What drives preferences over sin taxes?*

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Abstract

Sugary taxes have recently become a widely suggested policy instrument to discourage the consumption of goods deemed harmful to society and individuals. Using a survey experiment with a representative sample of the US population, we provide evidence on individuals' preferences over sin taxes and how they reason about such corrective policies. We reveal that preferences over soft drink taxation are more driven by normative considerations than self-interested pocketbook concerns. People place large weight on efficiency reasoning, in particular on Pigouvian ideas. But also anti-paternalism and regressivity concerns are prevalent, which may explain the relatively low support for sugary taxes we observe in the data. However, preferences over sugary tax are malleable and can be causally shifted by information interventions: Explaining individuals the ideas of corrective taxation yields significant increases in the support for sugary taxes and the general openness to corrective policies.

JEL-codes: H20, D12, I18

Keywords: self-control, soft drink tax, fat tax, sin tax, internality

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1 Introduction

"Sin taxes" have recently become a widely suggested policy instrument to discourage the consumption of goods deemed harmful to society and individuals. Many countries have adopted or are currently discussing special price surcharges on soft drinks, fast foods, candies, sugar, marijuana, alcohol and tobacco. The normative rationale for using taxes on sin goods typically comprises externality and internality arguments, which have become key ingredients in (behavioral) welfare economics models (Allcott *et al.*, 2019a). The idea is that consumption of sugar, alcohol, or tobacco imposes future harm to individuals which is not fully accounted for by the consumer, either as they are not fully aware of the health risks of their behavior or because they lack self-control. The consumption of sin goods can also generate external effects in the form of higher costs for the public health system. Consequently, sin taxes that reduce the consumption of such goods can be welfare-improving. However, sin taxes impose a relatively high tax burden on the poor, as they spend a larger share of their income on sin goods. While the theoretical rationales and properties of sin taxes are meanwhile well understood, there is no systematic empirical evidence on individuals' policy preferences over these sin taxes.

In this paper, we provide evidence on how people reason about sin taxes. We ask which factors and considerations matter for their empirical support or opposition to sin taxes, and whether providing information about the theoretical mechanisms and rationales over sin taxes can affect policy demand.

We use an example that has received wide attention among policy makers and economists, the example of taxes on sugar-sweetened beverages (SSBs). Sin taxes on sugary drinks are an often proposed policy instrument to tackle high sugar intake, which is considered one of the main culprits of the "global obesity epidemic" (WHO, 2000). We study preferences over sugary beverage taxes in a country where soft drink consumption and overweight is particularly prevalent, namely the US.[1] To date, seven US cities have introduced taxes on SSB, but there is no such tax at the federal or state level so far.

Drawing on a representative sample of more than 3,800 American citizens, we elicit respondents' preferences over the introduction of SSB taxes on the federal level, as well as for some selected US states. We use both unincentized and incentivized preference relevation techniques. The latter consists of multiple price lists (MPLs) that elicit the

[1]The US has the second highest per capita consumption of carbonated soft drinks in the world with more than 150 liters per year, and more than 70 percent of the population is overweight or obese.

willigness-to-pay to donate for a NGO lobbying for US wide taxes on soft drinks. We designed the MPL to allow for negative as well as positive WTPs. This allows us to separate indifferent consumers from those who have a strict aversion against sugary taxes.

A major purpose of our study is to decompose the preferences over sugary taxes into primary factors often used in economic theory, such as externalities and internalities, and to provide evidence which of these factors matter more for individuals' policy views. For that purpose, we follow an approach recently suggested by Stantcheva (2020, 2021), combining free-text analysis, correlational analysis, and experimental intervention.

In our first part, we ask respondents in free-text form about their opinion regarding the introduction of a special tax on sugary beverages in the US. These questions are meant to elicit individuals' first-order reasoning about sugary taxes before primed by the survey. We then explicitly elicit respondents' approval to certain primitives and economic underlyings, which would, from a theoretical perspective, speak in favor or against sugary beverage taxes. For instance, we ask respondents whether they agree with the statement that the consumption of sugary beverages imposes costs for others in the society (externalities), whether they think that individuals have difficulties resisting the temptation of sugary drinks (self-control) or whether they think that they are unaware of the adverse health consequences (misperceptions), and whether the burden of sugary taxes falls more heavily on the poor than on the rich (regressivity). We analyze the explanatory power of these agreeing with these statements for individuals' views on sugary taxes, as obtained from incentivized and unincentized questions at the end of the survey. This allows us to map individuals' reasoning about sin taxes and to break down their preferences into different categories, such as self-interested and ethical.

In the second part of the analysis, we study whether simple explanations of the economic rationales can causally change policy preferences. The information treatments explain the arguments intuitively in only a few lines, and we provide comic visualizations to increase the understanding. We implement in total four information treatments, one for each of the economic rationales: externalities, health cost misperceptions, self-control, and regressivity. For each rationale, we elicit beliefs about the severity of the underlying problem in an incentivized way.

Our main findings are as follows. Pocketbook concerns such as the preference for soft drinks and own SSB consumption levels play a minor role in people's reasoning over sugary taxes. Policy views seem to be more driven by general normative considerations, including ideas of efficiency-related corrective taxation (paternalism and Pigou taxation)

and equity concerns (regressivity). Although the support of sugary taxes is rather low compared to optimal taxation theory, the political views are surprisingly well predicted by the ingredients of optimal sin tax theory. Among the efficiency arguments, people place particularly high weight on Pigouvian ideas. Among the internality arguments, motives to correct health cost misperceptions shape policy views more than motives to correct a lack of self-control. But our results reveal that also non-efficiency related factors are important for peoples' normative reasoning about sin taxes, namely anti-paternalist and libertarian views. These views are mainly, but not only, observed among republicans, and they go along with strong aversions against sugary taxes. Moreover, especially democrats have concerns about the regressivity of sin taxes. Together, this explains the relatively low support for sugary taxes that we observe in the data.

But, as our experimental interventions reveal, the preferences over sugary tax are malleable and can be causally shifted by information intervention. Explaining individuals the ideas of corrective taxation yields a large increase in the support for sugary taxes. For example, explaining individuals the idea that sugary drinks generate externalities increases the share of individuals favoring a sugary drinks tax by 5 percentage points. Moreover, the interventions also shift the general openness to corrective policies.

This paper contributes to a nascent literature that studies how individuals reason about taxes and economics in general, and how their reasoning shapes their political preferences. Stantcheva (2021) uses survey experiments to study how people think about income and estate taxes. She finds that fairness concerns are strong predictors for preferences over taxes, although there are marked partisan differences in what is considered fair. In contrast, people are less occupied with the efficiency effects of taxes. In line with that, simple video explanations of the redistributive effects of taxes causally increase support for progressive taxes, whereas explaining the efficiency costs has no effect. Stantcheva (2020) extends the analysis to reasoning about health insurance. She finds that views on universal health insurance are very polarized and explaining its efficiency and redistribution effects does not shift the support for it. Our paper complements these findings by studying a policy that has received considerable attention in the economic literature: corrective taxes. We show that individuals use the economic arguments for and against these taxes (externalities, internalities, and distributional effects), and that explaining them can shift support for the policy.

Our paper adds an empirical perspective to the theoretical literature that studies optimal corrective taxes. Ever since Pigou (1920), economists noted that consumption of

certain goods can impose externalities on other individuals and that taxing them can improve welfare (e.g., Baumol, 1972; Diamond, 1973). With the emergence of behavioral economics, the concept has been extended to internalities, that is, uninternalized costs that consumption of the present self imposes on the well-being of the future self (O'Donoghue and Rabin, 2003, 2006; Allcott *et al.*, 2019a). Such internalities can be generated, for example, by a lack of self-control or imperfect information about the costs of consumption. However, if the social welfare function puts larger weight on the poor, optimal taxes are adjusted downwards. In a calibrated model that takes all of these factors into account, Allcott *et al.* (2019a) estimate that the optimal excise tax on sugary beverages is 34ct per liter. This stands in stark contrast to the far majority of jurisdictions that have either no or much lower corrective taxes on sugary beverages. Hence, this papers studies whether the electorate has the economic arguments in mind when forming their preferences over sin taxes—and whether explaining these arguments affects support for corrective taxes.

Finally, we contribute to the literature on behavioral public economics and the long-standing debate on whether policies should aim to alleviate behavioral biases (Bernheim and Taubinsky, 2018). On the one hand, standard economic theory builds on the premise that revealed preferences have to be respected and that individuals know best what maximizes their utility. On the other hand, there is ample evidence of behavioral biases that could be addressed by paternalistic policies. Ambuehl *et al.* (2021) study preferences over paternalism and find that approximately a third of subjects are paternalists and restrict the choice set of others. Regarding their motivation, they find that paternalists believe others would be better off by following the paternalists' ideals. We find evidence for both lines of reasoning in our sample: Individuals who principally oppose intervention in individual choices are strictly against sin taxes, while individuals who are open to paternalistic policies tend to be more in favor.

2 Design

2.1 Sample

We conducted an online survey experiment with 3,872 participants in the United States. The sample was recruited by the survey company Respondi. Participants were required to reside in the US and to be aged 18 to 65 years. We aimed for a representative sample

of the US population in terms of gender, age, and income. Table B.1 shows descriptive statistics of our sample compared to data from the US Census Bureau.[2]

Since our information treatments require respondents to read the instructions carefully, we screen out participants who fail an attention check (9.95% of the unrestricted sample).[3] Moreover, we exclude respondents who do not complete the survey (10.4% of the unrestricted sample). Table B.1 shows that the final sample and the unrestricted sample (i.e., including respondents that are screened out) do not differ meaningfully in terms of observable characteristics.

Before the main survey, we fielded a pre-survey with 540 respondents to gather information on self-control and health cost misperceptions in the US population. This data is used to determine whether a respondent's guess in the respective treatment is correct. Table B.1 shows descriptive statistics for the pre-survey.[4]

2.2 Survey structure

Figure 1 provides an overview of the survey design. In the pre-treatment stage we collect background information about the respondent. Moreover, we ask them for their opinion about SSB taxes in free-text form before any considerations are primed by the survey. Next, subejcts are randomized into information treatments, in which they are explained an economic rationale for or against SSB taxes. In the post-treatment stage, we first ask for their approval to each of the four arguments and, second, for their preferences over SSB taxes. Ultimately, we elicit general policy attitudes.

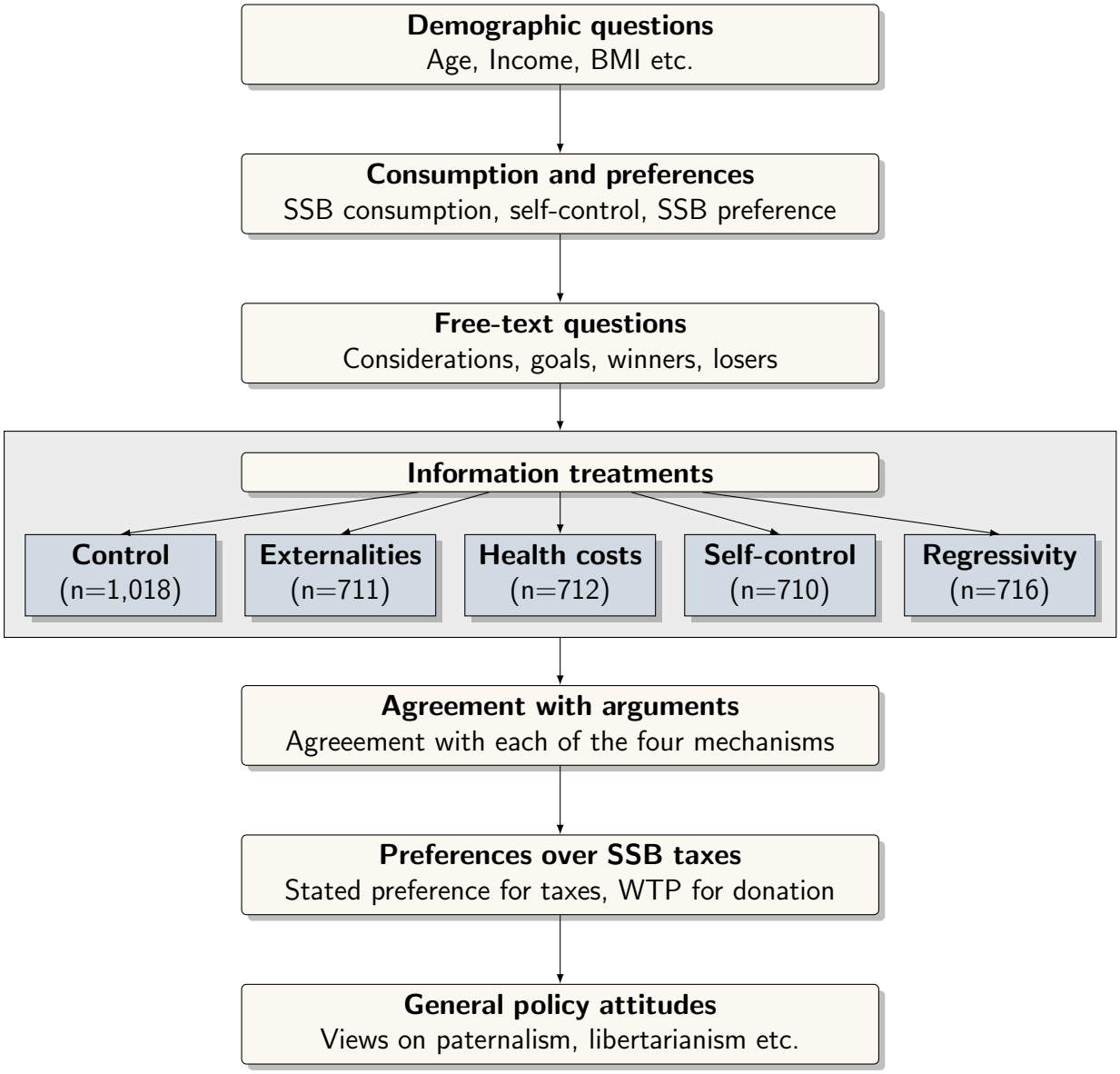
In the following, we introduce the survey design in detail. The complete instructions can be found in Appendix D.

[2]While we employed soft quotas for gender, age, and income, Table B.1 shows that the final sample is also roughly representative for labor market status, education, and race/ethnicity. Compared to the US population we slightly undersample young people, those with less education, as well as hispanics and blacks.

[3]The attention check is shown in Appendix D.5. It is placed after the background information and before the information treatments. If subjects fail the attention check, they are automatically screened out and redirected to the survey company via a dedicated link.

[4]The pre-survey had the same structure as the main study and served the additional purpose to pilot the understandability of the information treatments and the outcome variables. Since we made a number of changes regarding formulations and question structure, the data from the pre-survey is not included in the final sample.

Figure 1: Experimental Design



2.2.1 Pre-treatment stage

Demographic questions In the beginning, we elicit a range of demographic characteristics like gender, age, income, state, race/ethnicity, education, employment status, political affiliation, whether they have children, as well as weight and height.[5]

Consumption and preferences Next, we ask respondents about their own SSB consumption using the National Health and Nutrition Examination Survey (NHANES) Dietary Screener Questionnaire (DSQ). The question asks for the frequency of sugary beverage consumption in the preceding 30 days. The question does not ask for portion size, but can be converted to daily sugar intake from SSBs using the scoring algorithm by the National Cancer Institute (National Cancer Institute, 2021).[6] We use the same question to elicit respondents' beliefs about how often individuals with annual household incomes below $10,000 and above $100,000 consume sugary beverages.

