

Support for Sin Taxes (Tobias König, Renke Schmacker)

1) Have any data been collected for this study already?

We have run a pilot for this experiment ($n=400$) to be able to do power analyses for the treatment effects. We plan to include the data from the pilot in the overall sample. Moreover, we have conducted a pre-survey ($N=519$), from which we calculated statistics that are the basis for incentivized belief questions in the main survey.

2) What's the main question being asked or hypothesis being tested in this study?

We aim to analyze how individuals reason about sugary drinks taxes, and whether policy preferences for sugary drinks taxes can be changed by informing subjects about the economic arguments in favor or against sin taxes. These arguments comprise self-control, misperceptions, regressivity, and externalities.

After collecting information about demographics, subjects are given the possibility to write down their opinions about sugary taxes in free-text fields. Subjects are then treated with information about each of the arguments in a cross-subject design (hence, there are four information treatments and one control). After reading the arguments, subjects respond to an incentivized quiz question, addressing subjects' beliefs about a basic fact related to the argument. For the self-control treatment, respondents are asked to guess the self-reported degree of self-control of participants of the pre-survey. For the misperception treatment, participants have to guess the share of participants in the pre-survey that underestimated the weight implication of sugary drinks. For the externality argument, we ask them about research estimates about health externalities. For the regressivity treatment, we ask about the percentage of income that poor consumers spend on sugary beverages relative to rich consumers.

We then survey subjects' approval of the economic arguments (channels). Finally, we survey their preferences over the introduction of sugary drink taxes, both unincentivized (self-reported policy approval) and incentivized (donation to an organization that lobbies for the introduction of a federal sugary drinks tax in the US).

For the experimental intervention part, we test the following hypotheses (relative to the control):

- H1: Explaining the self-control argument (a) increases approval to the self-control arguments and (b) increases support for sugary drink taxes.
- H2: Explaining the misperception argument (a) increases approval to the misperception arguments, and (b) increases the support for sugary drink taxes.
- H3: Explaining the health cost externalities of sugar consumption (a) increases approval to the externality argument, and (b) increases support for sugary drink taxes.
- H4: Explaining the regressivity of sugary drink taxes (a) increases support for the regressivity arguments, and (b) decreases support for sugary drink taxes.

Within-treatment, we test whether the belief intensity (how large self-control problems, underestimation of health costs, externalities, and regressivity are estimated to be) is correlated with support for sugary drink taxes.

3) Describe the key dependent variable(s) specifying how they will be measured.

Political preferences:

- (1) Support to introducing a federal tax on sugary beverages in the United States, on a 5-point Likert scale.
- (2) Preferred magnitude of sugary taxes in US cents.
- (3) Revealed willingness to pay for the "Center for Science in the Public Interest" (CSPI)".
- (4) Support to introducing a sugary drink tax in another federal state.

Arguments/Channels: For each of the arguments, we include two Likert-scale questions asking whether individuals agree or disagree. We form a standardized index that sums up their approval.

4) How many and which conditions will participants be assigned to?

5 conditions:

- (1) Control

Info treatments:

- (2) Self-control
- (3) Misperception
- (4) Externality
- (5) Regressivity

Randomization will be done using Qualtrics using the option "Evenly present elements."

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.

To test H1 to H4, we test for treatment differences in the dependent variables (standard two-sided t-tests, regressions, non-parametric tests).

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

We include an attention check question; subjects who do not pass the attention check will be screened out and not allowed to finish the survey. For the analysis of the donation decision, we will exclude participants for whom we cannot compute a willingness to pay (e.g., those with multiple switching points). As the regressivity belief is a free-text response, we will use the log-transformed belief to limit the influence of outliers.

We will check robustness to excluding the 5% in the bottom of the survey response time distribution.

7) How many observations will be collected or what will determine sample size?

We aim to collect 4,400 observations in total (1,200 in the control, and 800 per information treatment).

Based on our pilot data, we calculate a MDE of 0.14 of a standard deviation for the attitudes/channels. For the preferred tax magnitude, we calculate a MDE of 4.39 ct, and for the donation, we calculate a MDE of 3.3 ct.

8) Anything else you would like to pre-register?

As secondary analyses, we will estimate heterogeneous treatment effects by income, gender, party affiliation, self-reported consumption, self-control, and BMI.

Moreover, we will analyze heterogeneous treatment effects by a libertarian index and a paternalism index in an exploratory way. These indices are based on a battery of statements measuring political attitudes.

Using the control treatment, we will do exploratory analyses to investigate how sugary drink tax preferences correlate with other variables. For example, we test whether untreated respondents use the economic arguments in the free-text part, and how the approval ratings of the arguments correlate with policy preferences. Moreover, we analyze how their guess of others' sugary drink consumption and the guessed difference in consumption between income groups correlates with the approval to the arguments and policy preferences. We will also analyze how their political attitudes, measured at the end of the survey, correlates with soft drink tax support.

We plan to use machine learning methods to analyze free-text answers about the importance of the arguments.