Preferences regarding behavioral policy: Attitudes towards sugary beverage taxes in the US *

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Abstract

Using surveys and experiments, we provide evidence on how people think and reason about sugar-sweetened beverage (SSB) taxes, a widely discussed behavioral policy intervention. We show that motives to correct internalities and behavioral biases impact policy preferences, almost as much as standard externality reasoning. However, anti-paternalistic attitudes explain why many oppose SSB taxes despite acknowledging the relevance of behavioral biases. We demonstrate that simple instructional explanations about how behavioral biases and internalities work can significantly increase support for SSB taxes. Our findings suggest that explaining the idea of behavioral policy interventions is crucial for enhancing their acceptability.

JEL-codes: H23, I18, D12, D78
Keywords: paternalism, sin tax, internality, externality, soda tax, self-control

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1 Introduction

Ample evidence suggests that individuals' decisions are often driven by biases, such as self-control problems, inattention, and incorrect beliefs. These biases can lead to negative long-term consequences for both individuals and society. A substantial body of literature in behavioral economics suggests that behavioral policy interventions, which aim to correct for individual biases and mistakes, can be beneficial. However, evidence on how individuals think and reason about behavioral policy interventions is still scarce.

In this paper, we analyze policy preferences regarding a behavioral policy that has received wide attention in recent years: taxes on sugar-sweetened beverages (SSBs). We present survey and experimental evidence on people's views and understanding of this behavioral policy. We examine the factors and considerations that drive preferences regarding SSB taxes and investigate whether explaining the ideas behind behavioral policy intervention to individuals affects their policy preferences.

Analyzing SSB tax preferences is worthwhile for several reasons. Firstly, SSB taxes belong to one of the most prominent and frequently studied behavioral policies in recent years, garnering increasing interest from both policymakers and academics. Over the past few years, many countries around the globe have implemented special price surcharges on SSBs, including regular soda, pop, cola, energy drinks, and others.[1] SSB taxes, and "sin taxes" more generally, have become the focus of a substantial theoretical literature in behavioral welfare economics, providing insights on how behavioral biases influence policy design (Allcott et al., 2019a,b; Gruber and Köszegi, 2001; O'Donoghue and Rabin, 2003, 2006). At the same time, there is a growing body of literature analyzing the effects of SSB taxes on consumption and health (e.g., Dubois et al., 2020; Cawley et al., 2019a; Schmacker and Smed, 2023; Fletcher et al., 2010; Dickson et al., forthcoming).

Secondly, the debate on SSB taxes is intriguing because it encompasses both behavioral and conventional economic factors. Biased individuals, lacking self-control or health awareness, may harm their future health through SSB consumption, which is not fully considered in their decisions. Taxing these beverages can mitigate these "internalities." Another theoretical argument in favor of SSB taxes stems from the costs sugar consumption imposes on the public health system through standard externality reasoning. Conversely, opponents argue that SSB taxes are regressive, expressing concerns about distributional fairness and

[1] Countries that have adopted SSB taxes include the UK, France, Mexico, Norway, and Chile. In the US, several cities have introduced local SSB taxes.

asserting that they constitute paternalistic interference with individual choice autonomy (Allcott et al., 2019a,b). Analyzing SSB tax preferences helps us differentiate between motives in behavioral policy, assessing their relative significance. Our framework allows us to study internalities relevant for this policy, comparing them to other factors like externalities and distributional fairness.

As a preview of our results, we find that internalities play a significant role in shaping individuals' support for SSB taxes, nearly as pronounced as externalities. However, there is a strong polarization in values with respect to whether behavioral biases and the resulting internalities should be corrected. We demonstrate that simple instructional explanations about how behavioral biases and internalities work can significantly increase support for SSB taxes. Our results indicate that clarifying the goals and mechanisms of behavioral policy interventions is essential for increasing their acceptance. The results are of direct policy relevance as they inform policymakers about the facilitators and barriers of behavioral intervention. Moreover, they contribute to the literature on welfare economics by shedding light on the criteria that empirically matter for subjective welfare functions.

We study preferences for SSB taxes in the US, a country in which SSB consumption and obesity are particularly prevalent.[2] Drawing on a broadly representative sample of more than 3,800 US citizens, we elicit respondents' preferences with regard to the introduction of a federal SSB tax, as well as for some selected US states, using both unincentivized and incentivized preference revelation techniques.

Methodologically, we draw upon Stantcheva (2020, 2021) and decompose policy views into the factors that support or oppose SSB taxes from a theoretical perspective. These factors are derived from a simple behavioral model of taxation, where we distinguish between efficiency-related factors (internalities and externalities), distributional concerns (regressivity), self-interest (related to personal SSB consumption), and broader ethical considerations (e.g., paternalism). Our detailed survey is designed to elicit respondents' views on these factors. For instance, concerning internalities, we ask respondents to what extent they agree that sugary beverage consumption is driven by a lack of self-control and that SSB consumers misperceive the health costs of sugar for their long-term well-being. Regarding externalities, we inquire whether respondents believe the consumption of sugary beverages imposes costs on public health. Moreover, we survey their beliefs that SSB taxes are re-

[2]The US has the second highest per capita consumption of SSBs in the world, with more than 150 liters consumed per capita per year and more than 70 percent of the population overweight or obese. To date, seven U.S. cities have taxes on SSBs, but there is no such tax at the federal or state level.

gressive in that they fall more heavily on the poor. From these answers, we create indices summarizing respondents' views on the different underlying aspects of SSB taxation. By testing whether these factors predict support for SSB taxes, we can descriptively shed light on the factors that individuals employ when reasoning about sin taxes and determine those factors that matter most for them. We complement the results with answers from open-ended questions, grasping individuals' first-order reasoning about SSB taxes (Ferrario and Stantcheva, 2022).

In addition, a randomized subsample of respondents is shown instructive explanations and graphical visualizations (cartoons) of the core ideas for behavioral policy, namely that there can be overconsumption of unhealthy goods due to behavioral biases. We distinguish between biased preferences (self-control) and health cost misperceptions and explain these concepts to individuals using a cross-subject design. In additional treatments, we convey subjects' ideas of how externalities from SSBs can arise. Thus, we provide experimental variation in the understanding of the main economic rationales of corrective taxation and trace their effects on policy preferences.

Our results demonstrate that preferences for SSB taxes are driven by efficiency considerations, notably including the desire to correct internalities. As predicted by a behavioral model of SSB taxation, individuals who consider internalities more relevant exhibit stronger support for SSB taxes. The importance individuals attribute to internality factors is comparable in magnitude to externality and distributional concerns. In contrast, variables related to personal consumption, such as an intrinsic taste for soft drinks or consumption habits are not strongly correlated with SSB preferences. This suggests that self-interested motives play only a minor role in shaping preferences for SSB taxes. Remarkably, SSB tax supporters prefer SSB tax rates close to the optimal tax calibrations by Allcott et al. (2019a).

However, our results reveal that reasoning regarding SSB taxes is also, and to a large extent, driven by broader political values, such as (anti-) paternalist and libertarian views. These views are quite common and strongly associated with opposition to SSB taxes. Additionally, a substantial portion of respondents perceive SSB taxes as regressive and ineffective. Together, these factors explain why the majority of respondents do not support SSB taxes, despite largely acknowledging the empirical relevance of behavioral biases and health externalities.

Moreover, we observe partisan differences in views on SSB taxation, with Democrats being more open to it. Differences exist regarding the fundamentals of SSB taxation, with

Democrats perceiving sin taxes as slightly more effective and regressive than Republicans do, and they tend to believe that behavioral problems are more severe. However, these differences are only small. In contrast, the large partisan differences we observe pertain to broader ethical considerations regarding the underlying principles of behavioral intervention, with Democrats displaying less reluctance to interfere with choice autonomy. Overall, there is a "polarization of values" rather than a "polarization of reality." (Alesina et al., 2020).

Nevertheless, as our experimental interventions reveal, SSB tax preferences are malleable and can be causally shifted by information treatments. Explaining to individuals the ideas of corrective taxation yields a sizable gain in support for sugary beverage taxes, independent of party affiliation. For example, conveying to individuals that sugary drinks generate internalities increases the share of individuals favoring a sugary drinks tax by 0.12 to 0.13 standard deviations, which amounts to more than a third of the partisan gap between Republicans and Democrats. The effect size of the internality treatments is comparable in magnitude to that of the externality treatment. Overall, our experimental analysis supports the insights from the correlational part, indicating that internalities are almost as important as externalities in SSB tax preferences. Moreover, the results suggest that the explanation and rationalization of a policy's goal can foster policy support and reduce concerns towards behavioral policy intervention. Using robustness treatments in the spirit of de Quidt et al. (2018), in which we reveal to respondents the experimenter's hypothesis, we show that it is unlikely that demand effects drive our experimental results.

This paper contributes to a nascent literature that uses survey experiments to study how individuals think and reason about economic policies. This literature has so far revolved around income, wealth taxation, and preferences for redistribution (Stantcheva, 2020, 2021). We contribute to this literature by analyzing how preferences for consumption taxes can be decomposed into primary factors of reasoning and how they can be causally shifted, which is much less understood. We observe a distinct difference in the results. While in Stantcheva (2021), efficiency concerns (in her case, perceived efficiency costs of taxation) play only a minor role, we find that individuals incorporate externality and internality considerations into their policy attitudes—and explaining these economic concepts alters their policy support. This suggests that preferences for consumption taxes can be more influenced by economic reasoning compared to preferences for income taxation, where individuals primarily respond to fairness concerns.

Generally, although the theoretical literature on corrective taxation has experienced a revival with the emergence of behavioral economics, empirical evidence on preferences for corrective taxation is extremely scarce. An important exception is a growing strand in environmental economics that examines attitudes toward carbon taxes designed to internalize the externalities of carbon emissions (Anderson et al., 2021; Douenne and Fabre, 2022; Dechezleprêtre et al., 2022). In contrast to this line of research, we investigate preferences for a behavioral policy, which also aims to correct behavioral biases and mistakes. This allows us to demonstrate the significance of externalities and internalities in the context of corrective taxation.[3]

We also contribute to the large and still growing literature analyzing the role of behavioral biases for policy design (O'Donoghue and Rabin, 2003, 2006; Allcott et al., 2019a; Farhi and Gabaix, 2020; Haavio and Kotakorpi, 2011). First, by demonstrating that beliefs regarding misperceptions and self-control play a role in actual policy views, we generally underline the empirical relevance of this mostly theoretical literature. Secondly, our analysis shows a significant polarization in policy values regarding whether individuals' choices should be corrected. Hence, our paper provides insights into the political economy barriers to behavioral tax policy. This finding also adds a twist to existing behavioral economics literature, which often leaves the psychological costs of implementing behavioral policies unmodeled.[4]

Furthermore, our paper contributes to the growing literature on the topic of paternalism. Ambuehl et al. (2021) and Bartling et al. (2022) analyze individuals' propensity to remove tempting options from the choice sets of other experimental participants. We complement these studies by examining preferences for paternalist intervention in the context of sugary beverage taxes, a widely employed policy aimed at addressing consumer choices.[5]

[3]Similar to Douenne and Fabre (2022), we observe that resistance to corrective taxation is strongly influenced by the perceived distributional impacts on lower-income households. However, in our case, egoistic concerns are negligible. Instead, we demonstrate that preferences for corrective policies can also be influenced by reservations against government intervention in individuals' behavior for their own sake, a factor that may be particularly relevant in non-environmental contexts.

[4]For this point, also see Allcott and Kessler (2019), who demonstrate that some people have an intrinsic aversion to welfare nudges, suggesting that unintended costs can arise from behavioral interventions. Allcott and Kessler (2019) elicit consumer willingness to pay to receive an informational nudge to reduce their energy consumption. We also employ a multiple price list method and allow for a negative willingness to pay for a donation to an organization lobbying for SSB taxes in the US. The average willingness to pay to trigger a donation is negative. In our case, the aversion to behavioral intervention does not stem from feelings of guilt or shame of personal non-compliance, but seems partly to rest on views that the policy itself violates normative standards, namely to respect decision autonomy.

[5]Bartling et al. (2022) show that about one-third of individuals choose to implement a hard policy intervention by removing a risky option for others, using a survey experiment on US households. This

Our contribution to this literature is to examine an often-used policy and analyze the relative significance of paternalistic preferences compared to traditional motives for policy intervention, including externality correction and distributional concerns.[6]

2 Conceptual framework

To clarify our ideas and guide our empirical analyses, we present a simple model of corrective taxes on a "sin" good—a good that imposes harm on both individuals and society. The model we present covers basic insights from the optimal sin tax literature as, for example, in O'Donoghue and Rabin (2006); Gruber and Köszegi (2001); Allcott et al. (2019a). A special feature is that we allow policymakers to differ in their views on whether correcting for behavioral biases is justified.