Moreover, we ask for their self-control using the measure from Allcott *et al.* (2019a). The measure asks for agreement with the statement "I drink soda pop or other sugar-sweetened beverages more often than I should" on a four-point scale: "Definitely," "Mostly," "Somewhat," and "Not at all." We define individuals as having perfect self-control if they answered "Not at all".

Furthermore, we adapt the questions from Allcott *et al.* (2019a) to ask for respondents' preferences for sugary and diet drinks ("Leaving aside any health or nutrition considerations, how much would you say you like the taste and generally enjoy drinking the following?"), as well as the importance they attach to a healthy lifestyle ("In general, how important is it to you to stay healthy, for example by maintaining a healthy weight, avoiding diabetes and heart disease, etc.?").

Free-text questions Before the information treatment is provided, we ask respondents in free-text form about their opinion regarding the introduction of a special tax on sugary beverages. Following Stantcheva (2021), these questions are meant to elicit individuals'

[5] After these questions, individuals are screened out if they would exceed our quotas for age, gender, and income.

[6] Respondents report to consume 0.89 SSBs on average per day, which amounts to 35.8g of sugar. Allcott *et al.* (2019b) calculate that the average American adult consumes 39.8g of sugar per day from SSBs using NHANES data from 2009-2016. Hence, our sample is roughly representative in terms of SSB consumption in the US.

first-order reasoning about taxes before any considerations are primed by the survey. We ask the following questions:

- When you think about a sugary drink tax (a special tax or surcharge on drinks with added sugar), and whether the state should implement such a tax, what are the main considerations that come to your mind?
- What do you think are the goals of a tax on sugar-sweetened beverages?
- Which groups of people do you think would benefit/lose if taxes on sugary beverages were introduced in the US?

2.2.2 Information treatments

Individuals are randomized into one of four information treatments or into a control condition. In the control condition, individuals proceed directly to the next stage.

The information treatments explain the main economic rationales for and against sin taxes: externalities, health costs, lack of self-control, and regressivity. Each of the arguments is explained with a brief text and illustrated with a cartoon (the information treatments are provided in Appendix A). In all treatments, the text states that consumption of sugary beverages can have negative health consequences and, therefore, introducing taxes on sugary beverages has become a subject of discussion. Then, the specific argument is explained and the cartoon is shown.

At the end of the explanation, respondents are asked to provide their belief regarding the severity of the argument. Individuals are informed that they can earn additional \$0.50 if their answer conforms with research results.[7] This serves to incentivize respondents to engage with the explained argument. The accuracy of their answers is assessed by comparing their responses to published research results or to results of our pre-survey. All respondents are told whether their guess was accurate, together with the correct answer and the reference at the very end of the survey (see Appendix D.12).

The information treatments are the following:

[7]If the question asks for a percentage value, their answer counts as correct if it is within 3 percentage points of the correct answer. If the question asks for an absolute value, they receive the payout if their answer is not more than 10 percent from the correct answer.

Externalities treatment The instructions state that routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. We explain that the resulting health costs are not only paid by the consumers themselves, but are also paid by others through the public health system.

We elicit beliefs about the percentage share of obesity-related health costs that are paid for by others instead of the patients themselves. The guess is compared to Cawley and Meyerhoefer (2012).

Health cost misperception treatment We explain that, according to researchers, individuals overconsume sugary drinks compared to their long-term self-interest. The reason is that they have imperfect knowledge about the negative health consequences of sugary drinks. Hence, it is discussed to implement a tax to reduce the overconsumption.

We elicit beliefs about the percentage share of individuals who underestimate the weight implication of sugary beverages. We refer to our pre-survey, in which we asked a sample of the US population to guess how much weight an average person would gain by drinking one additional can of Coca-Cola per day for three years.

Self-control treatment We explain that researchers argue that individuals overconsume sugary drinks because they may lack self-control. Hence, they drink more sugary drinks than they think they actually should, given its adverse health consequences. Thus, it is discussed to introduce a tax to reduce the overconsumption.

We elicit beliefs about the percentage share of individuals in our pre-survey who agree at least somewhat with the statement that they drink more sugary drinks than they should (using the self-control measure by Allcott *et al.* (2019a) explained above).

Regressivity treatment We state that it is discussed to introduce taxes on sugary beverages due to their negative health consequences, but that taxes on sugary beverages fall more heavily on the poor than on the rich. The reason is that expenditures for sugary beverages (and food in general) makes up a larger part of their income.

We elicit beliefs about how much higher the share of income is that a household with less than \$10,000 annual income spends on soft drinks compared to a household with \$100,000 to \$150,000 annual income. The guess is compared to the results in Allcott *et al.* (2019a).

Table 1: Indices and corresponding items

Indices	Items
Panel A: Agreement with arguments	
Externalities	Consumption of sugary beverages imposes costs for others in the public health system.
	Consumption of sugary beverages imposes costs on the society.
Health costs	Individuals have little knowledge about the weight implications of high sugar consumption.
	Individuals are unaware of the health consequences of sugary drinks for their later life.
Self-control	Individuals have difficulties resisting the temptation of sugary drinks.
	Individuals consume more sugar than they actually would like to.
Regressivity	Taxes on sugary beverages hit the poor the hardest.
	The burden of sugary taxes falls more heavily on the poor than on the rich.
Panel B: General policy attitudes	
Libertarian	The government should be responsible to reduce obesity. (R)
	The government should not intervene in the economy.
	Taxes that have the purpose to change behavior are wrong.
	The state should not interfere with what people eat or drink.
Paternalism	Limiting a person's autonomy to promote her own good is acceptable.
	Intervening with a person's choices is justified if the person interfered with will be protected from harm.

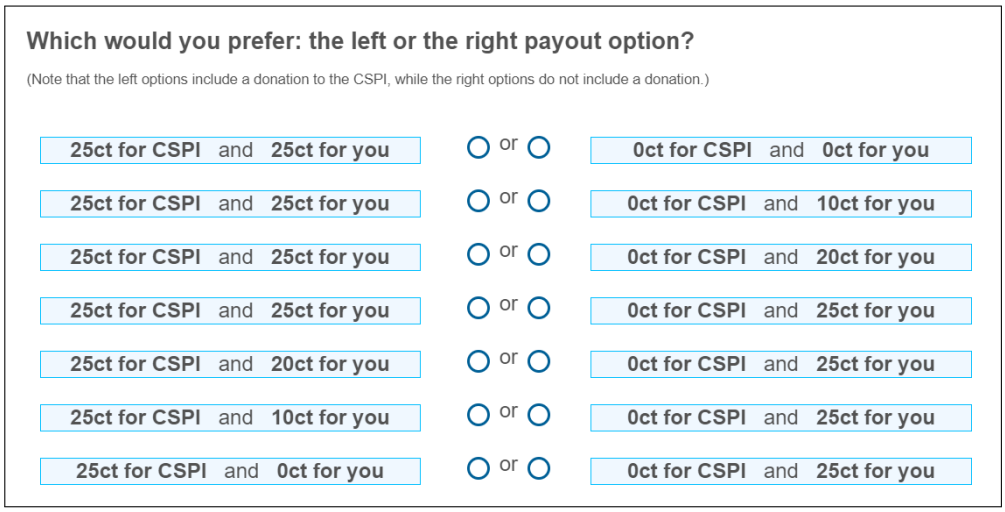
Notes: Table shows indices and their respective items. Individuals indicate their agreement with the arguments on a five-point likert scale (Fully disagree to Fully agree) and the indices sum up their approval scores.

2.2.3 Post-treatment stage

Agreement with arguments After the treatment stage, we ask for respondents' agreement with the four arguments. Therefore, we construct an index of two items for each argument. The arguments and the corresponding items are shown in Table 1.

First, the indices allow us to assess the agreement with the arguments in the control condition. This gives us an indication whether the arguments are already in people's minds without any treatment intervention. Second, we can use the indices to conduct a manipulation check by comparing agreement in the information treatments with the control condition. We would only expect an effect of the treatment on preferences over sin taxes if the treatments shift respondents' agreement with the arguments. However, if the arguments do not convince the subjects or if they already fully agree with the argument, we would not expect a treatment effect on tax preferences.

Figure 2: Multiple price list for donation decision (screenshot)



Notes: Figure shows the multiple price list to determine the donation WTP. Respondents have to select one option in each row. One row is randomly drawn for payout. The switching point determines the WTP.

Preferences over SSB taxes Our main outcome variables are respondents' preferences over SSB taxes.

First, we elicit stated preferences regarding the introduction of a federal SSB tax in the US: "Do you favor or oppose introducing a federal tax on sugary beverages in the United States?" Answers are given on a 5-point likert scale from "Strongly oppose" to "Strongly favor." Moreover, we ask for the preferred tax rate: "If the US was to introduce a federal tax on sugary beverages: How large would you like the tax to be (in US cents per liter)?" Here, respondents were asked to use a slider from 0 to 120 cents per liter. For orientation, we inform subjects that the average price of a sugary beverage in the US is about 114 cents per liter (Allcott *et al.*, 2019a).

Second, we elicit willingness to pay (WTP) for a donation to the Center for Science in the Public Interest (CSPI). The CSPI is an independent consumer advocacy organization with the goal to improve nutrition, food safety, and health in the United States. Respondents are informed that one of CSPI's goals is the introduction of a federal tax on sugary drinks.[8] Hence, a donation to the CSPI can be seen as a costly way to express a preference for SSB taxes.

[8]In its mission statement the CSPI states "Our recent work includes securing introduction of the SWEET Act, a federal excise tax on sugary drinks (...)." (Center for Science in the Public Interest, 2021b) The SWEET Act would introduce a federal excise tax of up to 3ct per ounce (Center for Science in the Public Interest, 2021a).

Since individuals can be both opposed or in favor of a SSB tax, our incentivized measure has to allow individuals to express both a positive and a negative willingness to pay for a donation. Therefore, we employ a multiple price list that asks individuals for their willingness to pay to trigger a donation of 25ct to the CSPI (see Figure 2). Individuals can decide on an allocation of (x_i, x_j), where x_i is a payout for herself, and x_j is a donation to the CSPI.[9] If an individual in the bottom row prefers $(0, 25)$ over $(25, 0)$, she is willing to give up 25ct to trigger a donation of 25ct to the CSPI. If an individual in the top row prefers $(0, 0)$ over $(25, 25)$, she is willing to give up 25ct to prevent us from donating 25ct to the CSPI. The switching point in the multiple price list determines the range, in which an individual's willingness to pay is: [-∞,-25], [-25,-15], [-15,-5], [-5,0], [0,5], [5,15], [15,25], [25,∞]. We restrict the analysis of this variables to subjects that exhibit at most one switching point and whose choices are internally consistent. This leaves us with 80.5 percent of observations. We use the midpoint of the WTP range as their WTP and assign subjects who never switch the endpoints of the scale.[10] More details on the WTP measure are provided in Appendix C.

Our final outcome measure is the preferences over SSB taxes in a state other than the one the respondent lives in. We ask for preferences over taxes in California or, if the respondent lives in California, in Pennsylvania: "Would you favor or oppose introducing taxes on sugar-sweetened beverages on the state level in California/Pennsylvania." Unlike the federal tax in the first outcome measure, the tax in another state would not directly affect the respondent. Thus, the question helps us to distinguish whether preferences are primarily driven by self-interest or by convictions about sin taxes or the economic system in general of which the respondents think they should apply to others as well.

General policy attitudes Ultimately, individuals are asked to indicate their agreement with a battery of twelve statements. The statements are designed to measure individuals' general views on paternalism, the government's responsibility to reduce obesity, and state intervention in general. We use a subset of the statements to form a libertarian index and a paternalism index (see Panel B in Table 1).

[9] Allcott and Kessler (2019) employ a similar method to measure the WTP for nudges, but in their case x_j is whether to receive the nudge (home energy reports) or not.

[10] We assign individuals the endpoints of the scale since someone who is willing to donate more than 25ct could also make the preferred donation outside the experiment. Although it is in principle possible that a subject has a WTP of more than 25ct to prevent us from donating 25ct, we decided to keep the scale symmetric and set the minimum to -25ct.

3 Results

Our analysis proceeds in three steps: First, we present individuals' preferences and their reasoning about sin taxes in the control condition. This gives an overview of the policy preferences over sin taxes in a representative sample of the US population. Second, we investigate how preferences over sin taxes correlate with demographic characteristics, general policy attitudes, as well as consumption habits and preferences. Third, we present results of a survey experiment, in which we explain the economic rationales for or against sin taxes to individuals (externalities, health cost misperceptions, lack of self-control, regressivity). The latter analysis reveals in how far individuals' reasoning and preferences are malleable to providing information.

3.1 Baseline preferences

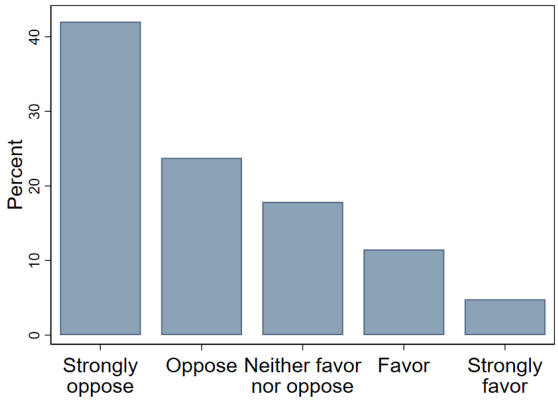
Figure 3 presents individuals' preferences over sin taxes in the control condition. Figure 3a shows that only 16.3 percent of individuals favor the introduction of a federal tax on SSBs in the United States, whereas 23.8 percent are opposed and 42.0 percent are even strongly opposed. Figure 3b shows that 49.8 percent of individuals prefer a tax rate of less than 5 cent per liter. The average preferred tax rate is 13.7 cents per liter. That is, the preferred tax rates are smaller than the tax rates introduced, for example, in Berkeley (where the 1 cent/oz tax amounts to 34 cents per liter) or Philadelphia (where the 1.5 cent/oz tax amounts to 51 cents per liter).[11]

Figure 3c shows the average willingness to pay for donating to the CSPI by their preference for a federal SSB tax. Subjects are informed that the CSPI supports the introduction of a federal SSB tax in the US, hence, this can be seen as an incentivized outcome measure for preferences over soda taxes. The figure shows that individuals, who are strongly opposed to the federal SSB tax, are willing to pay 13.2 cents to prevent us from donating 25 cents to the CSPI. Individuals who are opposed or indifferent about the federal tax have a willingness to pay close to zero, while individuals who are in favor or strongly in favor have a willingness to pay of 13.3 or 15.1 cents, respectively. These results show that stated preferences over sin taxes in our experiment are aligned with actual incentivized behavior.

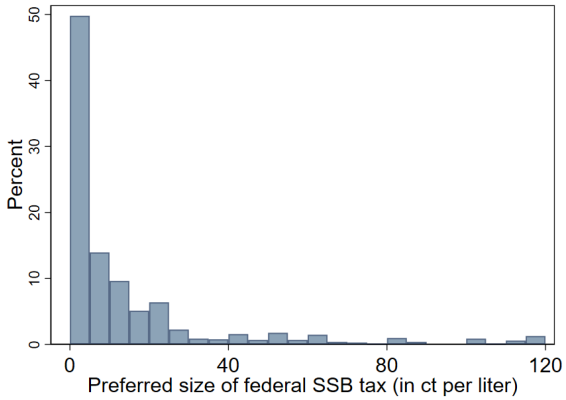
Figure 3d shows subjects' preferences over taxes in a state other than the one they live in (either in California or, if they live in California, in Pennsylvania). The plot looks

[11] Note that we inform subjects only that the average price of a sugary beverage in the US is 114 ct per liter (Allcott *et al.*, 2019a), but not about tax rates in other cities.

