurance policy were no longer available, and you became uninsured. The only health insurance policy you could get offered you coverage that is as good as the coverage that members of Congress get. If it cost $3000 per year ($250 per month) to cover yourself, would you purchase this policy, or stay uninsured?

Your annual costs: {Varied} Buy Insurance {Varied} Stay Uninsured

Participant Choice Options for Questions 1-3

Shown to Subjects		*Imputed by Researchers*
Choice	*Chance of buying the policy*	*Probability of Purchase*
almost certain to buy the policy	96 to 100% chance	98%
very likely to buy the policy	81 to 95% chance	88%
somewhat likely to buy the policy	51 to 80% chance	65.5%
equally likely to buy the policy or stay uninsured	50% chance	50%
somewhat likely to stay uninsured	20 to 49% chance	33.5%
very likely to stay uninsured	5 to 19% chance	12%
almost certain to stay uninsured	0 to 4 % chance	2%

<next page>

What if, instead, that insurance policy cost only $2000 per year ($166 per month) to cover yourself. Would you purchase this policy, or stay uninsured?

Your annual costs: {Varied} Buy Insurance {Varied} Stay Uninsured

<next page>

Suppose an individual in your neighborhood was uninsured, but was given the opportunity to get themselves coverage by purchasing the same health insurance policy just described at the cost of $3000 per year. How likely do you think they would be to purchase this policy versus staying uninsured?

Their annual costs: {Varied} Buy Insurance {Varied} Stay Uninsured

<next page>

Suppose someone in your community of average income was offered health insurance but chose not to buy it, despite the government's recommendation. After showing symptoms of weight-loss, nausea, abdominal pain, they were diagnosed with pancreatic cancer and needed expensive treatment to stay alive. Because they were uninsured, they might not be able to pay for this care. How much support should this person get from charity care and/or government safety net programs, such as Medicaid?

- ❍ A very generous amount of support (81% to 100% of medical bills)
- ❍ A generous amount of support (61% to 80% of medical bills)
- ❍ A moderate amount of support (41% to 60% of medical bills)
- ❍ A relatively small amount of support (21% to 40% of medical bills)
- ❍ A very small amount of support (1% to 20% of medical bills)
- ❍ No support (0% of medical bills)

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Suppose someone in your community chose not to buy health insurance, despite the government's recommendation. How would you evaluate their decision not to buy health insurance?

- ❍ Very socially inappropriate
- ❍ Somewhat socially inappropriate
- ❍ Somewhat socially appropriate
- ❍ Very socially appropriate