2.1 A simple model of corrective taxes

Consider an economy with a finite number of consumers. A consumer i can spend her net income, consisting of an endowment income y_i and a lump-sum transfer T, on a sin good x and on a numéraire good z. The producer prices are set to one. The sin good is levied with a per unit consumption tax $t \geq 0$. The consumer's budget constraint is given by $z_i + (1+t)x_i = y_i + T$.

Decision utility is given by

$$\tilde{U}_i := h \cdot f(x_i) + z_i, \tag{1}$$

where f is strictly concave and h is a parameter for the intrinsic benefits of sin consumption.

aligns with our data, where roughly 20 percent of respondents exhibit a weak preference for introducing SSB taxes in the US.

[6]Regarding motives, Ambuehl et al. (2021) demonstrate that paternalists believe others would be better off by behaving according to the paternalists' preferences. We also find supportive evidence of this "ideals-projective paternalism": Respondents' personal SSB consumption levels correlate negatively with support for sin taxes in another US jurisdiction. This parallels Ambuehl et al. (2021), who, in an external validity check of their laboratory experiments, show that Germans who consume less alcohol exhibit more support for an increase in alcohol taxes in Switzerland. A negative correlation between consumption (or self-control) and support for sin taxes, which challenges the voting motives of sin taxes as a commitment device (Haavio and Kotakorpi, 2011), is also found in Pedersen et al. (2014).

Experienced utility is

$$U_i := h \cdot f(x_i) + z_i - I \cdot x_i, \tag{2}$$

where I denotes the marginal "internal costs" of sin consumption, which the individual neglects in her private optimization.

The difference between decision and experienced utility can result from different psychological biases that individuals may have when deciding to consume goods like sugary drinks, alcohol, or cigarettes. For instance, people may not be perfectly informed about certain aspects of these goods, such as their calorie content, or they pay only limited attention to them, and therefore underestimate their true health costs. Moreover, people may have self-control problems or are prone to temptation: at the moment of consumption, they may underweigh the health costs compared to how the long-term self would have liked to weigh these costs.

In addition to internal costs, there are also external costs of sin consumption. The idea is that the consumption of goods like sugary drinks imposes costs on the health system, which have to be borne by society, instead of the individual herself. We assume that the external costs depend on the total sin good consumption in the economy. They are given by $E \sum_i x_i$, where E is the marginal externality.

Consider a social planner who forms preferences about whether to introduce a sin tax. She bases this decision on her normative views about what factors should count for social welfare. First, she has preferences regarding whether internalities should be corrected. The "normative" utility the policymaker assigns to consumer i is given by

$$V_i := \tilde{U}_i - \gamma_I I x_i, \tag{3}$$

where $\gamma_I \in [0, 1]$ is a parameter for how much weight she places on internal costs. If γ_I equals one, the policy planner wants to fully correct the internal costs; if $\gamma_I = 0$, she thinks that decision utility should be (fully) respected.

Social welfare, from the policymaker's point of view, is given by

$$W := \sum_i V_i - \gamma_E E \sum_i x_i. \tag{4}$$

where $\gamma_E \in [0, 1]$ the importance the policymaker ascribes to the externalities of sin consumption. Her policy problem can thus be written as maximizing (4) with respect to t and T, subject to the (per capita) public budget constraint $T = tx_i$ and to individual optimization.[7] The solution to this problem gives a policymaker's most preferred tax as a function of the economy's parameters and her normative weights:

$$t = \gamma_I I + \gamma_E E. \tag{5}$$

Intuitively, a paternalist policymaker ($\gamma_I > 0$) wants to internalize the decision bias of the consumers. Therefore, she seeks to increase the price of the sin good by the marginal internality, weighted by γ_I, the extent to which she thinks internalities should be corrected. If the policymaker is a Pigouvian ($\gamma_E > 0$), she wants an additional price increase by the marginal external cost E, multiplied by γ_E, the degree to which she thinks externalities are to be offset. Finally, a libertarian or non-interventionalist puts neither weight on internalities nor externalities ($\gamma_I = \gamma_E = 0$) and therefore prefers a sin tax of zero.

Our simple model provides some comparative statics that we can bring to data. Generally, if people form their policy preferences for sin taxes following a corrective logic, then their policy views should depend on their beliefs about how severe internalities and externalities are. In particular, those who agree that self-control problems or health cost misperceptions are large should have a stronger preference for SSB taxes. Similarly, those who believe that externalities matter more, should prefer higher tax rates. By regressing people's SSB tax preferences on their views on the underlying aspects, we can learn something about their agreement with Pigouvian and paternalist values. Moreover, we expect a positive interaction effect of people's stated agreement with paternalistic views and their perceptions of behavioral biases on their SSB tax preferences.

2.2 Extension: Heterogeneous consumers

While the model of homogeneous types and the specific parametrization has the advantage of providing a reduced-form formula for the optimal sin tax, real-world policy preferences might be richer. In the following, and as in Allcott et al. (2019a), we assume heterogeneity in consumers' income, and we allow their taste and consumption bias to vary with income.

[7] A consumer maximizes her decision utility (1) with respect to x_i and z_i, subject to her individual budget constraint, taking the sin tax t and transfer T as exogenously given. The policymaker anticipates consumer optimization when deciding on the sin tax and the transfer.

For simplicity, we consider two income types. We derive additional insights with respect to different types of policy preferences, such as welfarist versus pure self-interested motives.[8]

2.2.1 Regressivity

Assume that there are two equal-sized groups of individuals, the poor and the rich: $y_r > y_p$. Revenues from sin taxes continue to be distributed back to the individuals in the form of lump-sum transfers. The policy problem of a welfarist can be stated as follows,

$$\begin{aligned} \max_{t,T} \quad & W := \alpha G_p(V_p) + (1-\alpha) G_r(V_r) - \gamma_E E \cdot (x_p + x_r) \\ \text{s.t.} \quad & T = t/2 \cdot (x_p + x_r) \quad \text{and individual optimization,} \end{aligned} \tag{6}$$

where G_i are monotonically increasing non-linear functions of V_i, and α is the Pareto weight the policy planner assigns to the poor. The marginal social welfare weights we define as $g_p := \alpha V_p'/\lambda$ and $g_r := (1-\alpha)V_r'/\lambda$, where λ is the Lagrange multiplier associated with the government budget constraint, and V_i' denotes the first derivative of normative utility with respect to net income. They measure the social value (from the policymaker's perspective) of a marginal unit of composite consumption for a consumer, measured in terms of public funds.

A solution to (6) must satisfy

$$t = \frac{1}{\lambda}\gamma_E E + \gamma_I \frac{g_p I_p \frac{\partial x_p}{\partial t} + g_r I_r \frac{\partial x_r}{\partial t}}{\frac{\partial x_p}{\partial t} + \frac{\partial x_r}{\partial t}} + \frac{(x_p - x_r)(g_p - 1)}{\frac{\partial x_p}{\partial t} + \frac{\partial x_r}{\partial t}}. \tag{7}$$

The first two terms in (7) represent the externality and internality correction motive of the social planner, respectively.[9] The major difference to (5) is that now the internality terms are weighted by the marginal social welfare weights (and by how elastic a consumer's sin consumption is). The intuition is as follows. A social planner with paternalist motives ($\gamma_I > 0$) wants to make the consumers internalize the marginal health costs they neglect, and therefore prefers a higher price on the sin good, the larger the behavioral biases are.[10]

[8] All proofs are delegated to Appendix A.1.

[9] The right-hand side (RHS) of (7) is a function of the tax rate, so (7) is a fixed-point equation. If the types are identical and receive the same Pareto weights, and if the G_i functions are linear, the RHS of (7) and (5) coincide. The optimal tax of (5) is therefore nested in (7). Condition (7) is a two-type counterpart of condition (12) in Allcott et al. (2019a).

[10] As $\partial x_r/\partial t < 0$, the second term in (7) is weakly positive.

If she wants to redistribute utility from the rich to the poor ($g_p > g_r$), the optimal tax rate is ceteris paribus higher the larger the relative behavioral bias of the poor, as then the poor will benefit relatively more from the internality correction of the sin tax.

However, redistribution motives do not necessarily increase the sin tax. If for a given behavioral bias the poor consume more than the rich due to a larger taste for the sin good, the last term in (7) is negative as the marginal welfare weights average to one at the optimal tax solution.[11] The intuition for this financial regressivity effect is that the sin tax tends to redistribute net income from high to low sin good consumers due to lump-sum transfers. Therefore, if the poor have higher sin good consumption, they are net payers into the tax system.

In sum, the effect of redistribution motives on the sin tax is theoretically ambiguous. Depending on whether the financial regressivity effect outweighs the benefits from internality correction, the optimal sin tax might be either higher or lower. However, we still would predict that if people happen to view SSB taxes as overall regressive, then, ceteris paribus, their preferred tax will be lower the more regressive the SSB tax is perceived to be.

2.2.2 Self-interested motives

The optimal sin tax condition (7) applies if the social planner has policy motives driven by normative considerations, such as efficiency and distributional concerns. Assume now that there is a policy planner motivated by selfish concerns instead, exclusively caring for her personal well-being. Further assume that she wants to maximize her decision utility $\tilde{U}_i$.[12]

The optimal sin tax for a purely self-interested policymaker must satisfy

$$t = \frac{x_i - \bar{x}}{\frac{\partial \bar{x}}{\partial t}}, \tag{8}$$

where $\bar{x}$ denotes the average consumption of the sin good ($\bar{x} := (x_p + x_r)/2$). Intuitively, if the policymaker has below-average consumption she prefers a positive tax as then she is a

[11] When personalized income taxes were available, the third term would vanish, as then any undesired redistribution of net income can be offset by the income tax system.

[12] If an egoist bases her policy choices on experienced utility, anticipating that her present self is biased, she demands sin taxes as a commitment device (Haavio and Kotakorpi, 2011).

(net) benefiter from the redistributive nature of the sin tax. Otherwise, she prefers a zero tax.[13]

We can use (8) to derive predictions specific to a pure egoistic policymaker. Her most preferred tax depends (negatively) on own her consumption levels, which would not be the case for a pure welfarist policymaker. Alternatively, and in terms of primitives, we expect a self-interested policymaker's preferred tax to decrease in her intrinsic taste for the sin good, as a higher taste goes along with higher consumption and thus with higher payments into the tax system.

3 Survey and data

3.1 Recruiting of subjects and sample descriptives

We conducted an online survey and experiment with US residents aged between 18 and 65. The survey was issued at the beginning of December 2021, using the commercial survey company Respondi. We used soft quotas for gender, age, and income to obtain a sample that is broadly representative of the US population along these dimensions. Among the 4,795 respondents that were screened in, 4,260 respondents completed the survey.[14] Since our survey included information treatments with longer text passages, it is particularly important that respondents read the instructions carefully. Therefore, we included an attention check after the background information questions and screened out 396 respondents who failed the attention check.[15] This leaves us with a final sample size of 3,864 respondents. The median completion time of the survey was about 12 minutes.

Table C.1 provides descriptive statistics of our final sample in comparison to register data from the US Census Bureau. There are no significant differences with respect to the demographic characteristics targeted by the soft quotas (gender, age, and income). Our sample is also similar to the US population with respect to labor market status, education, and race/ethnicity, while we slightly undersample young people and those with low edu-

[13]Strictly speaking, above-average consumers would prefer a negative tax, but we only allow for weakly positive taxes.

[14]Most dropouts occurred at or before the free-text part, with 351 participants discontinuing the survey, while only 174 dropped out after assignment to the treatment.

[15]The attention check is shown in Appendix G.5. It is placed after the background information questions of the survey. If subjects fail the attention check, they are automatically screened out and redirected to the survey company via a dedicated link. Comparing Columns (1) and (2) in Table C.1, reveals that the screening changes the demographic composition of the sample only mildly.

cation, as well as Hispanics and blacks.[16] Notably, our sample is roughly representative in terms of sugar intake from soft drink consumption.[17] Table C.1 also shows that the final sample and the unrestricted sample (the sample including respondents that are screened out) do not differ systematically in terms of background characteristics.

3.2 Survey questions and design

In the following, we present the survey questions and design. Figure C.1 in the appendix provides an overview of the survey flow. The complete survey instructions can be found in Appendix G. The experimental part of the survey is introduced in Section 5.

3.2.1 Demographic questions

At the beginning of the survey, we elicit a range of background characteristics like gender, age, income, state, race/ethnicity, education, employment status, political affiliation, weight, and height, as well as whether respondents have children.

3.2.2 Consumption preferences and self control

We ask respondents about their SSB consumption habits, using standardized questions from the National Health and Nutrition Examination Survey (NHANES) Dietary Screener Questionnaire (DSQ). The questions ask for the frequency of sugary beverage consumption over the last 30 days. Answer categories range from "never" to "6 or more times per day". The responses can be converted to daily sugar intake from SSBs, using the scoring algorithm by the National Cancer Institute (National Cancer Institute, 2021). In addition, we let respondents self-assess their self-control over SSB consumption. Following Allcott et al. (2019a), we ask for agreement with the statement "I drink soda pop or other sugar-sweetened beverages more often than I should" on a four-point scale, and we define individuals as having perfect self-control if they answered "not at all." We also adapt another question from Allcott et al. (2019a) to survey intrinsic taste for soft drinks.