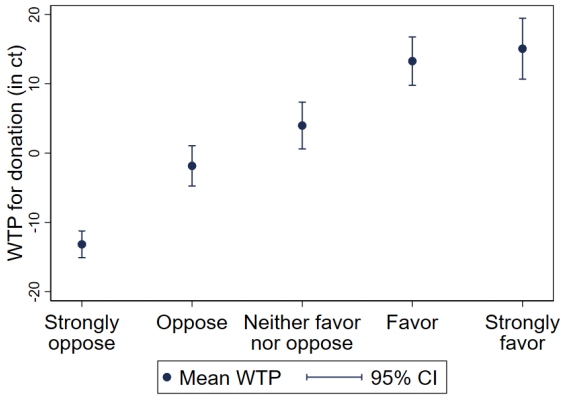
Figure 3: Preferences over sin taxes in the control condition



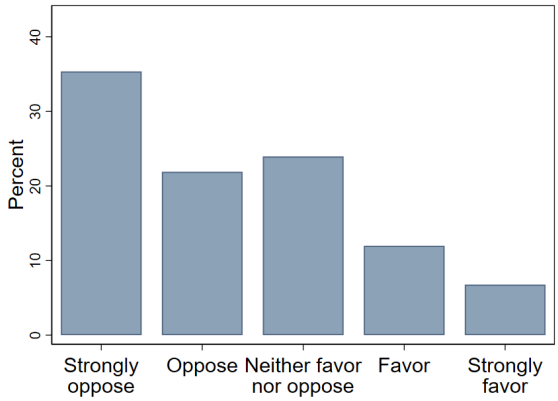
(a) Preference for federal tax



(b) Preferred tax rate



(c) Donation WTP by preference for tax



(d) Preference for tax in another state

Notes: The figure shows preferences over SSB taxes in the control condition. Panel (a) plots whether individuals favor or oppose the introduction of a federal SSB tax, and Panel (b) plots the preferred tax rate (in bins of 5 cents). Panel (c) displays the average willingness to pay (in ct) for a 25ct donation to the CSPI. Panel (d) plots whether individuals favor or oppose the introduction of a SSB tax in a state other than the one they live in (California or Pennsylvania).

remarkably similar to their approval to a federal tax in Figure 3d, but with more subjects indifferent about the tax and less subjects strongly opposed. A Wilcoxon signed-rank test shows that subjects are more positive about a tax in another state than about a federal tax ($p < 0.001$). However, a majority of 57.3 percent is also opposed to a tax in another state, while only 18.8 percent are in favor of a tax. These results give a first indication that preferences over sin taxes may be driven by general political convictions about paternalistic policies that are not necessarily related to whether individuals are directly affected by them. In the next sections, we therefore investigate further whether preferences are associated with individual characteristics and political attitudes.

3.2 Correlations

3.2.1 Correlations with demographic variables

Figure 4 plots coefficients from a joint regression of the (z-transformed) preference for the federal tax on the displayed covariates.[12] The figure shows that older, richer, and more educated individuals are significantly more in favor of a federal SSB tax. There are no significant differences by gender, race/ethnicity, labor market status, or having children.

There are strong differences by political affiliation: Republicans are 0.44 standard deviations less in favor of a federal tax than Democrats. The difference between Republicans and Democrats is larger than the difference between income and education groups, pointing to fundamental differences in underlying political attitudes.

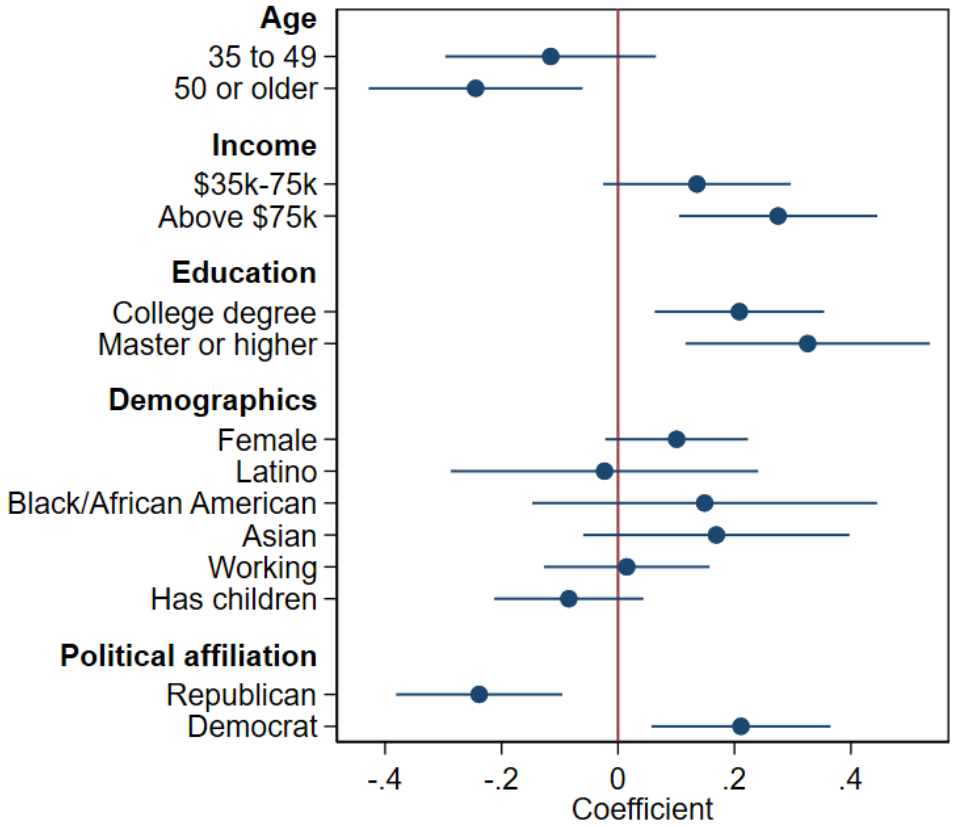
In Figures B.2 and B.3, we show the same correlations for willingness to pay for a donation and preference over taxes in another state. The overall patterns prevail, although the differences are somewhat muted. Also here, we find strong and statistically significant differences by political affiliation. In the next section, we study correlations with political attitudes in more detail.

3.2.2 Correlations with attitudes and preferences

In Figure 5, we plot agreement with the economic arguments in the control condition. Agreement with each argument is based on the indices consisting of two statements each (the statements are provided in Panel A in Table 1). The figure shows that most individuals

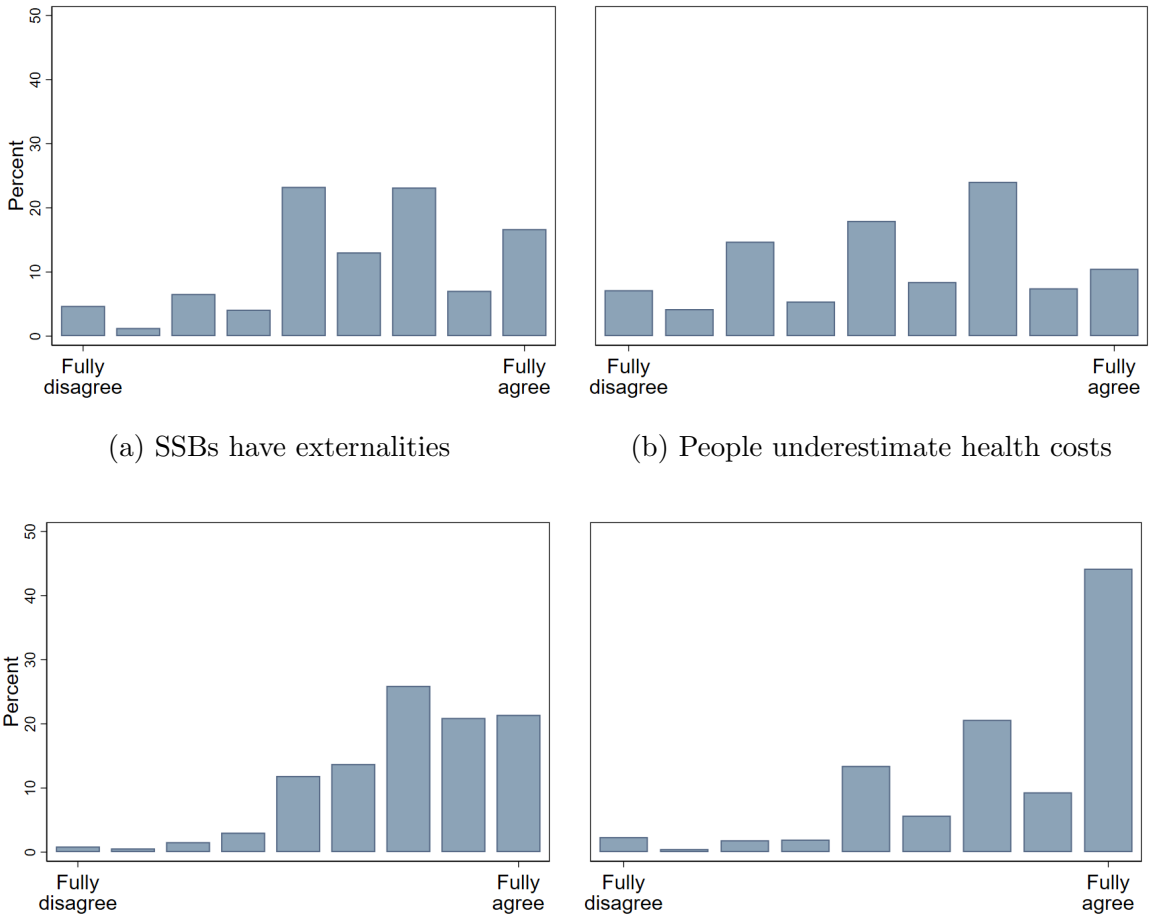
[12]The displayed coefficients are based on OLS regressions. In Table B.2 in the Appendix, we show results from ordered probit regressions that take the ordinal nature of the dependent variable into account. The results turn out very similar.

Figure 4: Correlations with preference for federal tax



Notes: Graph shows coefficients and 95% confidence intervals from a OLS regression with z-transformed preference for a federal SSB tax as dependent variable. Standard errors are robust. The omitted reference categories are younger than 35 (age), less than $35k (income), high-school or less (education), male/other (sex), unemployed/student (working), no children, white (race/ethnicity), independent/other (political affiliation), normal/underweight (Body Mass Index). Only the control group is used for the estimations.

Figure 5: Baseline approval with economic arguments



(a) SSBs have externalities

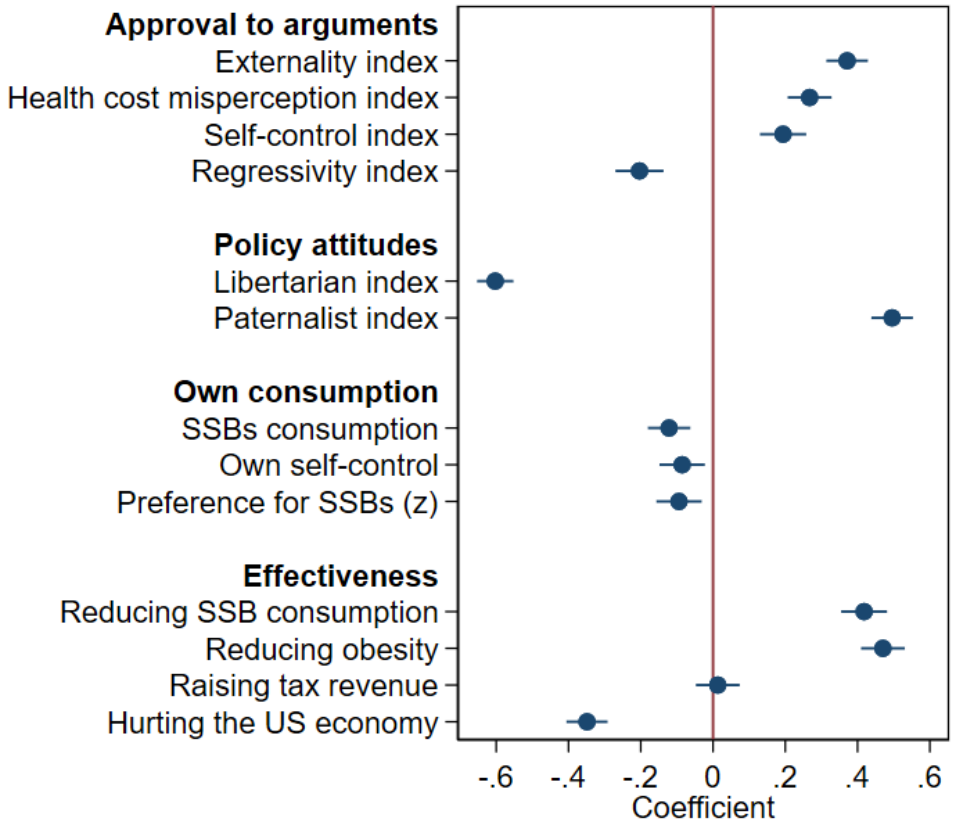
(b) People underestimate health costs

(c) People lack self-control

(d) SSB taxes are regressive

Notes: The figure shows approval with the economic arguments in the control condition, measured by the externality, health cost misperceptions, self-control, and regressivity indices. The indices add up the Likert scale responses to the items in Panel A of Table 1.

Figure 6: Correlations with preference for federal tax



Notes: Graph shows coefficients and 95% confidence intervals from separate regressions of the z-transformed preference for a federal SSB tax on the denoted variables. All regressions control for the variables specified in Figure 4. Only the control group is used for the estimations.

strongly agree with the argument that SSB taxes are regressive (Figure 5d). The majority also agrees that SSBs impose externalities (Figure 5a) and that people lack self-control (Figure 5c), but the approval is less strong. Regarding underestimation of health costs, there is the most disagreement (Figure 5b).

Next, we are interested in whether attitudes are correlated with preferences for the tax. Therefore, we regress the preference for the federal tax on subject's approval to the four economic arguments for or against sin taxes. Both the preference for the tax and the agreement with the economic arguments are z-standardized, that is, coefficients can be interpreted in standard deviations.

Table 2 presents the results. We see that approval to the externality argument is most strongly associated with a preference for the federal tax. A one standard deviation increase in the approval to the externality argument, increases approval to the tax by 0.33 standard deviations (75 percent of the gap between Democrats and Republicans). On the other hand, individuals who agree that the tax is regressive, are less likely to have a preference for the tax: a one standard deviation increase in approval decreases the preference for the tax by 0.25 standard deviations. Moreover, approval that individuals lack knowledge about the health consequences of sugar significantly predicts preferences for the tax. Finally, agreeing that individuals lack self-control in their SSB consumption is positively associated with preferences for the tax, but not statistically significantly so.

In Column (2) of Table 2, we add variables regarding own consumption of SSBs that could affect preferences over sin taxes. We see that, if anything, above median SSB consumers and those with a stronger taste for SSBs are less likely to favor the introduction of a SSB tax. Note that standard models predict that high SSB consumers should oppose a tax on SSBs since it makes them financially worse off. However, this is not necessarily the case in behavioral political economy models. If consumers have self-control problems and are sophisticated about it, a tax could help them to consume according to their long-run plans (Haavio and Kotakorpi, 2011). However, our results do not support the idea that consumers demand SSB taxes as a commitment device to overcome their self-control problems. On the contrary, individuals with imperfect self-control are not more likely to prefer a SSB tax.[13] Moreover, including "egoistic" reasons for or against SSB taxes, does not affect the correlation between agreement with the economic arguments and preferences over sin taxes.

[13]Imperfect self-control means that individuals respond "Definitely," "Mostly," or "Somewhat" to the statement "I drink soda pop or other sugar-sweetened beverages more often than I should".

Table 2: Correlations with preference for federal tax (z-score)

	(1)	(2)	(3)	(4)	(5)
Arguments					
Externality index	0.326***	0.316***	0.159***	0.194***	0.106***
	(0.032)	(0.032)	(0.026)	(0.028)	(0.024)
Health cost misperception index	0.148***	0.146***	0.081***	0.101***	0.070***
	(0.031)	(0.031)	(0.026)	(0.027)	(0.025)
Self-control index	0.046	0.052	0.044	0.015	0.027
	(0.035)	(0.035)	(0.028)	(0.030)	(0.026)
Regressivity index	-0.252***	-0.247***	-0.139***	-0.136***	-0.089***
	(0.030)	(0.031)	(0.026)	(0.027)	(0.025)
Own consumption					
Above median SSB cons.		-0.060			-0.068
		(0.065)			(0.051)
Imperfect self-control		-0.035			-0.017
		(0.069)			(0.053)
Preference for SSBs		-0.082			-0.080
		(0.068)			(0.054)
Political attitudes					
Libertarian index			-0.390***		-0.301***
			(0.031)		(0.031)
Paternalist index			0.211***		0.133***
			(0.032)		(0.031)
Presumed effects					
Reducing SSB consumption				0.165***	0.126***
				(0.039)	(0.035)
Reducing obesity				0.233***	0.145***
				(0.042)	(0.040)
Raising tax revenue				0.001	0.011
				(0.025)	(0.023)
Hurting the US economy				-0.284***	-0.183***
				(0.027)	(0.025)
Controls	✓	✓	✓	✓	✓
Adj. R2	0.285	0.287	0.485	0.460	0.549
Observations	1003	1003	1003	1003	1003

Notes: The table reports OLS regression estimates. Significance levels are indicated by $* < .1, ** < .05, *** < .01$.

As a next step, we form an anti-interventionist and a paternalist index based on agreement with corresponding policy attitudes (see Panel B in Table 1). As can be seen in Column (3) of Table 2, these indices are highly predictive of preferences over the federal SSB tax. A one standard deviation increase in the libertarian index is associated with a 0.39 standard deviations decrease in the preference for the tax. A one standard deviation increase in the paternalist index is associated with a 0.21 standard deviations higher preference for the tax. Moreover, we see that the correlation with the economic arguments is reduced after including the more general political attitudes.

In Column (4) of Table 2, we include beliefs about the effects of SSB taxes. Individuals who believe that the tax is relatively effective in reducing SSB consumption and obesity are more in favor of the tax, while individuals who believe that the tax hurts the economy are more opposed to the tax. Including these presumed effects, reduces the correlation with the arguments.

Ultimately, in Column (5), we include all covariates in one model. While the political attitudes and beliefs about the effectiveness of the tax are strong predictors of preferences over taxes, the economic arguments remain statistically significant. In contrast, own consumption patterns are not strongly associated with preferences over taxes when controlling for political attitudes and economic arguments.

In Table B.3 in the Appendix, we see that these patterns also persist for the preference over SSB taxes in another state. This result supports the impression that preferences over sin taxes are shaped by general political attitudes, irrespective of whether individuals are directly affected by the tax.

3.3 Information treatments

In this section, we study whether explanations of the economic reasons for or against sin taxes change policy preferences over sin taxes. First, as a manipulation check, we study whether our treatments shift approval of the economic mechanisms. Second, we study whether the treatments shift the preferences about the tax and the willingness to donate to an organization that supports the introduction of a federal SSB tax.

3.3.1 Externality treatment

First, we focus on the externality treatment, in which we explain subjects that consumption of sugary beverages generates health costs that are borne by all who contribute to the public health sector.

Figure 7 shows the coefficient of the externality treatment dummy on a range of (z-transformed) outcome variables. The coefficients measure the effect of the treatment relative to the control condition.

The first panel shows that the treatment has a strong and statistically significant effect on the externality index. The treatment increases agreement with the externality items by 0.35 standard deviations. The effect on the lack of knowledge, self-control and regressivity index is not significantly different from zero.

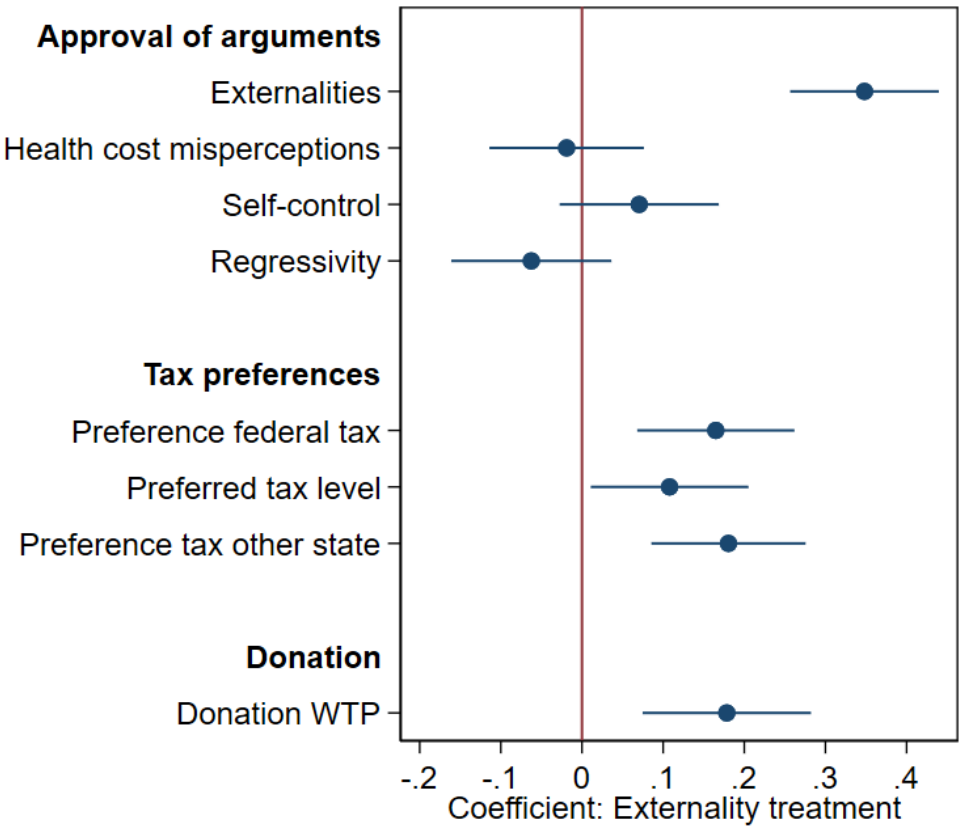
The second panel shows that the treatment also increases the preference for a federal tax by 0.16 standard deviations (i.e., 36 percent of the gap between Democrats and Republicans). Furthermore, it increases the preferred tax level by 0.11 standard deviations and the preference for a tax in another state by 0.18 standard deviations.

Ultimately, the externality treatment also increases the willingness to pay for a donation to the CSPI by 0.18 standard deviations. Hence, explaining to subjects the concept of externalities also has a positive impact on an incentivized measure of preferences for sin taxes.

In Table 3, we investigate heterogenous treatment effects. We do not find that the treatment effect varies systematically by demographic characteristics and consumption habits.

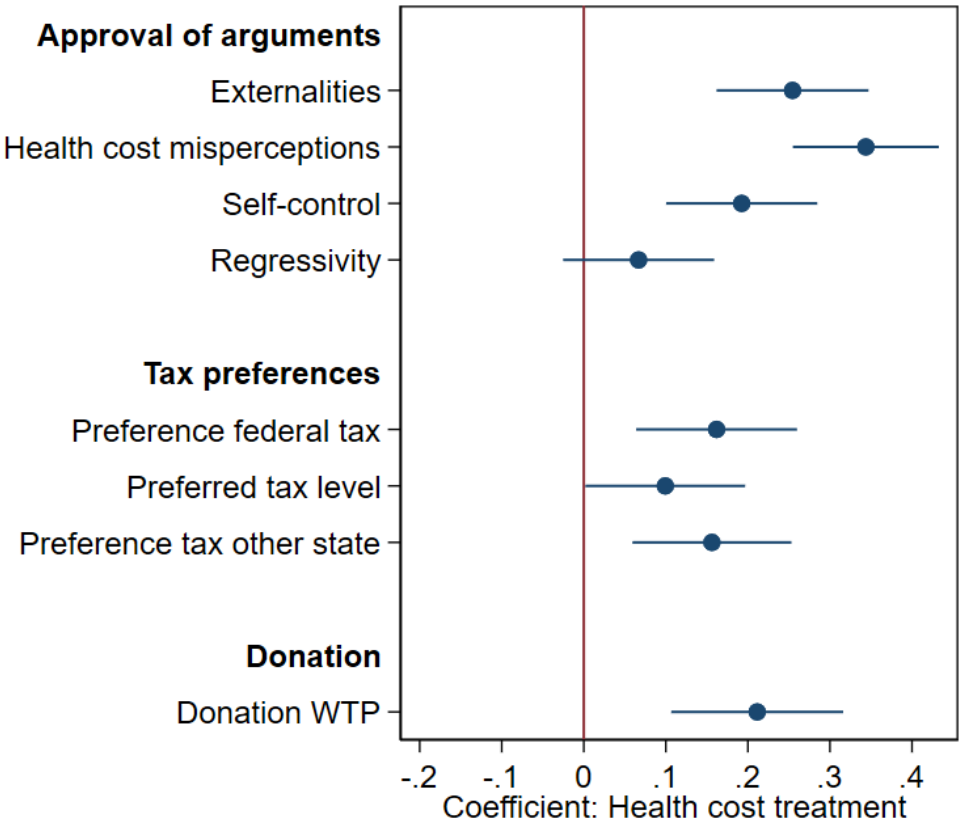
All subjects in the externality treatment were asked to give their incentivized guess of the percentage share of obesity-related health costs that are borne by others. This guess can be interpreted as a measure of how strong respondents believe externalities of SSB consumption to be in the US. In Table 7, we observe that higher guesses are positively associated with preferences for the tax. Believing that the costs borne by others are 10 percentage points higher, increases preferences for the federal tax by 0.05 standard deviations and the preferred tax rate by 1.18ct.

Figure 7: Treatment effects: Externality treatment



Notes: Graph shows treatment effects and 95% confidence intervals of the externality treatment on z-transformed outcome variables.

Figure 8: Treatment effects: Health costs misperception treatment



Notes: Graph shows treatment effects and 95% confidence intervals of the health costs treatment on z-transformed outcome variables.

3.3.2 Health cost misperceptions treatment

In the health cost misperceptions treatment, we explain subjects that consumers may over-consume sugary beverages because they are not fully aware of their health consequences.

Figure 8 illustrates the effect of the health cost treatment relative to the control condition. The first panel shows that the treatment has the strongest effect on agreement with the health cost argument. However, the treatment also increases agreement with the externalities argument and the self-control argument.

The second panel show that also the health costs treatment increases approval of the SSB tax, both on the federal level and for a tax in another state. The third panel shows that the health cost treatment increases the WTP for a donation by 0.21 standard deviations.

3.3.3 Self-control treatment

In the self-control treatment, we explain that a lack of self-control can lead consumers to overconsume sugary beverages compared to their long-term self-interest.

In Figure 9, we observe that the self-control treatment leads to a positive shift in the agreement with the self-control arguments (by 0.18 standard deviations), but also increases agreement with the externalities argument (by 0.17 standard deviations). There is no significant effect on agreement with the health cost misperceptions argument and the regressivity argument.

In the second panel, we see that the self-control treatment has a positive impact on preferences for the federal tax and for the tax in another state. Moreover, there is a positive impact of 0.14 standard deviations on the WTP for a donation.

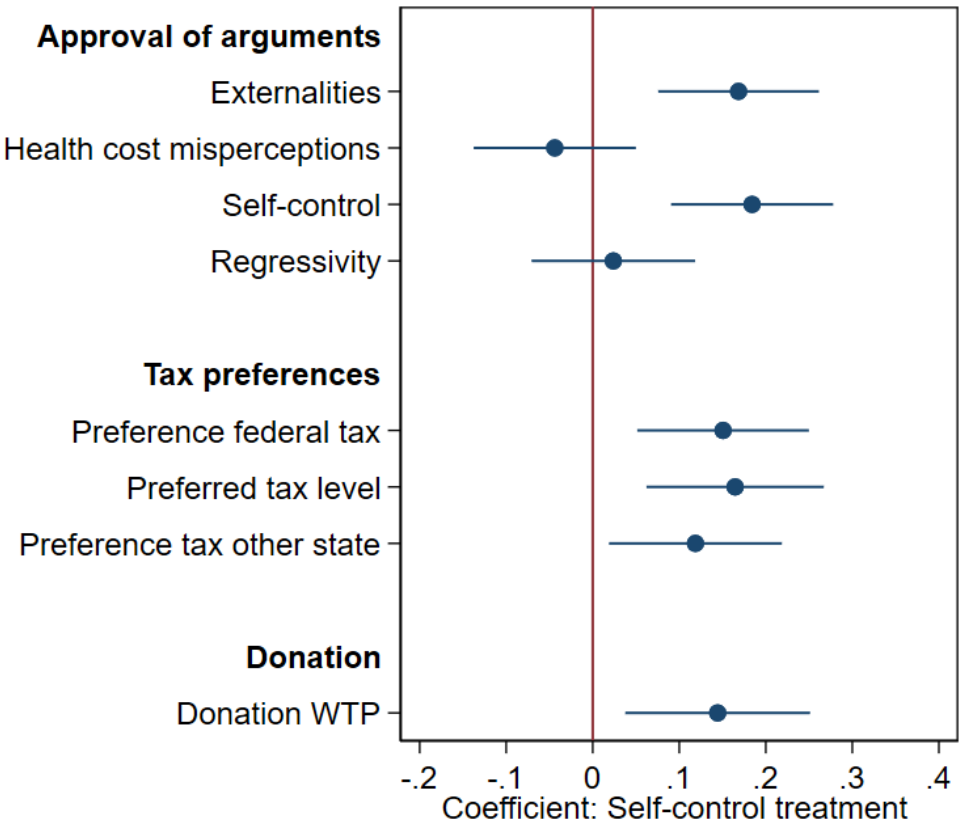
3.3.4 Regressivity treatment

In the regressivity treatment, we explain that taxes on sugary beverages are discussed to attenuate the negative health consequences of sugary drink consumption, but that such a tax would disproportionately affect the poor.

Figure 10 shows that the treatment shifts approval with the regressivity argument by 0.23 standard deviations, but that it also increases agreement with the externality argument by 0.18 standard deviations. There is a positive, but statistically insignificant impact on agreement with the self-control argument (p=0.110) and no impact on the health cost argument.