[16] The slight undersampling of individuals with less education, as well as of Hispanic and Black minorities is not unusual for online surveys (see, e.g., Stantcheva (2021)). For robustness, we re-weighted the sample according to the shares of these variables (education, age, race) in the US population, but find that the results do not change meaningfully.

[17] Our respondents report consuming 0.89 SSBs on average per day, which amounts to 35.8g of sugar. These figures are in line with results obtained from Allcott et al. (2019b), who calculate that the average American adult consumes 39.8g of sugar per day from SSBs using NHANES data from 2009-2016.

3.2.3 Free-text questions

Before surveying subject's beliefs and tax preferences with closed form questions, we include a free-text part in the survey. The open-ended questions are meant to elicit individuals' first-order reasoning about taxes, without priming them by the survey (Ferrario and Stantcheva, 2022). We ask respondents about the spontaneous thoughts that come to their minds when thinking about SSB taxes, the goals they associate with them, and who they perceive to be the winners and losers of such a tax.

3.2.4 Views on the economic factors of SSB taxes

As shown in the theoretical model, the optimal sin tax of a welfarist policymaker depends on the magnitudes of externalities and internalities in the economy, as well as on how the tax affects poor and rich consumers. In the survey, we elicit respondents' views on these underlying economic aspects. We ask respondents to what extent they agree with the importance of these factors on a 5-point Likert scale. We randomize the sequence in which the questions occur to avoid potential order effects.

Externalities We elicit respondents' views on the pecuniary fiscal externalities of SSB consumption. Fiscal externalities are often seen as the most natural type of externalities for unhealthy goods like sugar, which generates health care costs that are shared through the public or private health insurance system (Allcott et al., 2019a). In particular, we ask respondents to what extent they agree with the statement that the "consumption of sugary beverages imposes costs for others in the public health system." We also ask respondents to what extent they think that the "consumption of sugary beverages imposes costs on the society."

Internalities Internalities of SSB consumption can result from consumer biases such as incorrect beliefs and lack of self-control. To gauge respondents' beliefs regarding the prevalence of health (cost) misperceptions, we let them rate their agreement with the statements "individuals have little knowledge about the weight implications of high sugar consumption" and "individuals are unaware of the health consequences of sugary drinks for their later life."

To capture views on self-control problems, we ask respondents to what extent they agree with the statements "individuals have difficulties resisting the temptation of sugary drinks" and "individuals consume more sugar than they actually would like to."

Regressivity In the policy discussion, SSB taxes are often criticized for having distributional effects that hurt the poor. We capture respondents' agreement with this view, by asking to what extent they think that "taxes on sugary beverages hit the poor the hardest," and that "the burden of sugary taxes falls more heavily on the poor than on the rich."

In addition to the above main channels, we surveyed respondents' views on the effectiveness of SSB taxes with respect to "reducing sugary beverage consumption," "reducing the prevalence of overweight and obesity," as well as "raising tax revenue."

3.2.5 Policy values

Our conceptual framework shows that, even if individuals agree that internalities and externalities exist, they may not support corrective taxes due to varying normative views about the acceptability of interfering with individual choices.

At the end of the survey, we include a module that asks respondents to state their level of agreement with the legitimacy of paternalism and state intervention in general. We have designed twelve items to capture their political values regarding these topics. To identify the underlying political values that drive responses, we perform an exploratory factor analysis, as detailed in Appendix E.

The factor analysis reveals that the political values reflected in the statements are indeed best represented by two factors. We construct two equal-weighted indices: the 'paternalism' index (based on eight items) and the 'libertarianism' index (based on three items).[18] The first index includes statements such as "limiting a person's autonomy to promote her own good is acceptable" and "intervening with a person's choices is justified if the person interfered with will be protected from harm." Thus, it indeed grasps views on paternalism, defined as describing a person's willingness to restrict other people's choice autonomy with the intention to improve their well-being (see, e.g., Bernheim and Taubinsky, 2018). The libertarianism index measures respondents' general aversion to government intervention,

[18] All indices we construct and the questions on which they are based are summarized in Table C.3 in the appendix.

including their agreement with statements such as "taxes intended to change behavior are wrong" and "the state should not interfere with what people eat or drink."

3.2.6 Preferences for SSB taxes

As main outcomes, we elicit both non-incentivized and incentivized preferences for SSB taxes (summarized in Table C.2).

Stated preferences To elicit stated preferences, we ask respondents: "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."

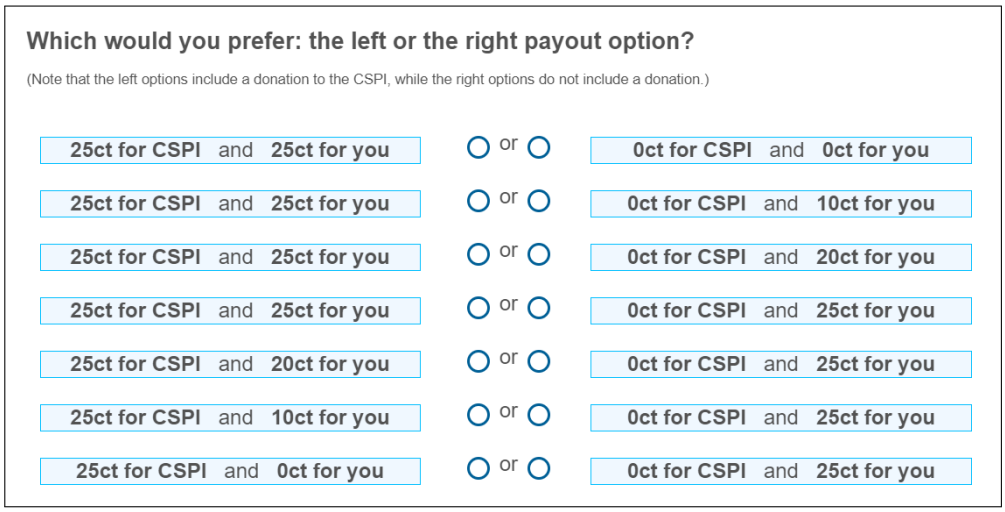
Moreover, we ask for a respondent's preferred tax rate: "If the US was to introduce a federal tax on sugary beverages: How large would you like the tax to be (in US cents per liter)?" Here, respondents were asked to use a slider from 0 to 120 cents per liter. We inform subjects that the average price of a sugary beverage in the US is about 114 cents per liter (Allcott et al., 2019a). Even though providing subjects with numbers can have framing effects, we wanted to provide subjects with some orientation regarding the unit of measurement and market prices. The slider includes zero such that individuals who personally prefer a zero tax rate can express this view.

For conciseness, in much of the analysis, we aggregate stated preferences into a z-standardized policy index, where higher values indicate greater support for the tax. The policy index is constructed by averaging the z-standardized support for the tax and the preferred tax rate and then z-standardizing again.

Incentivized preferences from donation decisions In our questionnaire, respondents are also given the opportunity to decide on a donation to the Center for Science in the Public Interest (CSPI). The CSPI is a non-profit consumer advocacy organization that advocates for safer and healthier food choices. We inform subjects that one of the current goals of the CSPI is to lobby for the introduction of a federal tax on sugary drinks in the US.[19] The amount respondents are willing to give up to induce a donation to the CSPI

[19]The mission statement of the CSPI states that "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). We do not mention this number to avoid setting anchors about how large a tax should be and just inform subjects that the CSPI supports the introduction of SSB taxes in the US.

Figure 1: 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 one of the seven ranges that the WTP can fall into.

can thus be considered an incentivized preference measure for their attitudes towards the introduction of SSB taxes.

Figure 1 shows the multiple price list that we give the respondents.[20] As individuals may strongly oppose SSB taxes, we also allow for negative WTP values, indicating that an individual may also be willing to pay to prevent us from donating 25ct to the CSPI. Ultimately, for respondents whose choices in the mulptiple price list are internally consistent, we determine a respondents' WTP for 25ct donation to the CSPI to fall into one of the seven ranges $(-\infty, -25]$, (-25,-15], (-15,-5], (-5,0], [0,5), [5,15), [15,25), $[25, \infty)$. For inner ranges, we assign a subject the midpoint of a WTP range. Subjects who never switch in the multiple price list are assigned the corresponding endpoint of the scale.[21]

Although our preference revelation method is coarse, the use of only seven questions in the multiple price list keeps the approach implementable in an online survey. More details on the WTP measure are provided in Appendix D.

[20] Allcott and Kessler (2019) employ a similar method to measure the WTP to receive a social comparison nudge.

[21] For instance, a respondent with a WTP in the interval $(-25, 15]$ is given a WTP of -20ct, and a person in $[25, \infty)$ obtains a WTP of 25ct.

The spectator perspective We also ask individuals about their support for the introduction of an SSB tax in a US federal state they do not live in. In particular, subjects were asked to state their preferences for SSB taxes in California. If the respondent lives in California, we ask for preferences for SSB taxes in Pennsylvania.[22] Unlike the federal tax in our first outcome measure, the tax in another state would not directly affect the respondent as they are placed in the perspective of a more impartial spectator. This question allows us to conduct robustness checks on whether preferences for SSB taxes are influenced by normative views, abstracting from one's immediate personal involvement.

4 How do people feel and think about SSB taxes?

In this section, we analyze individuals' views and their reasoning about sin taxes. We will first present the results of our open-ended questions, which provide insights into people's first-order views and reasoning. Since the free-text question preceded the treatment interventions, we will use the entire sample for this analysis. We will then utilize data from the closed-form answers to examine individuals' baseline preferences for SSB taxes in the control group, providing us with a broadly representative sample of over 1,000 US citizens. Afterward, we analyze views on the underlying aspects of SSB taxes and assess their predictive power for individuals' policy preferences. Finally, we address partisan gaps in attitudes toward SSB taxes.

4.1 Text analysis of first-order considerations

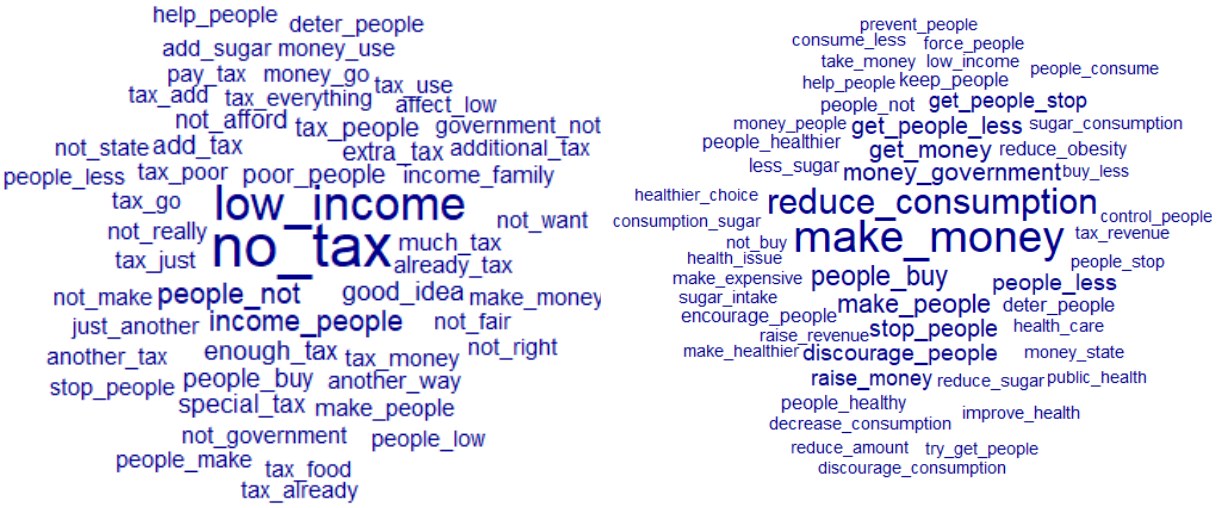
Figure 2a provides a graphical representation of the expressions the respondents used the most when asked about the "main considerations" that come to their mind when they think about sugary drink taxes. The figure shows word clouds for the most frequently mentioned 2-grams. 2-grams are sets of two words appearing next to each other in the texts written down by the respondents.[23] The font size of the words in a word cloud is proportional to the number of times the 2-gram appears in the responses. Respondents mostly express a negative attitude toward SSB taxes ("no tax"), which is accompanied by general tax aversion ("enough tax", "tax everything") and concerns about the regressivity

[22] We selected these states because in both of these states city-level taxes on SSBs exist (California: e.g., Berkeley and San Francisco, Pennsylvania: Philadelphia).