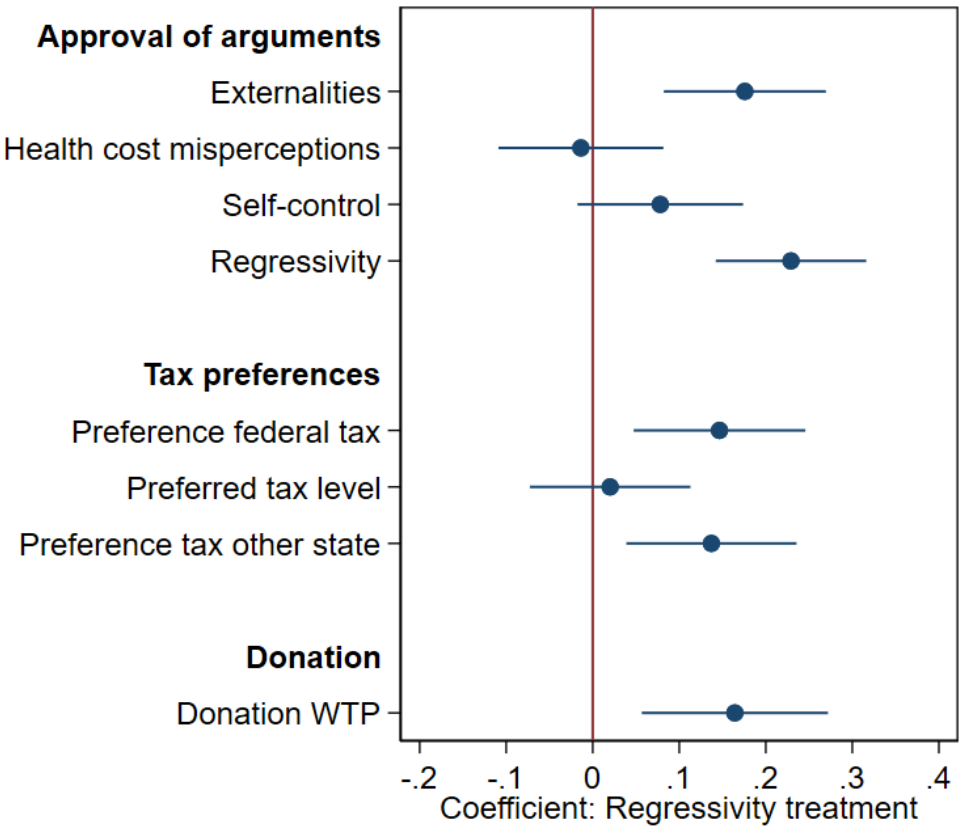
Surprisingly, the treatment leads to an increase in the preference for the federal tax and the tax in another state. However, unlike the other treatments there is no increase in the preferred tax level. The results suggest that the regressivity treatment makes subjects aware of the health costs of SSB consumption (like the other treatments), leading respondents to be more sympathetic to a tax in general. However, highlighting the regressivity of the tax makes subjects demand a very moderate tax that is not different from the control treatment (in contrast to the other treatments). We also observe an increase in the willingness to pay for the donation.

Figure 9: Treatment effects: Self-control treatment



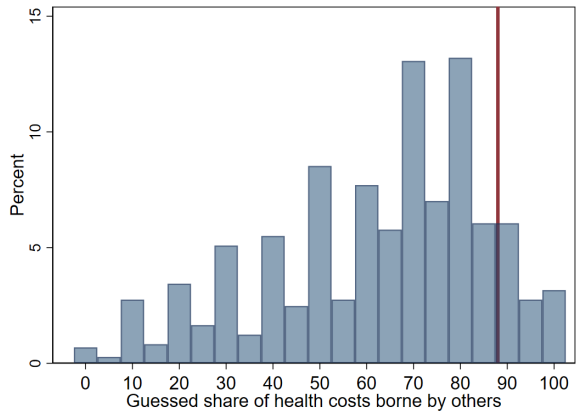
Notes: Graph shows treatment effects and 95% confidence intervals of the health costs treatment on z-transformed outcome variables.

Figure 10: Treatment effects: Regressivity treatment

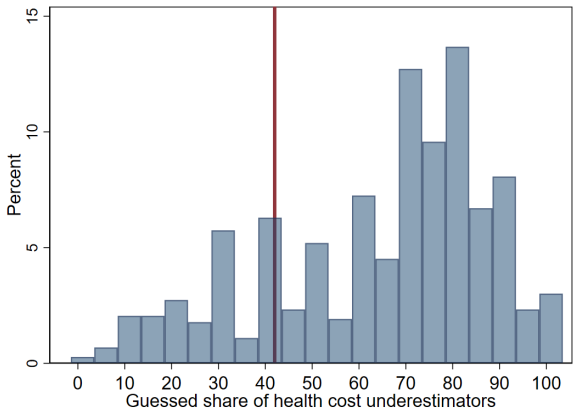


Notes: Graph shows treatment effects and 95% confidence intervals of the regressivity treatment on z-transformed outcome variables.

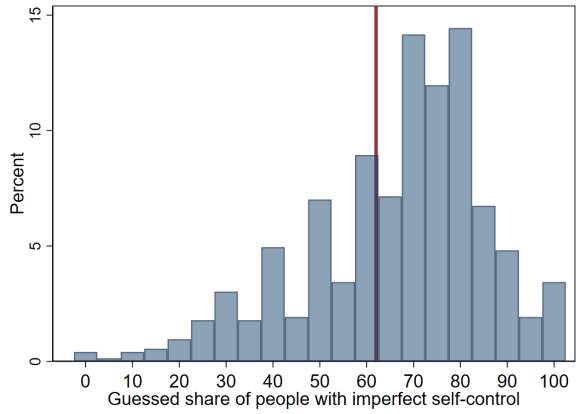
Figure 11: Distribution of guesses in the respective treatment



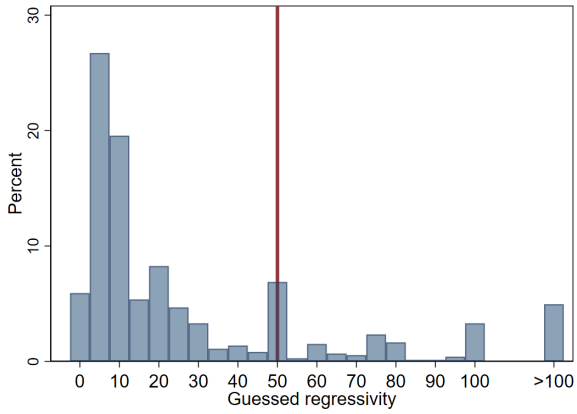
(a) Externalities



(b) Health cost misperceptions



(c) Self-control



(d) Regressivity

Notes: The figure shows the distribution of incentivized guesses in the respective treatment. The red line indicates the correct value.

Table 3: Heterogenous treatment effects of externality treatment

	(1) Preference for federal tax	(2) Preferred tax rate	(3) WTP for donation	(4) Preference for tax in another state
Panel A: HH Income (in Dollar)				
Externality=1	0.168*	0.066	0.149*	0.064
	(0.089)	(0.095)	(0.086)	(0.102)
Externality=1 × 35k-75k	0.035	0.061	0.106	0.240*
	(0.126)	(0.132)	(0.123)	(0.139)
Externality=1 × Above 75k	-0.029	0.056	0.001	0.095
	(0.118)	(0.121)	(0.116)	(0.131)
Observations	1725	1725	1725	1402
Panel B: Gender				
Externality=1	0.159**	0.027	0.145**	0.203***
	(0.073)	(0.067)	(0.071)	(0.074)
Externality=1 × Female=1	0.013	0.155	0.069	-0.042
	(0.099)	(0.099)	(0.097)	(0.106)
Observations	1725	1725	1725	1402
Panel C: Political affiliation				
Externality=1	0.135*	-0.002	0.118	0.055
	(0.081)	(0.078)	(0.082)	(0.086)
Externality=1 × Republican	-0.076	0.076	0.007	0.155
	(0.114)	(0.112)	(0.116)	(0.127)
Externality=1 × Democrat	0.072	0.210*	0.108	0.166
	(0.120)	(0.124)	(0.116)	(0.126)
Observations	1725	1725	1725	1402
Panel D: SSB consumption				
Externality=1	0.195***	0.144**	0.199***	0.234***
	(0.070)	(0.070)	(0.068)	(0.071)
Externality=1 × Above median SSB cons.=2	-0.071	-0.080	-0.046	-0.126
	(0.097)	(0.099)	(0.096)	(0.106)
Observations	1725	1725	1725	1402
Panel E: Own self-control				
Externality=1	0.192**	0.093	0.194**	0.144*
	(0.083)	(0.076)	(0.080)	(0.081)
Externality=1 × Imperfect self-control=1	-0.048	0.025	-0.024	0.059
	(0.102)	(0.100)	(0.100)	(0.107)
Observations	1725	1725	1725	1402
Panel F: BMI				
Externality=1	0.164*	0.105	0.121	0.168*
	(0.085)	(0.091)	(0.082)	(0.088)
Externality=1 × Overweight	0.041	-0.041	0.088	0.102
	(0.122)	(0.125)	(0.118)	(0.129)
Externality=1 × Obese	-0.054	0.046	0.093	-0.079
	(0.119)	(0.120)	(0.119)	(0.129)
Observations	1723	1723	1723	1400

Note: Table reports heterogenous treatment effects based on OLS regressions. Significance levels are indicated by $*<.1$, $**<.05$, $***<.01$.

Table 4: Heterogenous treatment effects of heath cost misperceptions treatment

	(1) Preference for federal tax	(2) Preferred tax rate	(3) WTP for donation	(4) Preference for tax in another state
Panel A: HH Income (in Dollar)				
Health costs=1	0.276***	0.136	0.329***	0.198*
	(0.095)	(0.102)	(0.094)	(0.105)
Health costs=1 × 35k-75k	-0.179	-0.085	-0.282**	-0.032
	(0.131)	(0.136)	(0.130)	(0.143)
Health costs=1 × Above 75k	-0.145	-0.025	-0.207*	0.045
	(0.122)	(0.126)	(0.121)	(0.133)
Observations	1730	1730	1730	1397
Panel B: Gender				
Health costs=1	0.163**	0.089	0.196***	0.240***
	(0.075)	(0.073)	(0.075)	(0.077)
Health costs=1 × Female=1	-0.001	0.019	-0.077	-0.052
	(0.100)	(0.100)	(0.099)	(0.107)
Observations	1730	1730	1730	1397
Panel C: Political affiliation				
Health costs=1	0.160*	0.099	0.122	0.191**
	(0.082)	(0.086)	(0.082)	(0.087)
Health costs=1 × Republican	-0.118	0.015	-0.039	-0.062
	(0.113)	(0.117)	(0.116)	(0.125)
Health costs=1 × Democrat	0.067	-0.041	0.099	0.099
	(0.123)	(0.126)	(0.119)	(0.129)
Observations	1730	1730	1730	1397
Panel D: SSB consumption				
Health costs=1	0.188***	0.082	0.125*	0.220***
	(0.070)	(0.066)	(0.068)	(0.071)
Health costs=1 × Above median SSB cons.=2	-0.078	0.036	0.053	-0.028
	(0.098)	(0.100)	(0.098)	(0.108)
Observations	1730	1730	1730	1397
Panel E: Own self-control				
Health costs=1	0.156*	0.021	0.115	0.154*
	(0.083)	(0.074)	(0.083)	(0.084)
Health costs=1 × Imperfect self-control=1	0.013	0.130	0.071	0.100
	(0.104)	(0.100)	(0.103)	(0.109)
Observations	1730	1730	1730	1397
Panel F: BMI				
Health costs=1	0.260***	0.117	0.256***	0.182**
	(0.086)	(0.090)	(0.085)	(0.088)
Health costs=1 × Overweight	-0.070	-0.019	-0.018	0.137
	(0.122)	(0.127)	(0.121)	(0.131)
Health costs=1 × Obese	-0.222*	-0.030	-0.273**	-0.042
	(0.121)	(0.118)	(0.118)	(0.128)
Observations	1728	1728	1728	1395

Note: Table reports heterogenous treatment effects based on OLS regressions. Significance levels are indicated by $*<.1$, $**<.05$, $***<.01$.

Table 5: Heterogenous treatment effects of self-control treatment

	(1) Preference for federal tax	(2) Preferred tax rate	(3) WTP for donation	(4) Preference for tax in another state
Panel A: HH Income (in Dollar)				
Self-control=1	0.293***	0.194*	0.108	0.078
	(0.096)	(0.105)	(0.095)	(0.108)
Self-control=1 × 35k-75k	-0.208	-0.090	-0.114	0.149
	(0.130)	(0.140)	(0.128)	(0.144)
Self-control=1 × Above 75k	-0.179	-0.002	0.115	0.044
	(0.125)	(0.132)	(0.126)	(0.137)
Observations	1729	1729	1729	1387
Panel B: Gender				
Self-control=1	0.054	0.088	0.024	0.108
	(0.072)	(0.074)	(0.075)	(0.078)
Self-control=1 × Female=1	0.186*	0.147	0.183*	0.070
	(0.101)	(0.104)	(0.102)	(0.109)
Observations	1729	1729	1729	1387
Panel C: Political affiliation				
Self-control=1	0.084	0.052	-0.025	0.093
	(0.078)	(0.080)	(0.080)	(0.087)
Self-control=1 × Republican	0.030	0.126	0.168	0.066
	(0.118)	(0.123)	(0.125)	(0.133)
Self-control=1 × Democrat	0.051	0.154	0.174	-0.013
	(0.121)	(0.127)	(0.119)	(0.129)
Observations	1729	1729	1729	1387
Panel D: SSB consumption				
Self-control=1	0.154**	0.158**	0.130*	0.137*
	(0.072)	(0.071)	(0.071)	(0.075)
Self-control=1 × Above median SSB cons.=2	-0.010	0.014	-0.025	0.017
	(0.100)	(0.105)	(0.101)	(0.109)
Observations	1729	1729	1729	1387
Panel E: Own self-control				
Self-control=1	0.126	0.030	0.121	0.163*
	(0.084)	(0.073)	(0.084)	(0.085)
Self-control=1 × Imperfect self-control=1	0.044	0.223**	-0.001	-0.030
	(0.105)	(0.103)	(0.105)	(0.111)
Observations	1729	1729	1729	1387
Panel F: BMI				
Self-control=1	0.234***	0.244***	0.155*	0.206**
	(0.089)	(0.094)	(0.087)	(0.092)
Self-control=1 × Overweight	-0.153	-0.245*	-0.067	0.083
	(0.123)	(0.131)	(0.124)	(0.137)
Self-control=1 × Obese	-0.094	-0.002	-0.033	-0.233*
	(0.124)	(0.127)	(0.124)	(0.128)
Observations	1728	1728	1728	1386

Note: Table reports heterogenous treatment effects based on OLS regressions. Significance levels are indicated by $* < .1$, $** < .05$, $*** < .01$.

Table 6: Heterogenous treatment effects of regressivity treatment

	(1) Preference for federal tax	(2) Preferred tax rate	(3) WTP for donation	(4) Preference for tax in another state
Panel A: HH Income (in Dollar)				
Regressivity=1	0.182*	0.006	0.134	0.100
	(0.094)	(0.094)	(0.096)	(0.112)
Regressivity=1 × 35k-75k	0.027	0.029	0.022	0.167
	(0.130)	(0.127)	(0.130)	(0.148)
Regressivity=1 × Above 75k	-0.110	0.011	-0.012	0.023
	(0.123)	(0.118)	(0.124)	(0.139)
Observations	1734	1734	1734	1382
Panel B: Gender				
Regressivity=1	0.115	-0.070	0.104	0.141*
	(0.074)	(0.062)	(0.074)	(0.078)
Regressivity=1 × Female=1	0.062	0.173*	0.065	0.049
	(0.101)	(0.094)	(0.101)	(0.109)
Observations	1734	1734	1734	1382
Panel C: Political affiliation				
Regressivity=1	0.178**	-0.036	0.122	0.132
	(0.080)	(0.072)	(0.080)	(0.087)
Regressivity=1 × Republican	-0.101	0.073	0.031	-0.011
	(0.118)	(0.111)	(0.122)	(0.131)
Regressivity=1 × Democrat	-0.094	0.061	-0.055	0.029
	(0.122)	(0.116)	(0.118)	(0.131)
Observations	1734	1734	1734	1382
Panel D: SSB consumption				
Regressivity=1	0.227***	0.122*	0.176**	0.229***
	(0.072)	(0.069)	(0.070)	(0.074)
Regressivity=1 × Above median SSB cons.=2	-0.169*	-0.216**	-0.082	-0.141
	(0.099)	(0.094)	(0.099)	(0.110)
Observations	1734	1734	1734	1382
Panel E: Own self-control				
Regressivity=1	0.159*	0.010	0.170**	0.175**
	(0.083)	(0.074)	(0.081)	(0.084)
Regressivity=1 × Imperfect self-control=1	-0.019	0.018	-0.054	-0.020
	(0.104)	(0.096)	(0.103)	(0.111)
Observations	1734	1734	1734	1382
Panel F: BMI				
Regressivity=1	0.174**	0.002	0.117	0.163*
	(0.088)	(0.082)	(0.085)	(0.092)
Regressivity=1 × Overweight	-0.022	-0.024	0.056	0.093
	(0.125)	(0.119)	(0.124)	(0.137)
Regressivity=1 × Obese	-0.050	0.083	0.021	-0.081
	(0.122)	(0.112)	(0.120)	(0.130)
Observations	1733	1733	1733	1381

Note: Table reports heterogenous treatment effects based on OLS regressions. Significance levels are indicated by $*<.1$, $**<.05$, $***<.01$.