[23] In Appendix F, we describe in detail how the text data is pre-processed and the 2-grams are obtained.

of such a tax ("low income", "hurt poor"). Positive views of the tax, stating that it may improve welfare ("good idea", "help people"), are less often mentioned.

Figure 2: Word clouds of free-text responses



(a) Main considerations

(b) Goals of SSB tax

Notes: Graph shows word clouds of the main considerations regarding an SSB tax (Panel (a)) and its perceived goals (Panel (b)).

Figure 2b visualizes the answers to the free-text question asking respondents about what they think are the goals of a tax on SSBs. The most frequently mentioned goals refer to "reduce consumption" and "make money," suggesting that respondents have split views on the purpose of an SSB tax. In fact, respondents often understand the tax as a way to induce behavior change ("stop people," "reduce sugar") with the goal to improve health ("healthier choice," "reduce obesity"), which is in line with a corrective view of SSB taxes. Other individuals view SSB taxes mainly as a way to generate tax revenue ("money government," "get money"). Some respondents consider SSB taxes as patronizing ("control people," "force people"), thereby expressing reservations against paternalistic intervention. These patterns are reinforced when looking at opinions about who would be the beneficiaries and losers of an SSB tax.[24]

[24]Figure F.1a in the appendix shows that the most frequently mentioned winner of the tax is the "government," followed by "no one". Some respondents also mention that "obese people," "low income," or "health" would benefit. Looking at the potential losers (see Figure F.1b), many respondents are concerned about the regressivity of the tax ("low income," "poor"), but also "everyone" and "no one" are popular answers.

Taken together, the free-text questions reveal that individuals' spontaneous thoughts about an SSB tax are often critical, mostly because the tax is perceived as regressive, and because of a general skepticism against additional taxes and paternalistic state intervention. Ideas of corrective taxation to change behavior for the sake of improving health are also mentioned but appear less often.

4.2 Baseline preferences for SSB taxes

In this section, we present descriptive results on SSB tax preferences based on our closed-form answers.

4.2.1 Stated preferences

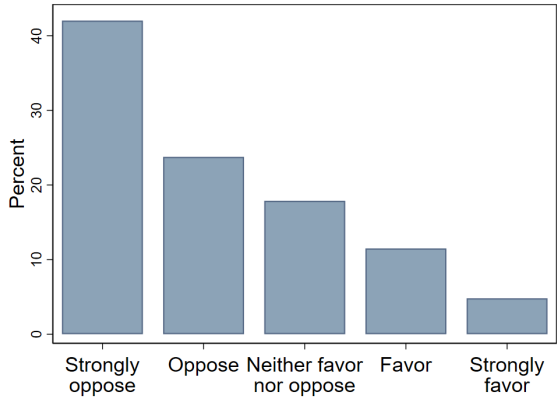
Figure 3a shows the distribution of answers to our stated preference question. About 34 percent of the respondents express a weak preference for introducing taxes on soft drinks in the US.[25] A majority of respondents (65.8 percent) state that they are (strictly) opposed to SSB taxes (42.0 percent answer "strongly opposed" and 23.8 percent "opposed").

Figure 3b displays individuals' preferred levels of SSB taxes. Over the whole sample, the average preferred tax rate is 14ct per liter. This tax rate is smaller compared to taxes introduced in some US regions, for example, in Berkeley (1ct/oz, amounting to 34ct per liter) or Philadelphia (1.5ct/oz tax, resp. 51ct per liter). However, among those who "favor" or "strongly favor" the introduction of SSB taxes in the US, the average preferred tax is 35ct per liter, which is comparable to the optimal SSB tax of 34ct to 71ct per liter, as calculated by Allcott et al. (2019a). Those who express that they "neither favor nor oppose" SSB taxes prefer an SSB tax of about 21ct per liter, and for those who state that they "oppose" the introduction of SSB taxes, the mean preferred tax is still about 10ct per liter. The answers to the preferred taxes thus depict a somewhat more favorable view of SSB taxation.[26] Overall, however, the support for the introduction of an SSB tax strongly correlates with the most preferred tax rate, cross-validating the measures.

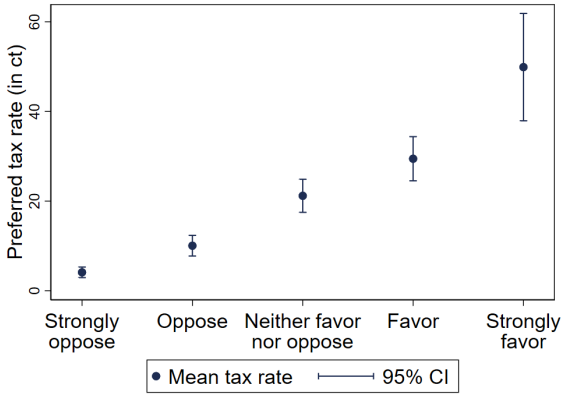
[25] 17.9 percent of the respondents answer "neither favor, nor oppose", 16.3 percent either "favor" or "strongly favor".

[26] This pattern is consistent with former findings that views on taxation can be less extreme in response to more concrete as opposed to abstract questions (Roberts et al., 1994)

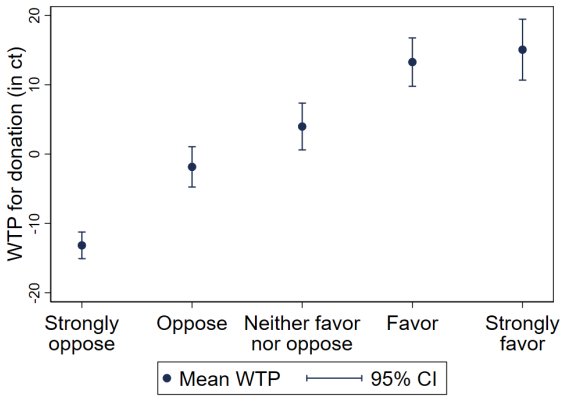
Figure 3: Preferences for sin taxes in the control condition



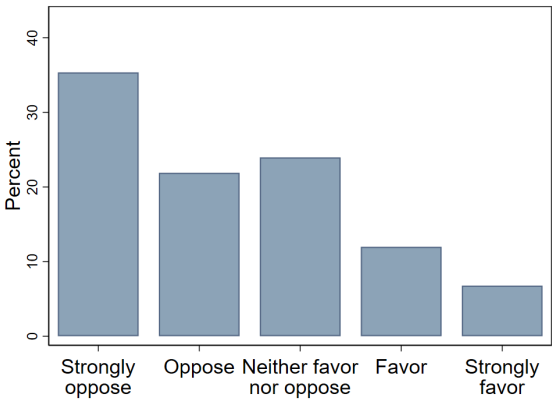
(a) Preference for federal tax



(b) Preferred tax rate by preference



(c) Donation WTP by preference for tax



(d) Preference for tax in another state

Notes: The figure shows preferences for SSB taxes in the control condition ($N = 1017$). 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 an SSB tax in a state other than the one they live in (California or Pennsylvania).

4.2.2 Incentivized preferences

In the following, we provide descriptives for our incentivized preference measure, the WTP for the donation to a public health organization lobbying for the introduction of a federal SSB tax in the US. To construct the WTPs, we only use observations from individuals who have at most one switching point (84.8 percent of respondents). Among these, we exclude those who switch from the right to the left option when going down the multiple price list,

as this would imply an implausible aversion to money (5.0 percent of responses). In total, we are thus left with 80.5 percent of untreated observations (N=819) that are plausible and internally consistent.[27]

Figure C.9 in the appendix illustrates the cumulative distribution function (CDF) of our WTP measure. The vast majority of respondents is not indifferent to inducing or preventing a 25-cent donation to the CSPI.[28] Around 30 percent of the subjects have a strictly positive WTP—these subjects are willing to give up at least 10ct to trigger a donation of 25ct. By contrast, almost half of the respondents (47.5 percent) have a strictly negative WTP. Interestingly, 42 percent are willing to forego even the maximum personal payout (25ct) to prevent the donation, that is, they have a WTP of less or equal to -25ct. Hence, the polarization of policy views expressed in the free-text answers also translates to the incentivized preference measures.

What is more, 36.4 percent have a weakly positive WTP, which is comparable to the results from the non-incentivized preferences where about one-third of the respondents express a weak preference for introducing taxes on soft drinks in the US. Indeed, Figure 3c shows that the WTPs are positively correlated with answers to the stated preference question, showing that stated preferences for sin taxes are aligned with incentivized behavior in our survey.

4.2.3 Correlation of tax preferences with demographics

Figure C.2 in the appendix shows how tax preferences correlate with demographics. 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 parental status. There are, however, strong differences by political affiliation: Republicans are 0.37 standard deviations less in favor of a federal tax than Democrats, which is a larger gap than the difference between income and education groups. While 45 percent of Democrats weakly support a federal SSB tax, only 22 percent of Republicans do. In Section 4.6, we study the partisan gap in reasoning about SSB taxes in detail.

All the following regressions will control for demographic background characteristics and political affiliation.

[27]Column (3) of Table C.1 shows that subjects with an internally consistent multiple price list do not differ meaningfully from those in the full and final sample in terms of observables.

[28]Only 16.1 percent are assigned a WTP of -2.5ct or 2.5ct, which would be consistent with payoff maximization (see the shaded area in Figure C.9).

4.3 The underlying economic aspects of SSB taxes

The underlying economic aspects of corrective taxation, such as externalities and internalities, are well documented in the economics literature. Little is known, however, about the perceived importance of these phenomena. Do individuals believe that SSB consumption generates externalities? Do individuals perceive behavioral biases to play a role?

4.3.1 Views on the main economic channels: Externalities, internalities and regressivity

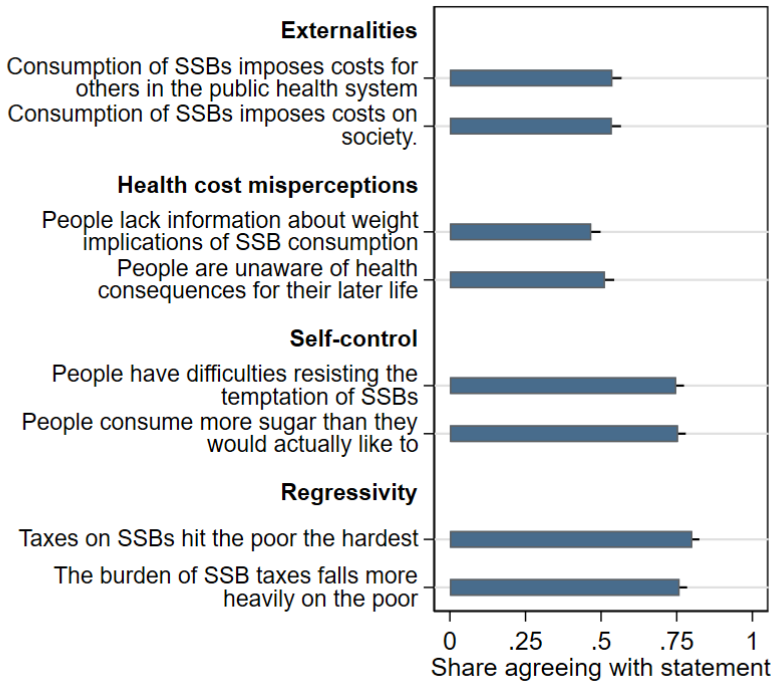
A number of studies have estimated high health cost externalities from obesity and argue that high sugar consumption is one of the main culprits of this phenomenon.[29] Figure 4 shows that about 54 percent of the respondents agree with the statements that the "consumption of sugary beverages imposes costs for others in the public health system" and that the "consumption of sugary beverages imposes costs on the society." Thus, according to our survey, a majority of US households consider externalities from SSB consumption empirically relevant.

Regarding internalities, various studies suggest that individuals are not fully informed about the health implications of their food choices (e.g., Bollinger et al., 2011; Cawley et al., 2021), and that individuals lack self-control when choosing between healthy and unhealthy food items (e.g., Sadoff et al., 2020; Allcott et al., 2019a).[30] In our survey, about half of the respondents concur that "individuals have little knowledge about the weight implications of high sugar consumption" and that "individuals are unaware of the health consequences of sugary drinks for their later life." In addition, about three out of four respondents agree with the statements that "individuals have difficulties resisting the temptation of sugary drinks," and that "individuals consume more sugar than they actually would like to." Hence, individuals perceive internalities, especially self-control problems, to play a role in soft drink consumption.

[29] Cawley and Meyerhoefer (2012) and Wang et al. (2012) estimate that between 80 and 90 percent of the obesity-related medical treatment costs are borne by others through the public health insurance system and not by the individuals themselves. For a critical discussion of the back-of-the-envelope calculation of health externalities from sugar intake, see Allcott et al. (2019b).