Table 7: Within-treatment guesses

	(1) Preference for federal tax	(2) Preferred tax rate	(3) Preference for tax in another state	(4) Donation WTP
Panel A: Externality				
Guess externality	0.005***	0.005***	0.004**	0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	707	707	707	583
Panel B: Health costs				
Guess health costs	0.003*	0.001	0.002	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	712	712	712	578
Panel C: Self-control				
Guess self-control	0.000	0.002	-0.002	-0.001
	(0.002)	(0.003)	(0.002)	(0.002)
Observations	711	711	711	568
Panel D: Regressivity				
Log Guess regressivity	0.012	0.037	-0.017	-0.031
	(0.028)	(0.031)	(0.025)	(0.033)
Observations	705	705	705	556

Note: Table reports regression estimates. Significance levels are indicated by $* < .1$, $** < .05$, $*** < .01$.

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Appendix

A Information treatments

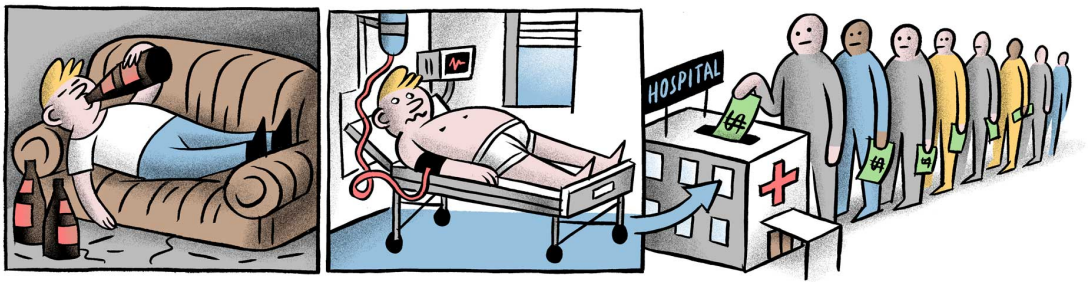
A.1 Externalities treatment

Quiz - For the correct answer you earn $0.50 in panel currency

The consumption of sugary beverages may cause negative health consequences, imposing medical costs on society as a whole. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

For example, routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. The resulting health costs of these diseases are not only paid for by the consumers themselves, but they are also paid by others through the public health system.

The reason is that the medical costs of treating diseases like obesity and diabetes can be substantial, exceeding the amounts that an individual with such a disease pays into the public health system. Therefore, the health costs of sugary beverage consumption are borne by all individuals who contribute to the public health system.



Your task

The consumption of sugary beverages may cause negative health consequences, imposing medical costs on society as a whole. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

Research has estimated the share of obesity-related health costs which are not borne by the individuals themselves but by others in the public health system.

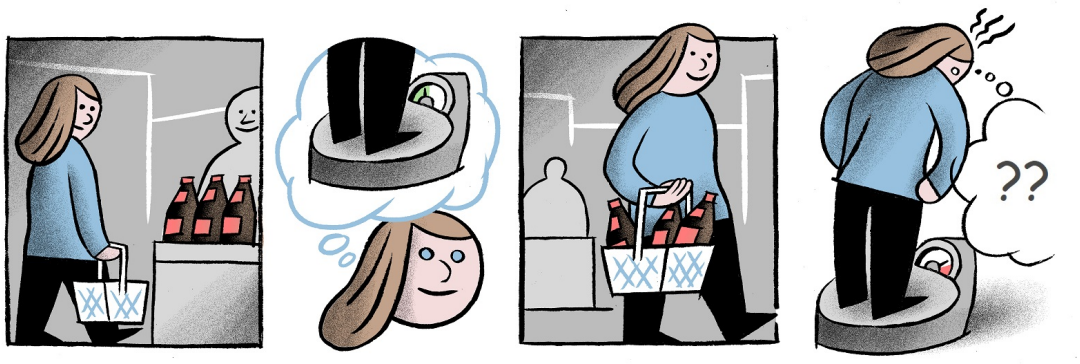
What do you guess: Out of every 100 dollars of obesity-related health costs in the US public health system, how many dollars are paid for by others instead of by the patients themselves? *[Slider 0-100]*

A.2 Health costs treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Researchers argue that individuals tend to overconsume sugary drinks, compared to what is in their long-term self-interest. The idea is that people may not have perfect knowledge about the negative health consequences of sugary drinks. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

To see this, consider the following example: Jane decides how many sugary drinks she should have. However, she underestimates the long-term health costs of her sugary drink consumption. In particular, she is not fully aware that routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. Therefore, Jane constantly consumes more sugary drinks than what is good for herself in the long run.



Your task

We have asked a representative sample of the US population (more than 500 individuals) to estimate how much weight a person would gain by drinking one additional can (330ml) of Coca-Cola per day for three years.

To answer the question, respondents were asked to assume that the person in question is a 30-year-old individual of their own gender with average weight and height, and that the person does light activity at work and moderate physical activity at least once a week.

Respondents received money if their answers matched the actual weight gain as calculated by models of nutrition scientists.

What do you guess: Out of 100 individuals in the sample, how many underestimated how much weight the person would gain by drinking an additional Coca-Cola per day for three years? (Underestimated means that the respondent's guess was at least 10% less than what nutrition scientists predict.)

Out of 100 people, the number of people who underestimated the weight gain is: *[Slider 0-100]*

A.3 Self-control treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Researchers argue that individuals tend to overconsume sugary drinks, compared to what is in their long-term self-interest. The idea is that people may lack self-control over their sugary drink consumption and often give in to temptation. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

To see this, consider the following example: Jane would like to reduce her consumption of sugary drinks because routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. However, every time she is offered a sugary drink, she gives in to the temptation and indulges in sugary drinks, even though she formerly did not plan to do so. Therefore, Jane constantly consumes more sugary drinks than she thinks she actually should.

Your task

We asked a representative sample of the US population (more than 500 individuals) to what extent they agree with the following statement:

"I drink soda pop or other sugar-sweetened beverages more often than I should."

The answer options were: "not at all," "somewhat," "mostly," and "definitely."

What do you guess: Out of 100 individuals in the sample, how many agreed at least somewhat with the statement that they drink more soft drinks than they should?

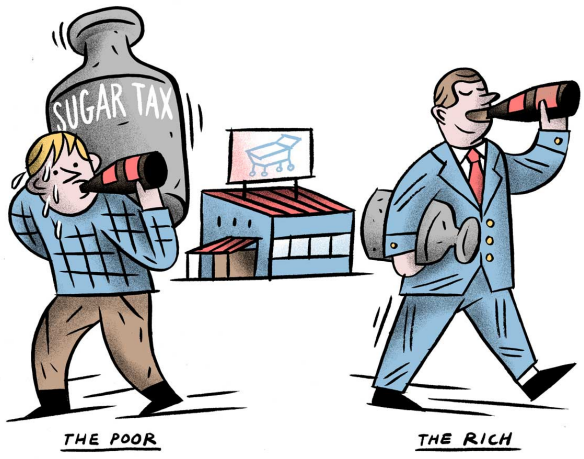
Out of 100 people, the number of people who agreed to the statement is: *[Slider 0-100]*

A.4 Regressivity treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Routinely drinking sugary beverages can have negative health consequences. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

However, taxes on sugary beverages fall more heavily on the poor than on the rich. The reason is that the expenditures for sugary beverages (just like other food expenditures) make up a relatively large part of the income of the poor. Therefore, the tax burden of a sugary drink tax is higher for poorer than for richer consumers.



Your task

Research has estimated how much higher the share of income is that low-income consumers spend on sugar-sweetened beverages compared to high-income consumers in the US.

What do you guess: The share of income that a household with less than $10,000 annual income spends on soft drinks is _____ times what a household with $100,000 to $150,000 annual income spends.

B Additional tables and figures

Table B.1: Descriptive statistics

	Main survey			
	Final sample	Unrestricted sample	Pre-survey	US population
Female	52.2	53.0	62.0	51.5
Household income in USD				
<35K	26.5	28.6	25.7	23.1
35K-75K	31.2	31.5	28.7	28.9
>75K	42.3	40.0	45.6	48.2
Age group				
18-29	10.8	11.3	13.0	17.2
30-49	43.8	44.7	42.0	45.4
50-65	45.4	44.0	45.0	37.6
Labor market status				
Working	66.3	65.7	67.2	73.3
Education				
No college	20.1	21.8	18.9	37.7
College degree	63.5	62.7	62.4	50.6
Advanced degree	16.4	15.5	18.7	11.7
Race/Ethnicity				
White	77.3	76.1	78.6	59.4
Latino/Hispanic	8.0	8.3	6.4	18.5
Black/African American	6.8	7.7	5.5	13.9
Asian	7.9	7.9	9.6	6.5
Observations	3872	4795	540	

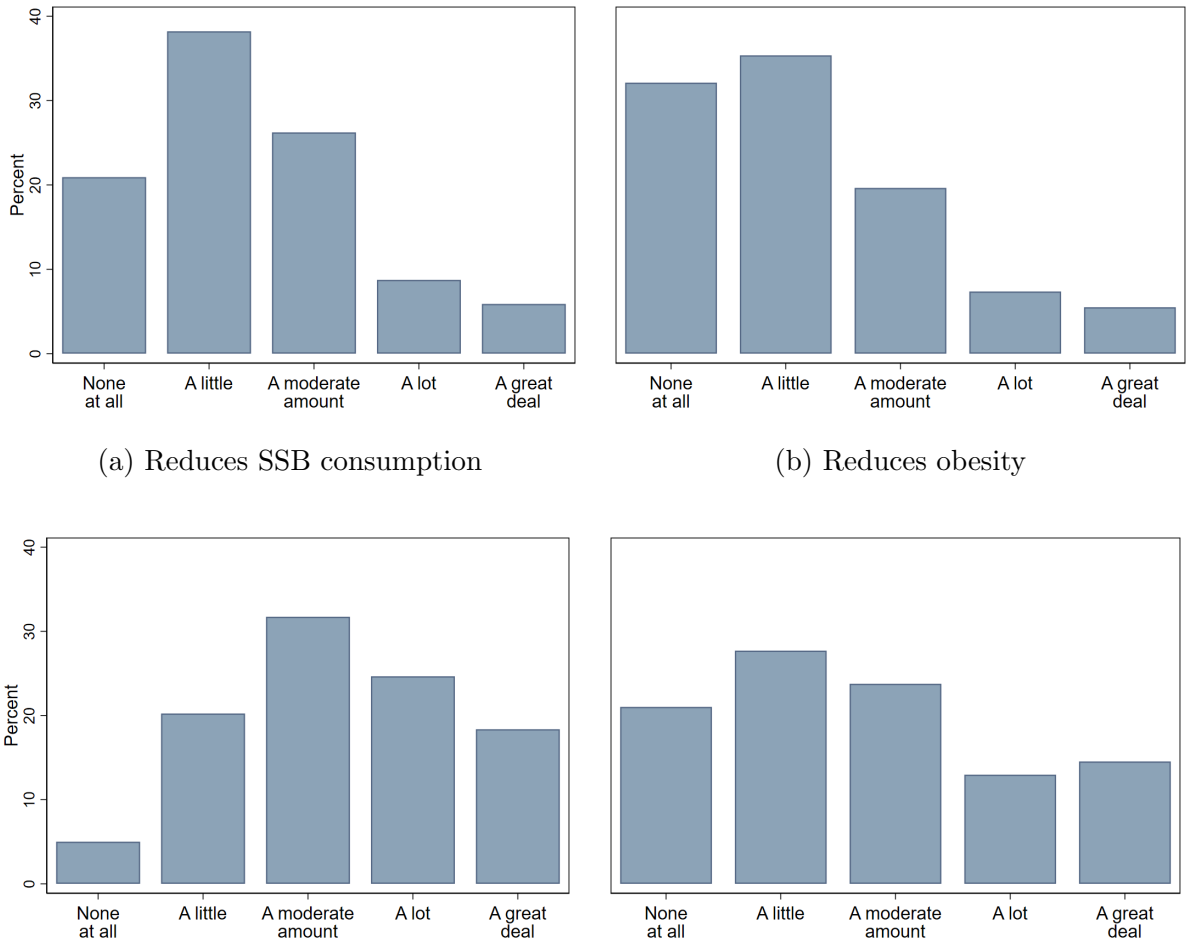
Notes: The table shows descriptive statistics of the sample. The first column shows summary statistics of the final sample that we use in the analysis, while the second column shows summary statistics of the unrestricted sample (including subjects that did not pass the attention check and did not complete the survey). The third column shows summary statistics for the pre-survey. The fourth column shows statistics of the US population from the US Census Bureau and the Current Population Survey 2019 (relative shares for the US population in the age range 18 to 64).

Table B.2: Ordered probit regression of preference over SSB taxes on demographics

	(1) Preference for federal tax	(2) WTP for donation	(3) Preference for tax in another state
main			
35 to 49	-0.112	-0.103	-0.095
	(0.099)	(0.105)	(0.097)
50 or older	-0.272***	-0.186*	-0.184*
	(0.103)	(0.106)	(0.101)
35k-75k	0.163*	0.056	0.159*
	(0.098)	(0.111)	(0.094)
Above 75k	0.314***	0.234**	0.209**
	(0.100)	(0.116)	(0.101)
College degree	0.224**	0.009	0.123
	(0.092)	(0.108)	(0.091)
Master or higher	0.334***	0.054	0.268**
	(0.121)	(0.140)	(0.121)
Female	0.154**	0.096	0.112
	(0.072)	(0.080)	(0.070)
Latino	-0.013	0.298*	0.123
	(0.148)	(0.164)	(0.133)
Black/African American	0.178	0.288	0.230
	(0.158)	(0.197)	(0.152)
Asian	0.192*	0.047	0.284**
	(0.117)	(0.147)	(0.118)
Working	0.060	-0.141	0.047
	(0.083)	(0.093)	(0.080)
Has children	-0.089	0.062	-0.077
	(0.073)	(0.082)	(0.073)
Republican	-0.286***	-0.266***	-0.297***
	(0.088)	(0.098)	(0.089)
Democrat	0.235***	0.194**	0.167**
	(0.083)	(0.099)	(0.081)
Observations	1018	819	1018

Notes: The table reports ordered probit regression estimates. In columns (1) and (3), preference for tax (Likert-scaled) as dependent variable. Significance levels are indicated by $* < .1, ** < .05, *** < .01$.