[30] Allcott et al. (2019a) provide empirical estimates of behavioral biases in SSB consumption. Using a counterfactual consumer approach, the authors show that American households would consume about one-third less in soft drinks if they had perfect self-control and the nutritional knowledge of dietitians and nutritionists.

Figure 4: Agreement with main economic aspects



Notes: The figure shows the share of respondents in the control condition who agree or fully agree with the given statement with 95% Wilson confidence intervals for proportions.

Taxes on SSBs are often criticized for being regressive. As argued by Gruber and Köszegi (2004) and Allcott et al. (2019a) and shown in Section 2.2.1, the financial regressivity must however be weighed against the potential welfare gains from correcting internalities, such that poorer households may also benefit from SSB taxes. According to our data, US households seem to greatly believe that SSB taxes are regressive rather than progressive: more than three out of four respondents agree with the statements that the "burden of sugary taxes falls more heavily on the poor than on the rich" and that "taxes on sugary beverages hit the poor the hardest."

4.3.2 Effectiveness of SSB taxes, self-interested motives, and paternalism

The effectiveness of SSB taxes primarily depends on the price elasticity of demand for SSBs. Studies using naturally occurring price variation find the demand for SSBs to be relatively price elastic (see, e.g., Allcott et al. (2019a); Dubois et al. (2020)), while policy evaluations of local (city-level) taxes in the US provide more mixed evidence (e.g., Cawley

et al., 2019b,a). This suggests that SSB taxes, at least when administered at the federal level, can be effective in reducing soft drink consumption. Less evidence exists on SSB taxes' impact on overweight and obesity, but some studies suggest limited effects due to the substitution to other high-calorie beverages (Fletcher et al., 2010; Aguilar et al., 2021). As shown in Figure C.3, 41 percent of respondents expect that an SSB tax leads to an at least moderate reduction in SSB consumption, whereas 33 percent expect an at least moderate effect on overweight and obesity. Hence, our respondents seem to believe that taxes are more effective with respect to consumption than with respect to weight outcomes. Overall, however, the majority of respondents view SSB taxes as not very effective.

Regarding self-interested motives, almost 70 percent of respondents state that they have an intrinsic preference for sugary drinks by stating that they "like somewhat" or "like a great deal" the taste and generally enjoy drinking sugary drinks like cola, soda, pop, etc. Moreover, about 59 percent of respondents agree at least "somewhat" with the statement "I drink soda pop or other sugar-sweetened beverages more often than I should."[31]

A sometimes voiced concern against SSB taxes is that they interfere with a person's decision autonomy. Figure C.4 suggests that reservations against paternalistic intervention are prevalent in the US population. For instance, only 15 percent of the respondents agree with the statement that "limiting a person's autonomy to promote her own good is acceptable." Correspondingly, only 21 percent of individuals have a paternalism index larger than 0.5, indicating that a large majority disagrees with paternalist views.[32] We also observe significant skepticism toward state intervention in general. The views are somewhat more dispersed here, with state interventions in food choices being seen particularly critically.[33]

4.4 Decomposing policy views on SSB taxation

If individuals agree that a certain factor is empirically relevant, this does not automatically mean that they think it should be addressed from a policy perspective. To assess which factors are constitutive of policy preferences, we need to link them to respondents' policy views.

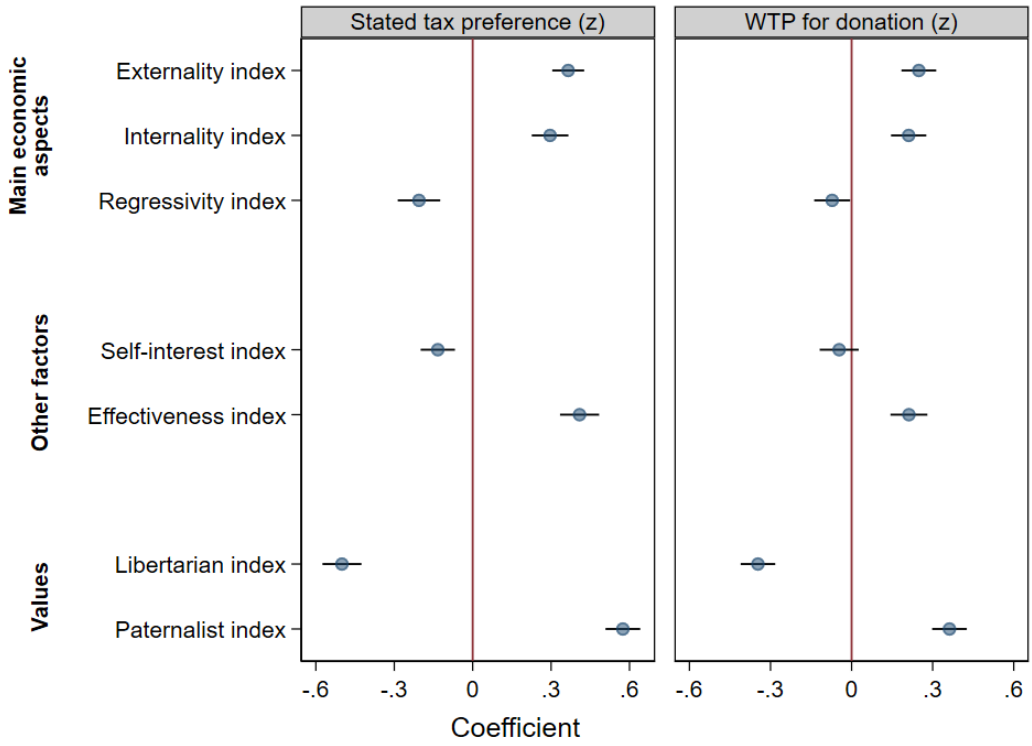
[31]If individuals were to demand SSB taxes as a commitment device to reduce their own consumption, we would expect that these individuals have a higher preference for SSB taxes Haavio and Kotakorpi (2011).

[32]The paternalism index is scaled between zero and one by subtracting the theoretical minimum and dividing by the possible range.

[33]For instance, while 30 percent of the respondents agree that "the government should not intervene in the economy," 65 percent say "the state should not interfere with what people eat or drink."

In what follows, we do so by analyzing the relative predictive power of views on the underlying economic aspects and effects of SSB taxes for policy preferences. In particular, we will regress our measures for SSB tax preferences on the variables capturing the various economic views and reasonings, controlling for an array of background characteristics. To make the coefficients comparable, we z-standardize the variables of interest by subtracting the control sample's mean and dividing by the standard deviation. When using indices, we take the average of the standardized items and z-standardize the index again (Kling et al., 2007; Stantcheva, 2021).

Figure 5: Correlations with policy preferences for SSB taxes



Notes: Graph shows coefficients and 95% confidence intervals from separate regressions of the stated policy index and the WTP for donation on the respective variables. All regressions control for the background characteristics from Section 4.2.3. Except for the controls, all variables are z-standardized. The indices are defined in Table C.3. Only the control group is used for the estimations.

The left panel of Figure 5 shows the results for stated policy preferences. The plotted coefficients stem from separate OLS regressions, in which we use a stated policy index, summarizing views on the introduction of the federal tax and its level, as the dependent

variable. As can be seen, the three indices capturing the main economic rationales—externalities, internalities, and regressivity—are all significantly correlated with SSB tax preferences. In particular, higher scores on the externality index are associated with higher scores on the stated policy index. Likewise, views that internalities are relevant are positively associated with preferences for the tax. In contrast, individuals who agree that the tax is regressive have a lower preference for the tax. Thus, all these factors have the sign as predicted by our simple behavioral model of corrective taxation.

Among the main economic factors, externalities have the largest predictive power. A one standard deviation increase in the agreement that externalities are relevant increases the approval of the tax by 0.37 standard deviations, which is about the same magnitude as the gap between Democrats and Republicans. A one standard deviation increase in the internality index increases the policy index by 0.30 standard deviations. The internality index has a significantly smaller coefficient than the externality index ($p < 0.05$), yet it is comparable in size. In addition, believing that SSB taxes are regressive decreases their support by 0.21 standard deviations.

Individuals scoring higher on the self-interest index exhibit a decrease in support for the tax by 0.13 standard deviations. These findings align with standard egoistic reasoning, where those who score high on the self-interest index oppose a tax on SSBs due to the potential negative impact on their financial well-being. However, the coefficient on the self-interest index is the smallest in magnitude and loses significance when the donation WTP is the dependent variable.

If sin taxes were not able to discourage sin good consumption, there would be no case for them on externality or internality grounds. We thus expect people's beliefs about the effectiveness of SSB taxes to be positively related to SSB preferences. According to Figure 5, this is indeed the case. In fact, beliefs about effectiveness are among the strongest predictors of SSB tax preferences, further indicating the role of efficiency concerns in shaping policy preferences.

Finally, the paternalism and the libertarianism indices are the most predictive of SSB tax preferences. A one standard deviation increase in the paternalism index is associated with a 0.57 standard deviation higher preference for the tax. Similarly, a one standard deviation increase in the libertarianism index is associated with a 0.50 standard deviation decrease in the preference for the tax. This suggests that broader political values play a major role in people's reasoning about SSB taxes, which is in line with our results from the free-text analysis.

The right panel of Figure 5 displays the marginal effects of the factors when using the (z-standardized) willingness to pay for a donation to an organization supporting SSB taxes as the dependent variable. By and large, the results of the incentivized measure closely resemble those for stated preferences. The internality index is one of the strongest predictors, on par with externality concerns. The strongest predictors are once again (anti-) paternalist and libertarian values, while self-interested motives are of minor importance and statistically insignificant.[34]

Moreover, in Table C.6, we examine the interaction between political values and key economic aspects. In line with our simple model, we would expect that individuals who score high on the paternalist index would express stronger preferences for SSB taxes if they believe that internalities play a role. As shown in Panel A, this expectation holds true: the interaction between internality and the paternalist index is positive. We also observe a positive interaction with the externality index.

4.5 Robustness: preferences for SSB taxes in another state

In Figure C.6 in the appendix, we present a coefficient plot for the same variables used in Figure 5. However, in this case, the dependent variable is the z-standardized score related to preferences for the introduction of SSB taxes in *another* federal state. Once again, the externality, internality, and the regressivity index predict the SSB tax preference in the hypothesized direction. Internalities are again on par with externality concerns.

These regressions pertain to individuals who have a spectator perspective regarding an SSB tax (which would apply to another group of individuals). Since the results are similar to those obtained for the federal tax, we argue that the main results thus far are not driven by people's normative views (e.g., efficiency concerns) being intertwined with self-interested motives.

4.6 Partisan gaps

In the following, we shed more light on whether there are partisan gaps in individuals' attitudes toward SSB taxes.

[34] In the appendix, Figure C.5, we show that the results remain qualitatively the same when splitting the indices into its subcomponents. We also obtain similar results when regressing the preference measures for SSB taxes jointly on our main indices (see Table C.4).

4.6.1 Partisan differences in first-order considerations

To check whether there are partisan differences in free-text responses, we use a keyness analysis which tests whether there are differences in the usage of 2-grams between Democrats and Republicans. Figure C.7a in the appendix plots the 2-gram keyness scores for the "main considerations" regarding the implementation of an SSB tax. The figure shows the χ^2 statistics under the null that the propensity to use a 2-gram is the same for Democrats and Republicans.[35] Republicans express significantly more often a general aversion to implementing a new tax ("enough tax," "tax everything") and are more likely to perceive the SSB tax as patronizing ("control people"). Democrats, in contrast, more often voice concerns about the potential regressivity of the tax ("poor people") and are more likely to mention ideas of corrective taxation ("discourage people," "improve health").[36]

4.6.2 Partisan differences in closed form answers

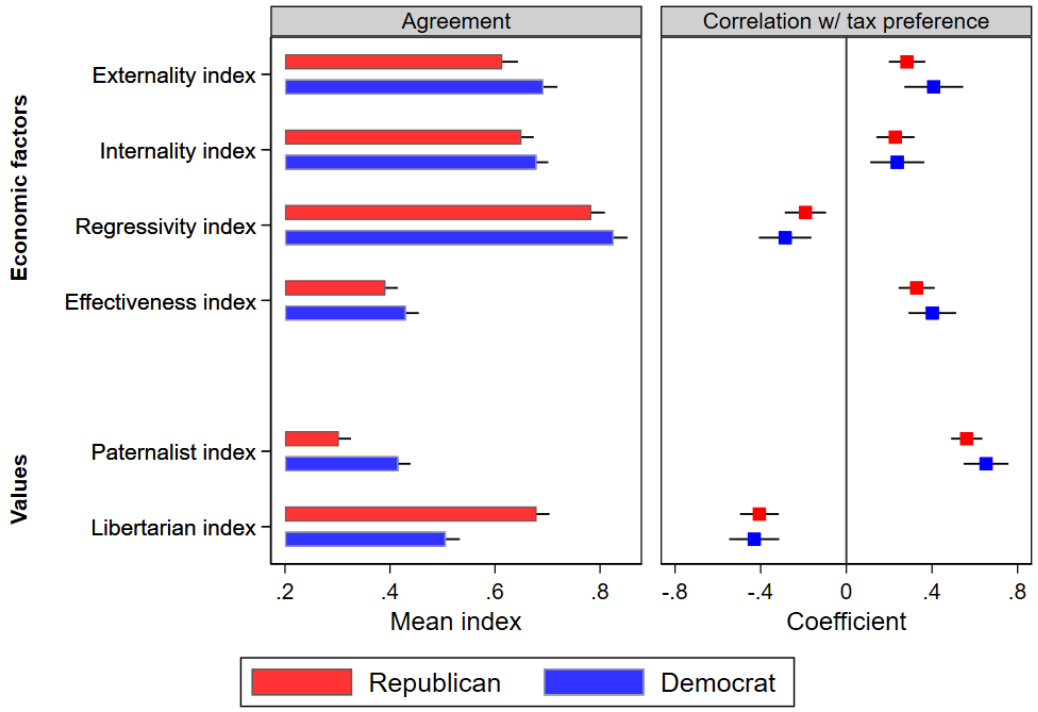
The left panel of Figure 6 plots the average scores on the indices summarizing the different views underlying SSB taxes, split by political affiliation. In line with the answers to the free-text questions, Democrats agree somewhat more with the corrective motives of the tax, in particular with the externality index ($p < 0.01$) and the internality index ($p < 0.10$). Similarly, Democrats agree more that the tax is regressive ($p < 0.05$). Yet these differences are small in magnitude. Democrats believe significantly more in the effectiveness of SSB taxes, but the level of agreement is still similar. However, there is a stark contrast when it comes to policy values. Democrats score a lot higher on the paternalism index, and Republicans substantially higher on the libertarianism index.[37] Interestingly, there are no significant differences with respect to the predictive power of the different motives (see the right panel of Figure 6).