Figure B.1: Presumed effects of SSB taxes



(a) Reduces SSB consumption

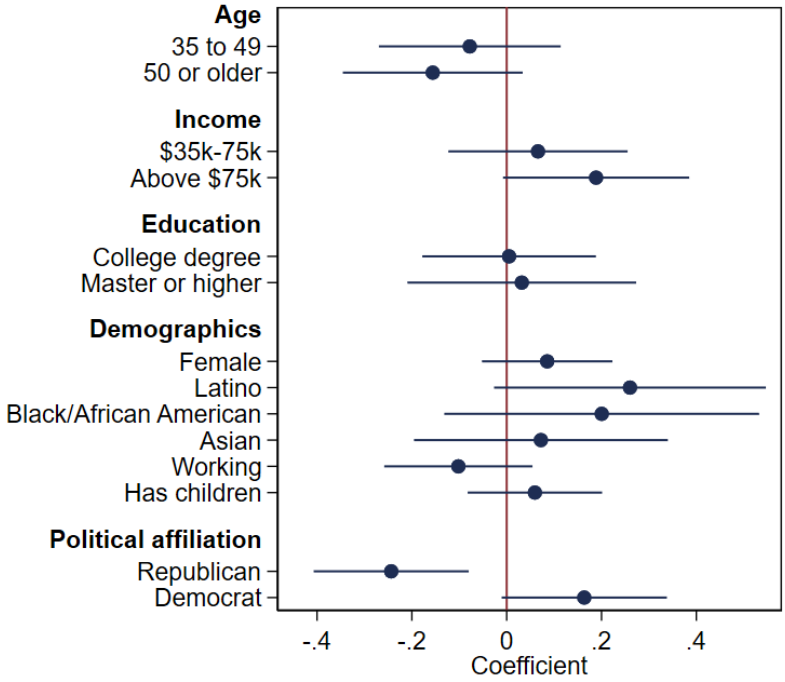
(b) Reduces obesity

(c) Raises tax revenue

(d) Hurts the economy

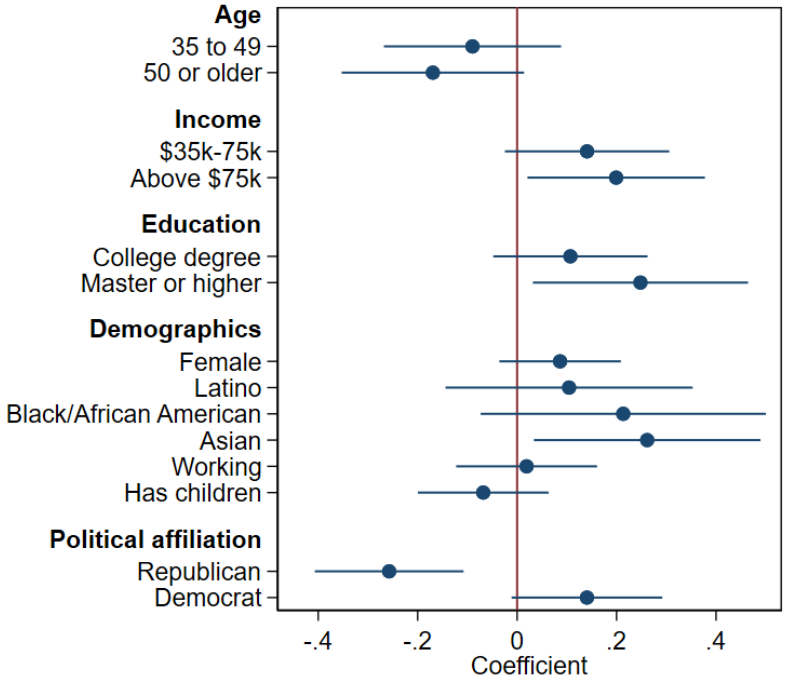
Notes: The figure shows whether respondents believe that the introduction of a SSB tax has the respective effect.

Figure B.2: Correlations with willingness to pay for donation



Notes: Graph shows coefficients and 95% confidence intervals from a regression with z-transformed WTP for donations as dependent variable. The omitted reference categories are younger than 35 (age), less than $35k (income), high-school or less (education), male/other (sex), unemployed/student (working), no children, white (race/ethnicity), independent/other (political affiliation), normal/underweight (Body Mass Index). Only the control group is used for the estimations.

Figure B.3: Correlations with preference for tax in another state



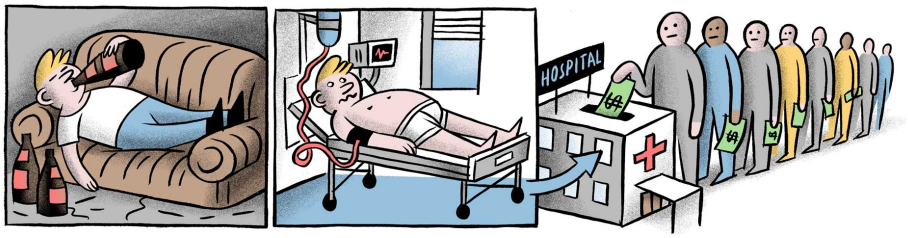
Notes: Graph shows coefficients and 95% confidence intervals from a regression with z-transformed preference for a SSB tax in another state as dependent variable. The omitted reference categories are younger than 35 (age), less than $35k (income), high-school or less (education), male/other (sex), unemployed/student (working), no children, white (race/ethnicity), independent/other (political affiliation), normal/underweight (Body Mass Index). Only the control group is used for the estimations.

Table B.3: Correlations with preference for tax in another state (z-score)

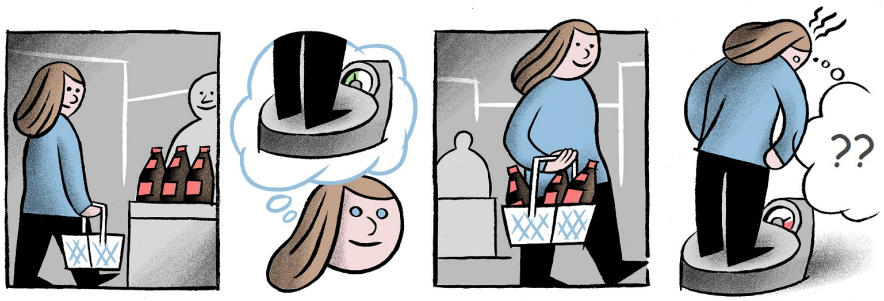
	(1)	(2)	(3)	(4)	(5)
Arguments					
Externality index	0.237***	0.224***	0.105***	0.127***	0.055*
	(0.034)	(0.034)	(0.033)	(0.032)	(0.031)
Health cost misperception index	0.137***	0.134***	0.080***	0.087***	0.059**
	(0.032)	(0.032)	(0.030)	(0.030)	(0.029)
Self-control index	0.077**	0.086**	0.076**	0.061*	0.074**
	(0.034)	(0.034)	(0.032)	(0.032)	(0.032)
Regressivity index	-0.184***	-0.177***	-0.095***	-0.088***	-0.049
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
Own consumption					
Above median SSB cons.		-0.084			-0.096
		(0.069)			(0.062)
Imperfect self-control		0.004			0.014
		(0.074)			(0.065)
Preference for SSBs		-0.139*			-0.135**
		(0.074)			(0.065)
Political attitudes					
Libertarian index			-0.279***		-0.201***
			(0.038)		(0.038)
Paternalist index			0.202***		0.134***
			(0.037)		(0.037)
Presumed effects					
Reducing SSB consumption				0.058	0.028
				(0.046)	(0.043)
Reducing obesity				0.283***	0.212***
				(0.047)	(0.046)
Raising tax revenue				-0.009	-0.003
				(0.028)	(0.027)
Hurting the US economy				-0.211***	-0.138***
				(0.030)	(0.030)
Controls	✓	✓	✓	✓	✓
Adj. R2	0.193	0.198	0.320	0.315	0.371
Observations	1003	1003	1003	1003	1003

Notes: The table reports OLS regression estimates. Significance levels are indicated by $* < .1, ** < .05, *** < .01$.

Figure B.4: Cartoons included in the instructions of the respective treatment

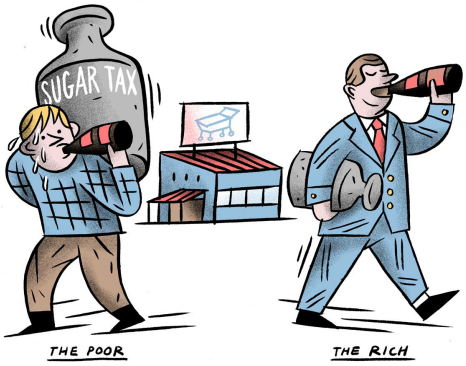


(a) Externality treatment



(b) Health cost misperception treatment

(c) Self-control treatment



(d) Regressivity treatment

C Willingness to pay for donation

This section provides additional details on the construction of the willingness to pay measure.

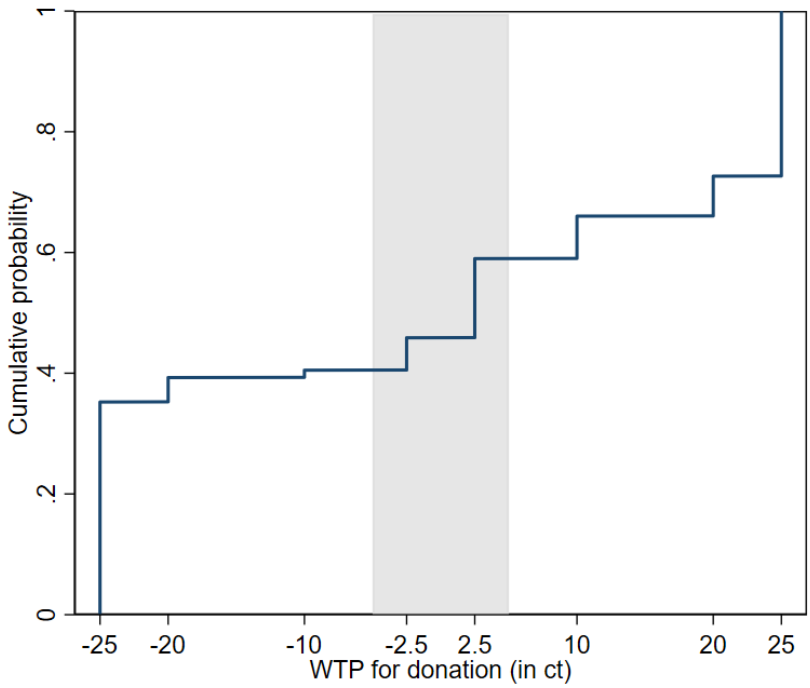
The survey requires subjects to make a decision in each row of the multiple price list. They decide on an allocation of (x_i, x_j), where x_i is a payout for herself, and x_j is a donation to the CSPI. Based on their switching point, their willingness to pay for a 25ct donation can be assigned to one of the intervals: [-∞,-25], [-25,-15], [-15,-5], [-5,0], [0,5], [5,15], [15,25], [25,∞]. For simplicity, we use the midpoint of each range as the WTP and for individuals that never switch, we assign the endpoint.

For example, an individual that prefers the left option in the first five rows, but prefers the right option in the bottom two rows, is willing to give up between 5ct and 15ct to trigger a 25ct donation (and is assigned WTP of 10ct). An individual who prefers the left option in the first row, but the right option in the remaining six rows, is willing to give up between 15ct and 25ct to prevent a 25ct donation (and is assigned a WTP of -20ct).

We can only compute a WTP for observations that are internally consistent, that is, they need to have at most one switching point. This excludes 15.2 percent of responses. Moreover, we do not include respondents that switch from the right option to the left option down the list (as these respondents exhibit aversion to money). This restriction excludes another 4.2 percent of responses. In total, we are left with 80.5 percent of observations, that are internally consistent.

Figure C.1 illustrates the resulting CDF of the WTP measure over all treatments. The figure shows that 35.2 percent of respondents are willing to give up 25ct to prevent a 25ct donation to the CSPI. In contrast, 27.4 percent of subjects are willing to give up 25ct to trigger a donation of 25ct. The remaining 37.4 percent of subjects have an intermediate WTP between -25ct and +25ct. As illustrated by the shaded area in the figure, 18.5 percent maximize their own payout, that is, they are assigned a WTP of -2.5ct or 2.5ct (note that the multiple price list does not allow to express a WTP of zero, but instead only weakly positive or weakly negative WTPs are possible).

Figure C.1: CDF of donation WTP (all treatments)



Notes: Graph shows CDF of the WTP for a donation of 25ct to the CSPI. The shaded area illustrates the range, in which individuals are that have a WTP of zero.

D Instructions

D.1 Pre-Screening

Welcome to the survey

Please answer the following questions about yourself.

- What is your gender? [Male; Female; Other]
- What is your age?
- What was your TOTAL household income, before taxes, in 2020? [Less than $5,000; $5,000-$14,999; $15,000 - $24,999; $25,000 - $34,999; $35,000 - $44,999; $45,000 - $54,999; $55,000 - $64,999; $65,000 - $74,999; $75,000 - $84,999; $85,000 - $99,999; $100,000 - $149,999; $150,000 or more]

D.2 Consent form

Welcome to the survey

You are invited to take part in a research study about nutritional habits and health policy. The study is administered by Dr. Renke Schmacker (University of Lausanne, Switzerland) and Dr. Tobias König (Linnaeus University, Sweden).

The study consists of a survey that takes around 10 to 15 minutes to complete. We are interested in how attitudes differ for different people. Your honest responses will be appreciated.

All data will be treated confidentially and may not be disclosed, unless required by law and regulation. During this study, no personally identifiable information will be collected, except for data necessary for the administrative/financial management of the study. Participation in this study is anonymous. Results will be published only in aggregated form and will not identify individual participants. Please note that participation in this study is entirely voluntary and that you may discontinue participation at any time. If you do not complete the questionnaire, you will not be compensated.

Contact information For any questions, comments, or to exercise your right to access or erase your personal data, please contact Dr. Renke Schmacker at renke.schmacker@unil.ch.

Please indicate if you have read and understood the information in this form and if you consent to participate in the study. [Yes, I consent to participate in this study.; No, I do not consent to participate in this study.]

D.3 Demographic questions

- In which state do you currently reside? *[list of federal states]*
- How many children do you have? [I do not have children; 1; 2; 3; 4; 5 or more]
- About how tall are you? Feet: _____, Inches: _____
- About how much do you weigh (in pounds)?
- Are you Hispanic, Latino, or Spanish origin? [Yes; No; Prefer not to answer]
- What is your race? [White; Black or African American; American Indian or Alaska Native; Asian; Other (please specify: _____)]
- Which category best describes your level of education? [Primary education or less; Some High School; High School degree/GED; Some College; 2-year College Degree; 4-year College Degree; Master's Degree; Doctoral Degree; Professional Degree (JD, MD, MBA)]
- What is your current employment status? [Full-time employee; Part-time employee; Self-employed or small business owner; Unemployed and looking for work; Student; Not currently working and not looking for work; Retiree]
- What do you consider to be your political affiliation, as of today? [Republican; Democrat; Independent; Other; Non-Affiliated]

D.4 Consumption and preferences

- During the past month, how often did you drink sugary drinks? Sugary drinks (also known as sugar-sweetened beverages) refer to any beverage with added sugar or other sweetener (e.g., corn syrup).

  This includes soda, pop, cola, tonic, lemonade, sweetened coffee drinks, iced tea, as well as sports drinks and energy drinks. Do not include diet (sugar free) soft drinks and fruit juices, such as orange, apple, and other juices. Mark one.

[Never; 1 time last month; 2-3 times last month; 1 time per week; 2 times per week; 3-4 times per week; 5-6 times per week; 1 time per day; 2-3 times per day; 4-5 times per day; 6 or more times per day]

- Leaving aside any health or nutrition considerations, how much would you say you like the taste and generally enjoy drinking the following?