[35]Keyness scores are based on the relative frequencies of 2-grams and indicate how characteristic a certain 2-gram is for one group in relation to the other. If a 2-gram is common, but is used relatively equally by the two groups, it does not receive a high keyness score. For further details and a discussion of keyness analyses, see Ferrario and Stantcheva (2022).

[36]A similar picture surfaces in the responses to the questions about the perceived goals (see Figure C.7b) and the potential winners of the tax (see Figure C.7b). Democrats are significantly more likely to state that the tax is meant to incentivize behavior change ("reduce consumption") and to alleviate the health costs ("much sugar," "public health," and "reduce diabetes"). Republicans more often mention "none" or "government"/"politicians" as winners of the tax, while Democrats are more likely to mention "everyone" and "obese people."

[37]While 33 percent of Democrats have a paternalism index larger than 0.5 (i.e., on average they agree with paternalist statements), only 15 percent of Republicans do. In contrast, 43 percent of Democrats have a libertarianism index larger than 0.5 compared to 72 percent of Republicans.

Figure 6: Partisan differences in attitudes and beliefs



Notes: The left panel shows the sample mean of the respective indices. The indices are standardized on a scale from 0 to 1 by subtracting the theoretical minimum of the aggregated responses and dividing by their possible range. The right panel shows coefficients from regressions of the z-standardized policy index on z-standardized indices (see Table C.3). Regressions are run separately for Republicans and Democrats. Only the control condition is used.

Taken together, we do not see that Democrats and Republicans overly disagree about the importance of the underlying economic aspects of SSB taxes. Moreover, they weigh these factors similarly in their reasoning. By contrast, there are stark partisan gaps in views regarding the role of the state, with Democrats more likely to agree with paternalistic views, while Republicans are more skeptical of state intervention in general. In a nutshell, there does not seem to be a strong "polarization of reality" (Alesina et al., 2020), but instead a strong polarization in the basic normative views about the legitimacy of (paternalistic) state intervention.

5 Can information treatments shift policy preferences?

We have shown that preferences for SSB taxes are not just driven by concerns for economic welfare, but also by broader policy and normative views, including general attitudes toward government intervention and party affiliation. Does this imply that preferences for SSB taxes are non-malleable? In this section, we analyze whether explaining to individuals the theoretical ideas of behavioral policy intervention. can causally shift the political support for SSB taxes.

5.1 Experimental design

In our surveys, we randomize subjects into receiving different instructional materials consisting of verbal texts, a cartoon, and an incentivized quiz. All instructions include explanations about the key vantage points of corrective SSB taxation: first, that there can be overconsumption of SSBs related to their negative health consequences, and second, that taxes on SSBs serve the purpose of discouraging SSB consumption.

What varies across our treatments is the explanation of why consumption of SSBs can be inefficiently high. For one group of subjects, we convey that the health consequences of SSB consumption entail external costs for the public health system (externality treatment). For other subjects, we explain the concept of internalities using two separate treatments. In one treatment, we convey to subjects that people may underestimate the health costs of SSB consumption (health cost misperception treatment). In the other treatment, we explain that individuals evaluate these costs in relation to the benefits of soft drinks inconsistently over time (self-control treatment). In a further treatment, we do not provide respondents with additional information about the source of inefficiency in SSB consumption, but instead we point to the distributional consequences of sugary beverage taxes by explaining to subjects that sin taxes can be financially regressive (regressivity treatment).

The purpose of our design is twofold. First, we aim to provide instructional explanations to individuals on how behavioral biases and behavioral policy interventions work. In comparison to the control treatment, in which any policy rationalization is absent, we can estimate the causal effect of providing information about behavioral intervention on individuals' policy support. Second, by contrasting the internality treatments with the externality treatment, we can shed further light on how individuals assess the relative importance of internality versus externality correction.

5.2 Information treatments

The information treatments are the following:

Externalities treatment We explain to respondents that the health consequences of routinely consuming SSBs impose costs on the larger society through the public health system. To rationalize this idea, we clarify that the medical costs associated with treating diseases resulting from excessive SSB consumption typically exceed what individuals contribute to the health insurance system. Therefore, the health costs of SSB consumption are not solely borne by the individuals themselves but are also shared by others. After visualizing this argument with a cartoon (see Figure (7a)), we ask respondents to estimate the share of obesity-related health costs borne by others. Respondents earn 50ct if their response is within three percentage points of what researchers found.[38]

Internality treatments In two distinct treatments, we explain the most prevalent forms of internalities associated with SSB consumption:

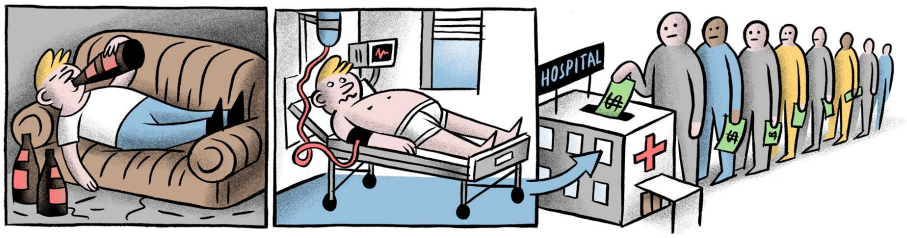
- **Health cost misperception treatment** In this treatment, we explain to subjects that people may not have perfect knowledge of the health costs of their SSB consumption, which may lead to overconsumption compared to what would be best for themselves from a long-term perspective. We illustrate this argument with an example of a person who decides on her sugary drink consumption and who underestimates the health implications of soft drinks. The misperception makes the person consume more sugary drinks than what is good for herself in the long run (see also Figure (7b)). Afterward, we let respondents estimate the share of individuals who underestimated the weight implication of sugary beverages in our pre-survey.[39]

- **Self-control treatment** This treatment captures the idea of time-inconsistent preferences for sin goods: in the heat of the moment, an individual values the sin

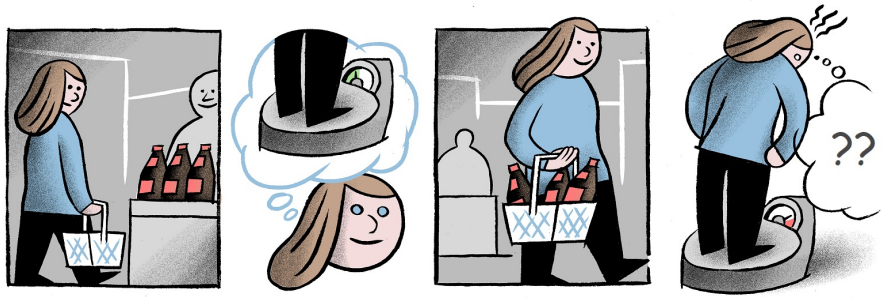
[38]Respondents answer how many out of 100 US Dollars obesity-related health costs are borne by others (on a slider from 0 to 100 Dollars). Their answer is compared to Cawley and Meyerhoefer (2012), who estimate this number to be 88 US Dollars. Feedback is given at the very end of the survey.

[39]In the pre-survey, we asked respondents to guess how much weight an average person would gain by drinking an additional can of Coca Cola per day over a period of three years. In the main survey, we ask respondentes to guess the share of the pre-survey respondents who underestimate by at least 10 percent "what nutrition scientists predict" the weight gain would be. We use calibrations by Hall et al. (2011) to estimate the true weight gain. The share of respondents underestimating the correct weight implication (12 lbs) in the pre-survey is 42 percent. Respondents in the main survey receive a bonus payment of 50ct if their estimate is within three percentage points of this number.

Figure 7: Cartoons included in the instructions of the respective treatment

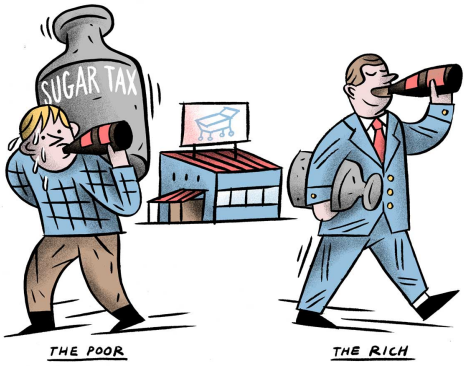


(a) Externality treatment



(b) Health cost misperception treatment

(c) Self-control treatment



(d) Regressivity treatment

good (relative to its cost) differently than she would from a detached perspective. To convey this idea to the subjects, we provide them with an example of a person who plans to reduce her consumption of SSBs. However, every time she is offered a sugary drink, she gives in to the temptation and indulges in sugary drinks. Hence, she regularly consumes more than she thinks she actually should (see Figure (7c) for the cartoon). Finally, we ask subjects to estimate the share of individuals in our pre-survey who agree "at least somewhat" with the statement that they drink more sugary drinks than they should.

Regressivity treatment As in the other treatments, we state that taxes on sugary beverages are being discussed due to the negative health consequences of sugary drinks. However, we point out that the financial burden of an SSB tax can be higher for poorer than for richer consumers since the expenditure for sugary beverages makes up a larger part of the income for the poor. The corresponding cartoon shows a poor SSB consumer who carries a larger tax weight on his shoulders than a rich consumer (see Figure 7d). We then ask respondents for their belief 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.[40]

Conjectures We conjecture that explaining the main ideas of corrective taxation increases individuals' support for SSB taxation. We hence expect preferences for SSB taxes to be higher in the externality and internality treatments. In contrast, for the regressivity treatment, the expected treatment effect is less clear. The regressivity treatment explains that poorer individuals would pay a higher share of their income in sin taxes. However, as with the other treatments, the general idea of corrective taxation is also explained (that SSB taxes discourage the consumption of an unhealthy food item). This may shift channels that lead to higher support of sin taxes (e.g., beliefs about externalities and self-control problems). Therefore, since a counterargument to SSB taxation is also presented, we would expect the treatment effect on support for SSB taxes to be of a smaller magnitude compared to the other treatments.[41]

[40]The answer is compared to results in Allcott et al. (2019a), with the true number being 50. As in the other treatments, feedback is provided at the end of the survey.

[41]Since we expected the financial regressivity argument to outweigh the shift of other potential arguments, we preregistered a negative effect on support for the tax, relative to the control.

5.3 Experimental results

5.3.1 Agreement with the arguments of corrective taxation

We start out by studying whether the information treatments shift the agreement with the respective main aspect they explain. Table 1 shows the results from regressing the z-standardized indices for the economic factors on treatment indicators, controlling for background characteristics.[42] All treatments have a strong and statistically significant effect on individuals' agreement with the respective rationale compared with the control group. That is, explaining the idea of externalities, internalities, and regressivity makes individuals agree more with the relevance of these concepts.

The table also shows that the treatments do not exclusively shift the agreement with the concepts that they primarily aim to explain. Instead, some of the treatments have spillovers on the other indices. For example, self-control, health cost misperception, and the regressivity treatment also increase agreement with the idea that sugary beverages impose externalities. Moreover, the health cost misperception treatment induces respondents to agree more that people lack self-control. These spillovers are not unexpected since we explain the idea of corrective taxation in all treatments, potentially triggering people to think about other related aspects. However, it is reassuring that the economic aspects targeted by the treatments react the strongest (Wald tests reject the null hypothesis that the coefficients are equal).

5.3.2 Treatment effects on SSB tax preferences

We present the treatment effects on policy preferences in Table 2. The first column shows that the externality and the internality treatments significantly increase the preferences for SSB taxes, using the z-standardized stated policy index as the dependent variable. These effects are economically sizable. The externality treatment increases approval by 0.13 standard deviations, which amounts to about 35 percent of the gap between Democrats and Republicans. The internality treatments (health cost misperception and self-control) increase support for the tax by 0.12 and 0.13 standard deviations, respectively. As shown in Columns 2 and 3, the effects are driven by an increase in stated support for the tax and by positive (but less precise) effects on the preferred tax level. That is, explaining to respondents the idea of corrective taxation has a positive treatment effect on individuals'

[42] Table C.8 shows the results without control variables.

Table 1: Treatment effects on agreement with the economic aspects of SSB taxes

	(1) Externality index	(2) Misperceptions index	(3) Self-control index	(4) Regressivity index
T Externality	0.333	-0.033	0.062	-0.065
	(0.045)	(0.048)	(0.049)	(0.050)
T Health cost misperception	0.240	0.328	0.182	0.064
	(0.046)	(0.045)	(0.047)	(0.047)
T Self-control	0.143	-0.068	0.171	0.017
	(0.046)	(0.048)	(0.048)	(0.048)
T Regressivity	0.157	-0.032	0.069	0.225
	(0.047)	(0.048)	(0.049)	(0.044)
Controls	✓	✓	✓	✓
Wald p-value (equal coeff)	0.000	0.000	0.025	0.000
Observations	3864	3864	3864	3864

Notes: The table reports treatment effects based on OLS regressions. The dependent variables are the z-standardized indices for agreement with the respective arguments. The indices are defined in Table C.3. Wald test p-values for the null hypothesis that coefficients are equal are reported below.

Table 2: Treatment effects on outcomes

	Federal SSB tax			Donation
	(1) Policy index (z)	(2) Favors tax	(3) Tax level	(4) WTP (z)
T Externality	0.128	0.039	2.096	0.162
	(0.047)	(0.019)	(1.137)	(0.052)
T Health cost misperception	0.122	0.045	1.824	0.196
	(0.047)	(0.019)	(1.157)	(0.052)
T Self-control	0.132	0.039	3.057	0.104
	(0.049)	(0.019)	(1.211)	(0.054)
T Regressivity	0.063	0.050	-0.070	0.138
	(0.048)	(0.019)	(1.107)	(0.054)
Controls	✓	✓	✓	✓
Observations	3864	3864	3864	3111

Notes: Table reports treatment effects based on OLS regressions. In Columns (1) to (3), approval of the federal SSB tax is measured by the z-standardized policy index, z-standardized support for a federal tax, and by the preferred tax level in US cents per liter. In Columns (4), the dependent variable is the z-standardized mean WTP in cents for a 25ct donation to the CSPI. Robust standard errors are in parentheses.

SSB tax preferences, both in terms of the support for introducing SSB taxes, but also on their desired tax level. Moreover, the treatments significantly increase the WTP for the donation to the CSPI, with the strongest effects for the health cost misperception treatment and weaker effects for the self-control treatment.

For the regressivity treatment, the results look different. While there is no significant treatment effect on the policy index, there is a significant positive effect on individuals' donation decisions. When using the stated preference for a federal SSB tax as a dependent variable, the indicator for the regressivity treatment also becomes significant. Thus, there is an increase in individuals' support for introducing SSB taxes even in the regressivity treatment. However, as opposed to the other treatments, there is no effect on the desired tax rates: the treatment coefficient of -0.070 is statistically insignificant and close to zero.[43]

We conclude that providing information about the ideas of corrective taxation increases the general approval of SSB taxes. Highlighting the different efficiency aspects of SSB taxation does not differentially affect the approval of the tax, but stressing the negative distributional consequences for the poor makes a difference for individuals' preferred level of corrective taxation.

In Figure C.9 in the appendix, we plot the pooled treatment effect on the distribution of the WTPs for a donation to the CSPI. It turns out that the treatments have a stronger effect at the bottom of the distribution compared to the top: They mainly reduce the share of respondents with a (very) negative willingness to pay. Similarly, the treatments significantly reduce the share of respondents with a WTP of -25ct and significantly increase the share with a weakly positive WTP, but do not increase the share with a WTP of +25ct (see Table C.7 in the appendix). These patterns suggest that explaining the ideas of corrective taxation predominantly affects policy preferences by reducing strong opposition against the tax.

5.3.3 No heterogeneous treatment effects

Are there partisan differences with respect to the responsiveness to our experimental intervention? In Table C.10, we test for heterogeneity in treatment effects. In Columns 1 and 2, we interact the treatment dummies with an indicator for whether a respondent identifies as Republican. While Republicans seem to respond slightly less to some of the treatments,

[43] In Table C.9, we present the regression results without control variables, but do not find that they change meaningfully.

the differences are not systematic and none of the interaction terms are significant. In Columns 3 and 4, we show that there are also no systematic differences in treatment effects with respect to income. Hence, the effects of information provision on individuals' support of SSB taxation do not depend on political affiliation or socioeconomic status. In fact, information provision seems to be similarly effective across the whole population.

5.3.4 Robustness to potential demand effects

We conducted a robustness experiment to address the potential concern that our results are affected by experimenter demand effects. Experimenter demand effects refer to the concern that participants may seek to "please the experimenter" by aligning their behavior with what they perceive to be the experimenter's hypothesis (Zizzo, 2010; de Quidt et al., 2018). We follow Roth and Wohlfart (2020) and employ a demand treatment to assess the responsiveness to demand effects in our setting. The idea of a demand treatment is to deliberately manipulates respondents' beliefs regarding the experimenter's hypothesis. This is achieved by disclosing the hypothesis to participants in one treatment and comparing outcomes with a control treatment that resembles the control in our main survey.

For this purpose, we invited 300 new participants via Prolific. These participants received essentially the same instructions as those in the control condition of our main survey experiment. When eliciting preferences for SSB taxes, a random subset of them received the message "We hypothesize that participants who are shown the same instructions as you report higher support for sugary beverage taxes."

Table C.11 in the appendix shows that the demand treatment has no significant impact on the stated policy index; the coefficient is close to zero. Moreover, the 90% confidence interval does not include the significant treatment effects that we observed in Table 2. Furthermore, the demand treatment's impact on the willingness to pay for the donation is also found to be insignificant, and if anything, it appears to be negative. Also here, the 90% confidence interval does not include the positive coefficient from Table 2. These results suggest that respondents' elicited SSB preferences are not sensitive to receiving signals about the experimenter's expectations in the setting that we study. Thus, we conclude that the effects observed in our information treatments are unlikely to result from a demand effect artificially increasing respondents' support for SSB taxes, driven by participants' potential desire to conform to the experimenter's hypothesis.

5.3.5 Within-treatment guesses

While the main purpose of the guessing questions is to incentivize reading, the guesses can also be interpreted as an alternative measure of how severe respondents believe the described phenomenon (e.g., externality costs) to be in the US.[44] In Table C.12, we regress the dependent variables on the guesses in the respective treatments and control variables. Since we elicited theses guesses only in the respective treatments (to not exacerbate spillovers to the other treatments), analyzing these guesses yields correlational evidence. The results show that externality beliefs are positively associated with preferences for the tax. Moreover, beliefs about health cost misperception are correlated with incentivized tax preferences, providing additional evidence that internality beliefs affect policy preferences.[45]

6 Conclusion

There is a growing research interest in understanding how people think and reason about economic policy, as demonstrated by recent studies (Stantcheva, 2020, 2021). While this research predominantly centers on redistributive taxes (on income and wealth), there is less knowledge about people's attitudes toward corrective taxes designed to modify behavior.

In this paper, we showed that people's support for SSB taxes is driven by efficiency considerations, including both externality and internality reasoning. Self-interest considerations play only a minor role. Instead, people factor in broader normative considerations related to the nature of corrective taxation. In particular, preferences for SSB taxes are significantly influenced by views on the legitimacy of interference with individual choices (paternalism). This suggests that people evaluate economic policies not only in terms of their consequences, for example, on economic outcomes, allocations, and well-being, but also based on their preferences regarding policy instruments *per se*. This adds a nuance to the standard policy reasoning concerning the trade-off between efficiency and fairness. It is left for future research to explore how these "direct" preferences over policy measures translate to applications beyond health decisions and the extent to which they interact with cultural and social contexts.

Overall, our results demonstrate that explaining and rationalizing a policy's goals can foster policy support and reduce fundamental opposition to behavioral policy intervention.

[44] We show the distribution of guesses in Figure C.8.

[45] Guesses about self-control and the financial regressivity of SSB are not significant.

Therefore, we complement a strand of the literature that demonstrates how policy support depends on people's understanding of a policy's goals and mechanisms (Stantcheva, 2020; Dechezleprêtre et al., 2022). These findings inform policymakers that communicating the ideas behind economic policy is essential for garnering support.

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Online Appendix

A Proofs

A.1 Proof for the optimal sin tax formulas

For given t and T, consumers maximize their decision utility (1) with respect to their budget $z_i + (1+t)x_i = y_i + T$. The f.o.c. of this maximization problem is given by

$$h_i \cdot f'(x_i) - (1+t) = 0, \tag{9}$$

which implicitly defines the demand for the sin good as $x_i = x_i(t; h_i)$. As $f'' < 0$, we have $\partial x_i / \partial t < 0$. Plugging (1), (2) and the individual budget constraint into (3), the Lagrange problem for (6) can be written as

$$\begin{aligned} \max_t \quad & L := \alpha G_p \left(h_p \cdot f(x_p) + y_p + T - (1+t)x_p - \gamma_I I_p x_p\right) \\ & + (1-\alpha) G_r \left(h_r \cdot f(x_r) + y_r + T - (1+t)x_r - \gamma_I I_r x_r\right) \\ & - \gamma_E E(x_p + x_r) + \lambda(t x_p + t x_r - 2T), \end{aligned} \tag{10}$$

with $x_i = x_i(t; h_i)$ for $i = p, r$.

The f.o.c. with respect to T is given by

$$\frac{\partial L}{\partial T} = \alpha G_p' + (1-\alpha) G_r' - 2\lambda = 0, \tag{11}$$

which implies $\lambda = \big(\alpha G_p' + (1-\alpha) G_r'\big)/2$ or, equivalently,

$$2 = g_p + g_r. \tag{12}$$

The f.o.c. with respect to t is

$$\begin{aligned} & \alpha G_p' \cdot \Big[\Big(h_p \cdot f' - (1+t)\Big)\frac{\partial x_p}{\partial t} - x_p - \gamma_p I_p \frac{\partial x_p}{\partial t}\Big] \\ & + (1-\alpha) G_r' \cdot \Big[\Big(h_r \cdot f' - (1+t)\Big)\frac{\partial x_r}{\partial t} - x_r - \gamma_r I_r \frac{\partial x_r}{\partial t}\Big] \\ & - \gamma_E E\Big(\frac{\partial x_p}{\partial t} + \frac{\partial x_r}{\partial t}\Big) + \lambda\Big[x_p + x_r + t\Big(\frac{\partial x_p}{\partial t} + \frac{\partial x_r}{\partial t}\Big)\Big] = 0 \end{aligned} \tag{13}$$

Divide (13) by λ, and use the definitions for g_p and g_r, as well as for (9) and (12). Solving for t and re-arranging gives (7). ■

A.2 The egoist's optimal tax problem

Substituting in $T = t\bar{x}$ for $x_p = x_p(t; h_p)$ and $x_r = x_r(t; h_r)$, gives $T(t) := t\bar{x}(t)$. Individual i's indirect decision utility is

$$\tilde{U}_i(t, h_i) := h_i \cdot f(x_i(t, h_i)) + y_i + t\bar{x}(t) - (1 + t)x_i(t, h_i). \tag{14}$$

We assume that $\tilde{U}_i(t, h_i)$ is stricly concave in t, that is $\frac{\partial^2 \tilde{U}_i}{(\partial t)^2} < 0$.

Proof of formula (8) and comparative statics with respect to taste
The egoist's most preferred tax has to solve $\partial U_i/\partial t = 0$. Using (9), this condition implies

$$\bar{x}(t) - x_i(t; h_i) + t \cdot \frac{\partial \bar{x}}{\partial t}(t) = 0. \tag{15}$$

Solving for t gives (8).

Define the LHS of (15) as $F(t, h_i)$. Totally differentiating (15) yields

$$\frac{dt}{dh_i} = -\frac{\partial F/\partial h_i}{\partial F/\partial t} = \frac{\partial x_i/\partial h_i}{\partial F/\partial t}. \tag{16}$$

This expression is smaller than zero due to the concavity of $U_i(t)$ and $\partial x_i/\partial h_i > 0$. ■

B Instructions of 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.