  - Sugary drinks (cola, soda, pop, etc.): [Dislike a great deal; Dislike somewhat; Neither like nor dislike; Like somewhat; Like a great deal]
  - Diet soft drinks: [Dislike a great deal; Dislike somewhat; Neither like nor dislike; Like somewhat; Like a great deal]

- How much do you agree to the following statement?

  I drink soda pop or other sugar-sweetened beverages more often than I should

  [Not at all; Somewhat; Mostly; Definitely]

- In general, how important is it to you to stay healthy, for example by maintaining a healthy weight, avoiding diabetes and heart disease, etc.?

  [Not at all important; Slightly important; Moderately important; Very important; Extremely important]

D.5 Attention check

In order to facilitate our research on decision making we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you actually take the time to read the directions; if not, then we will not be able to answer our research questions. So, in order to demonstrate that you have read the instructions, please ignore the question below. Instead, simply enter the number 25. Thank you very much.

Out of 100 adults in the U.S., how many individuals read newspapers? _____

D.6 Beliefs about consumption of others

What would you say regarding how often individuals in the following income groups drink sugar-sweetened beverages?

- During the past month, how often do you think American consumers with annual household incomes below $10,000 drank sugary beverages on average?

  [Never; 1 time last month; 2-3 times last month; 1 time per week; 2 times per week; 3-4 times per week; 5-6 times per week; 1 time per day; 2-3 times per day; 4-5 times per day; 6 or more times per day]

- During the past month, how often do you think American consumers with annual household incomes over $100,000 drank sugary beverages on average?

  [Never; 1 time last month; 2-3 times last month; 1 time per week; 2 times per week; 3-4 times per week; 5-6 times per week; 1 time per day; 2-3 times per day; 4-5 times per day; 6 or more times per day]

D.7 Free-text questions

Now, we would like to ask you a few broader questions. Please use the text boxes below and write as much as you feel. Your opinion and thoughts are important to us! There is no right or wrong answer.

- When you think about a sugary drink tax (a special tax or surcharge on drinks with added sugar), and whether the state should implement such a tax, what are the main considerations that come to your mind? [Free-text box]

- What do you think are the goals of a tax on sugar-sweetened beverages? [Free-text box]

- Which groups of people do you think would benefit if taxes on sugary beverages were introduced in the US? [Free-text box]

- Which groups of people do you think would lose if taxes on sugary beverages were introduced in the US? [Free-text box]

D.8 Information treatments

On the following page we ask you to answer a guessing question. You can earn additional money by guessing correctly.

[Treatment Externalities/Health costs/Self-control:] Your guess will be compared to research results. If your guess is within 3 points of what the researchers found, you will receive an additional payout of $0.50 in panel currency.

[Treatment Regressivity:] Your guess will be compared to research results. If your guess is within 10 percent of what the researchers found, you will receive an additional payout of $0.50 in panel currency.

References for the research results and the correct answer will be shown to you at the end of the survey.

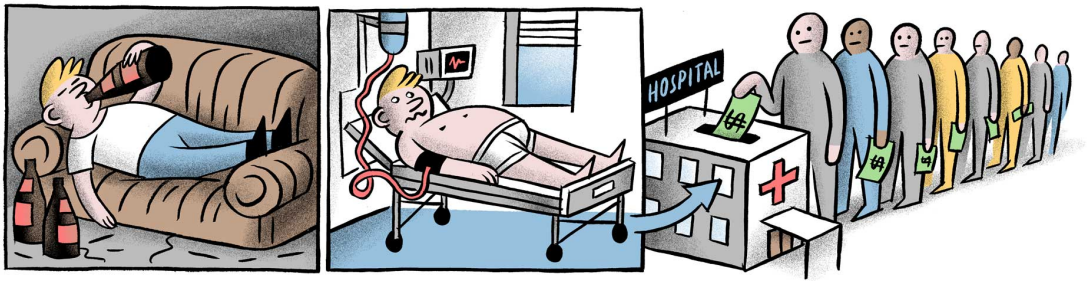
D.8.1 Externalities treatment

Quiz - For the correct answer you earn $0.50 in panel currency

The consumption of sugary beverages may cause negative health consequences, imposing medical costs on society as a whole. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

For example, routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. The resulting health costs of these diseases are not only paid for by the consumers themselves, but they are also paid by others through the public health system.

The reason is that the medical costs of treating diseases like obesity and diabetes can be substantial, exceeding the amounts that an individual with such a disease pays into the public health system. Therefore, the health costs of sugary beverage consumption are borne by all individuals who contribute to the public health system.



Your task

The consumption of sugary beverages may cause negative health consequences, imposing medical costs on society as a whole. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

Research has estimated the share of obesity-related health costs which are not borne by the individuals themselves but by others in the public health system.

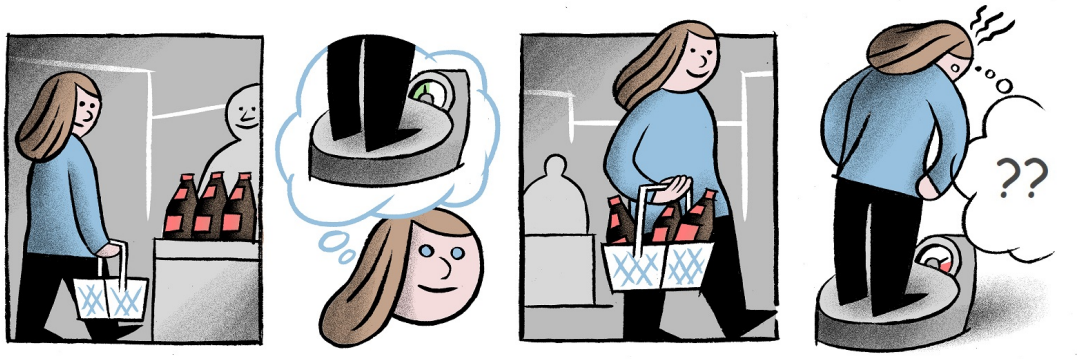
What do you guess: Out of every 100 dollars of obesity-related health costs in the US public health system, how many dollars are paid for by others instead of by the patients themselves? *[Slider 0-100]*

D.8.2 Health costs treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Researchers argue that individuals tend to overconsume sugary drinks, compared to what is in their long-term self-interest. The idea is that people may not have perfect knowledge about the negative health consequences of sugary drinks. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

To see this, consider the following example: Jane decides how many sugary drinks she should have. However, she underestimates the long-term health costs of her sugary drink consumption. In particular, she is not fully aware that routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. Therefore, Jane constantly consumes more sugary drinks than what is good for herself in the long run.



Your task

We have asked a representative sample of the US population (more than 500 individuals) to estimate how much weight a person would gain by drinking one additional can (330ml) of Coca-Cola per day for three years.

To answer the question, respondents were asked to assume that the person in question is a 30-year-old individual of their own gender with average weight and height, and that

the person does light activity at work and moderate physical activity at least once a week. Respondents received money if their answers matched the actual weight gain as calculated by models of nutrition scientists.

What do you guess: Out of 100 individuals in the sample, how many underestimated how much weight the person would gain by drinking an additional Coca-Cola per day for three years? (Underestimated means that the respondent's guess was at least 10% less than what nutrition scientists predict.)

Out of 100 people, the number of people who underestimated the weight gain is: *[Slider 0-100]*

D.8.3 Self-control treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Researchers argue that individuals tend to overconsume sugary drinks, compared to what is in their long-term self-interest. The idea is that people may lack self-control over their sugary drink consumption and often give in to temptation. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

To see this, consider the following example: Jane would like to reduce her consumption of sugary drinks because routinely drinking sugary beverages can increase the risk of obesity, diabetes, and other chronic diseases. However, every time she is offered a sugary drink, she gives in to the temptation and indulges in sugary drinks, even though she formerly did not plan to do so. Therefore, Jane constantly consumes more sugary drinks than she thinks she actually should.

Your task

We asked a representative sample of the US population (more than 500 individuals) to what extent they agree with the following statement:

"I drink soda pop or other sugar-sweetened beverages more often than I should."

The answer options were: "not at all," "somewhat," "mostly," and "definitely."

What do you guess: Out of 100 individuals in the sample, how many agreed at least somewhat with the statement that they drink more soft drinks than they should?

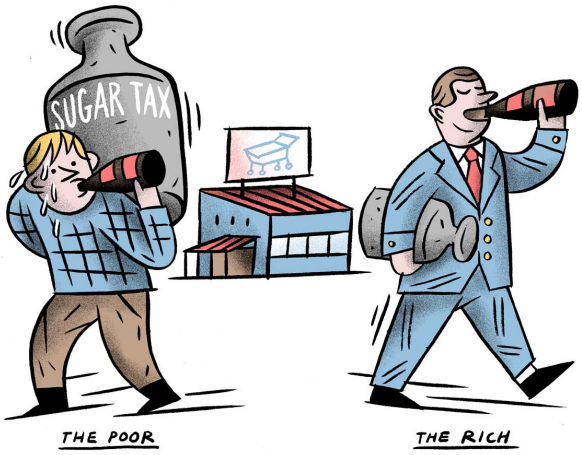
Out of 100 people, the number of people who agreed to the statement is: *[Slider 0-100]*

D.8.4 Regressivity treatment

Quiz - For the correct answer you earn $0.50 in panel currency

Routinely drinking sugary beverages can have negative health consequences. Therefore, introducing taxes on sugary beverages to reduce their consumption has become a subject of discussion.

However, taxes on sugary beverages fall more heavily on the poor than on the rich. The reason is that the expenditures for sugary beverages (just like other food expenditures) make up a relatively large part of the income of the poor. Therefore, the tax burden of a sugary drink tax is higher for poorer than for richer consumers.



Your task

Research has estimated how much higher the share of income is that low-income consumers spend on sugar-sweetened beverages compared to high-income consumers in the US.

What do you guess: The share of income that a household with less than $10,000 annual income spends on soft drinks is _____ times what a household with $100,000 to $150,000 annual income spends.

D.9 Agreement with arguments

To what extent do you agree or disagree with the following statements?

- Individuals have little knowledge about the weight implications of high sugar consumption.
- Individuals are unaware of the health consequences of sugary drinks for their later life.
- Individuals have difficulties resisting the temptation of sugary drinks.
- Individuals consume more sugar than they actually would like to.
- Consumption of sugary beverages imposes costs for others in the public health system.
- Consumption of sugary beverages imposes costs on the society.
- Taxes on sugary beverages hit the poor the hardest.
- The burden of sugary taxes falls more heavily on the poor than on the rich.

  [Fully disagree; Somewhat disagree; Neither agree nor disagree; Somewhat agree; Fully agree]

D.10 Preferences over SSB taxes

- In the US, eight local jurisdictions have implemented special taxes on sugary beverages.

  We would like to know what you think about introducing a federal tax on sugary beverages in the entire United States.

  Do you favor or oppose introducing a federal tax on sugary beverages in the United States?

  [Strongly oppose; Oppose; Neither favor nor oppose; Favor; Strongly favor]

- If the US was to introduce a federal tax on sugary beverages: How large would you like the tax to be (in US cents per liter)?

  For your orientation, the average price of a sugary beverage in the US is about 114 cents per liter.

  The tax on sugary beverages should be: [Slider 0-120]

- Now you can decide on a donation to an organization that promotes the introduction of a sugary drinks tax on the federal level. The donation will be made to the "Center for Science in the Public Interest" (CSPI). The CSPI is an independent consumer advocacy organization with the goal to support nutrition, food safety, and health in the US. The CSPI's funding comes from individual donors and foundations. The CSPI currently supports, among others, the introduction of a federal tax on sugary drinks.

  Your task: Below you will see seven different choice situations. For each of the seven choice situations, you must choose whether you prefer the left or the right payout option, by clicking the corresponding button. The left payout options include a donation to the CSPI and a payment for you (in US cents). The right payout options only include a payment for you. We will use a lottery to draw one of the seven choice situations, and we will implement the choice that you have made for that situation. Any donation to the CSPI will be transferred by us after the study is concluded. Any payment for you will be sent to you in panel currency.

  Which would you prefer: the left or the right payout option? (Note that the left options include a donation to the CSPI, while the right options do not include a donation.)

  [25ct for CSPI, 25ct for you] or [0ct for CSPI, 0ct for you]

  [25ct for CSPI, 25ct for you] or [0ct for CSPI, 10ct for you]

  [25ct for CSPI, 25ct for you] or [0ct for CSPI, 20ct for you]

  [25ct for CSPI, 25ct for you] or [0ct for CSPI, 25ct for you]

  [25ct for CSPI, 20ct for you] or [0ct for CSPI, 25ct for you]

  [25ct for CSPI, 10ct for you] or [0ct for CSPI, 25ct for you]

  [25ct for CSPI, 0ct for you] or [0ct for CSPI, 25ct for you]

- *[If state of residence is not California:]* In California, four cities have introduced a dedicated tax on sugar-sweetened beverages.

  Would you favor or oppose introducing taxes on sugar-sweetened beverages on the state level in California?

- *[If state of residence is California:]* In Pennsylvania, one city has introduced a dedicated tax on sugar-sweetened beverages.

  Would you favor or oppose introducing taxes on sugar-sweetened beverages on the state level in Pennsylvania?

  [Strongly oppose; Oppose; Neither favor nor oppose; Favor; Strongly favor]

D.11 General policy attitudes

- If the US were to introduce a tax on sugary drinks, to what extent would it entail the following behaviors and outcomes?

  - Reducing sugary beverage consumption
  - Reducing the prevalence of overweight and obesity
  - Raising tax revenue
  - Hurting the US economy

    [None at all; A little; A moderate amount; A lot; A great deal]

- Finally, please indicate whether you agree with the following statements.

  - The state is allowed to interfere with personal autonomy to provide fairness and equality of opportunity.
  - The government should be responsible for reducing obesity.
  - The government should not intervene in the economy.
  - Taxes that have the purpose to change behavior are wrong.
  - The state should not interfere with what people eat or drink.
  - Limiting a person's autonomy to promote her own good is acceptable.
  - Intervening with a person's choices is justified if the person interfered with will be protected from harm.

- Policies should prevent others from making the same mistakes that I do.
- I can infer what is best for others from my own preferences.
- Interfering with a person's autonomy is justified, as people can have wrong preferences.
- A good nutrition will improve a person's character.
- Sugary beverage consumption is wrong, irrespective of the consequences

  [Fully disagree; Somewhat disagree; Neither agree nor disagree; Somewhat agree; Fully agree]

D.12 Feedback for information treatments

The correct solution to the guessing question:

- *[Externality treatment:]* The study by Cawley and Meyerhoefer (2012, Journal of Health Economics) estimates that out of 100 Dollars of obesity-related health costs 88 Dollars are borne by others and not by the individuals themselves.
- *[Health costs treatment:]* The metabolic simulation model by Hall et al. (2011, The Lancet) estimates that the person in question would gain 12 lbs in weight after drinking one additional can (330ml) of Coca-Cola per day for three years. In our survey, 41 percent of respondents underestimated the correct answer by at least 10 percent.
- *[Self-control treatment:]* In our survey, 62 percent of individuals answered that they at least somewhat agree with the statement "I drink soda pop or other sugar-sweetened beverages more often than I should." A comparable finding is reported in Allcott, Lockwood and Taubinsky (2019, Quarterly Journal of Economics).
- *[Regressivity treatment:]* The study by Allcott, Lockwood, and Taubinsky (2019, Quarterly Journal of Economics) estimates that the share of income that an average consumer with an income below $10,000 spends on soft drinks is 50 times higher than what a consumer with an income between $100,000 and $150,000 spends.

Do you have any comments or suggestions regarding the survey? [Free-text box]