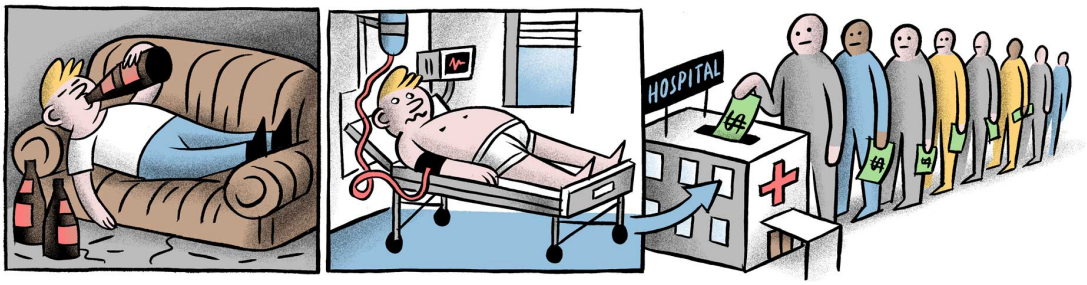
B.1 Externalities treatment

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.

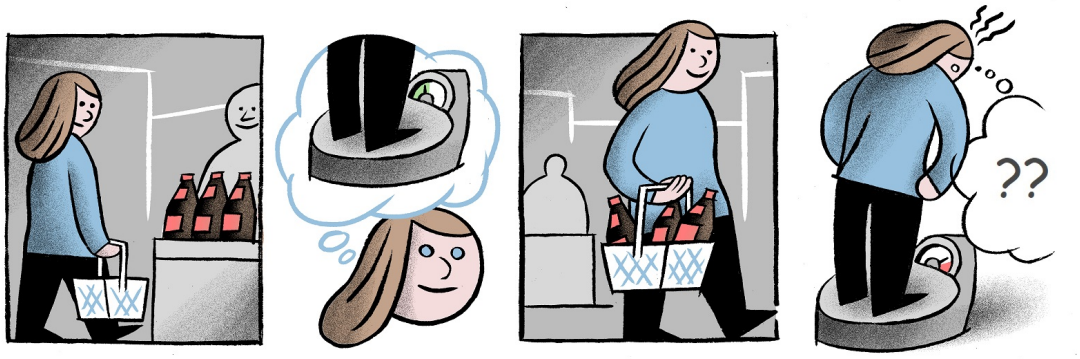
What do you guess: Out of every 100 dollars of obesity-related health costs in the US public health system, how many dollars are paid for by others instead of by the patients themselves? *[Slider 0-100]*

B.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]*

B.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?

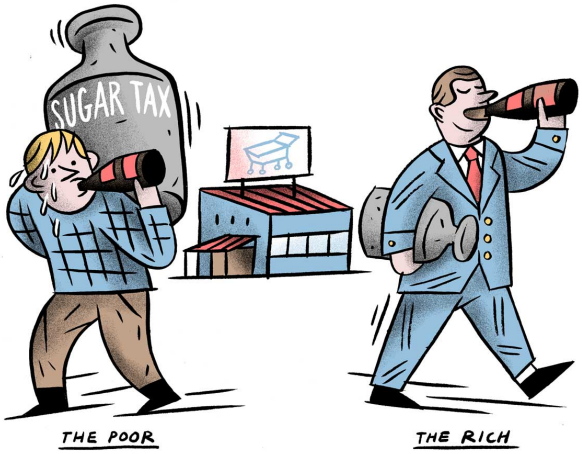
Out of 100 people, the number of people who agreed to the statement is: *[Slider 0-100]*

B.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.

C Additional tables and figures

Figure C.1: Experimental Design

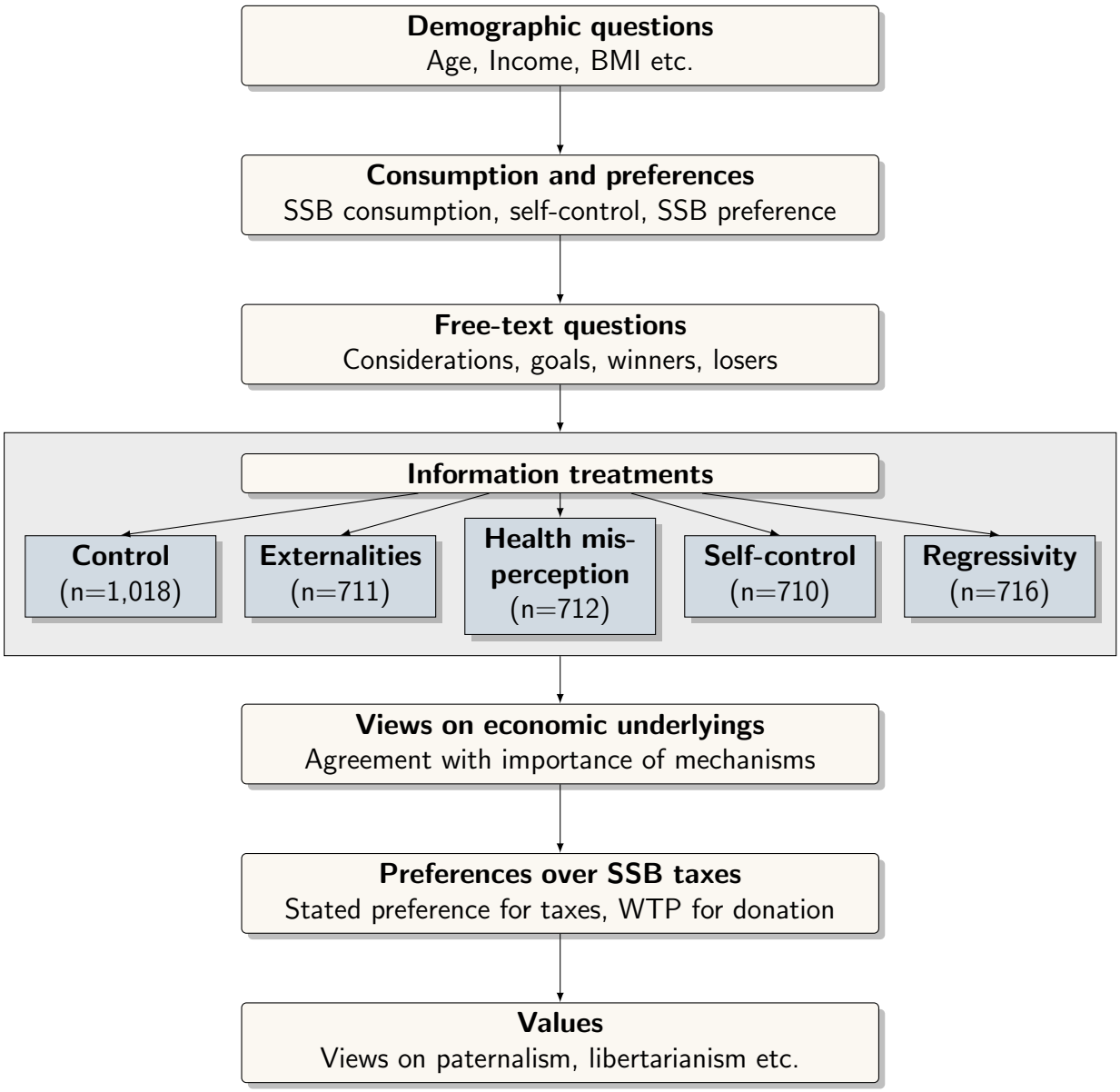


Table C.1: Descriptive statistics

	Main survey					
	Unrestricted sample	Final sample	Consistent WTP	Control group	Pre-survey	US population
Female	53.0	52.1	52.4	52.8	62.0	51.5
Household income in USD						
<35K	28.6	26.4	25.5	26.4	25.7	23.1
35K-75K	31.5	31.2	31.1	31.3	28.7	28.9
>75K	40.0	42.4	43.4	42.2	45.6	48.2
Age group						
18-29	11.3	10.8	9.6	9.5	13.0	17.2
30-49	44.7	43.8	43.4	43.7	42.0	45.4
50-65	44.0	45.3	47.0	46.8	45.0	37.6
Labor market status						
Working	65.7	66.4	66.5	64.5	67.2	73.3
Education						
No college	21.8	20.1	19.0	20.6	18.9	37.7
College degree	62.7	63.6	64.0	62.6	62.4	50.6
Advanced degree	15.5	16.4	17.0	16.8	18.7	11.7
Race/Ethnicity						
White	74.5	75.6	76.8	78.1	78.6	59.4
Latino/Hispanic	8.1	7.8	7.9	7.2	6.4	18.5
Black/African American	7.5	6.7	5.6	6.2	5.5	13.9
Asian	7.8	7.8	7.8	7.3	9.6	6.5
Other/NA	2.1	2.0	2.0	1.3		
Observations	4795	3864	3111	1018	540	

Notes: The table shows descriptive statistics of the sample. Column (1) shows summary statistics of the unrestricted sample (including subjects that were screened out and did not complete the survey), while Column (2) shows summary statistics of the final sample that we use in the analysis. Column (3) excludes subjects that did not provide a consistent price list and Column (4) zooms in on the control group. Column (5) shows summary statistics for the pre-survey. Column (6) 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 considered age range 18 to 64).

Table C.2: Definition of outcome variables

Outcome variable	Definition
Support for tax (z)	Support for introduction of a federal tax on sugary beverages in the United States, measured on five-point likert scale and z-standardized
Tax level	Preferred tax rate in cents per liter if the US were to introduce a federal SSB tax
Policy index (z)	Index of support for a federal SSB tax (z) and preferred tax level (z). The index is constructed by averaging the two z-scores and then standardizing again
WTP for donation (z)	Willingness to pay for a 25 cent donation to an NGO that lobbies for the introduction of a federal SSB tax (z-score)
Preference for SSB tax in another state (z)	Support for a state-level SSB tax in a state other than the one the respondent lives in (California if they do not live in California, Pennsylvania if they live in California), measured on five-point likert scale and z-standardized

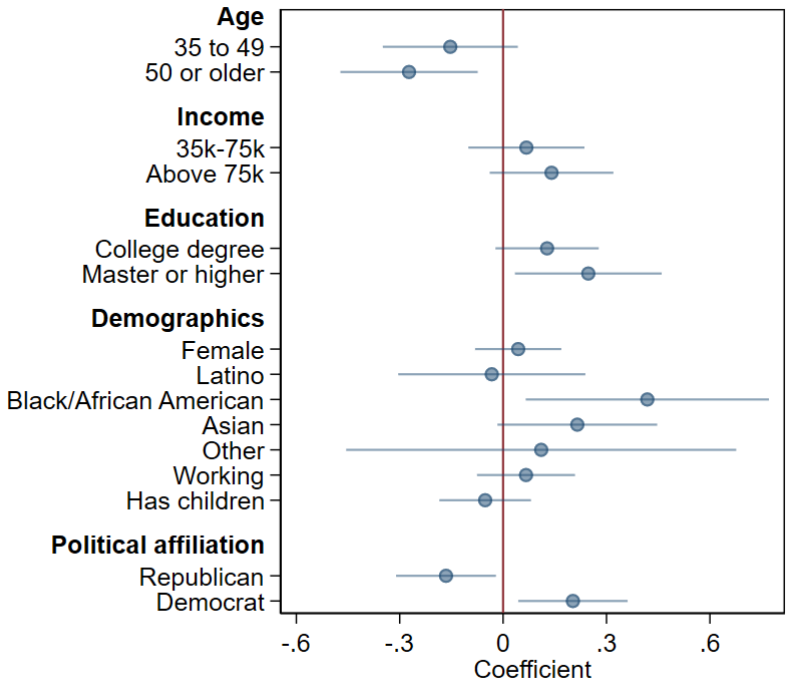
Notes: The table shows the main outcome variables used throughout the paper. Z-scores are constructed by subtracting the control group mean and dividing by the control group standard deviation.

Table C.3: Definition of indices

Index	Item
Policy index	Do you favor or oppose introducing a federal tax on sugary beverages in the United States?
	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)?
Externality index	Consumption of sugary beverages imposes costs for others in the public health system.
	Consumption of sugary beverages imposes costs on the society.
Internality index	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.
Health cost misperception index	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 index	Individuals have difficulties resisting the temptation of sugary drinks.
	Individuals consume more sugar than they actually would like to.
Regressivity index	Taxes on sugary beverages hit the poor the hardest.
	The burden of sugary taxes falls more heavily on the poor than on the rich.
Paternalism index	The state is allowed to interfere with personal autonomy to provide fairness and equality of opportunity.
	The government should be responsible for reducing obesity.
	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.
	Sugary beverage consumption is wrong, irrespective of the consequences
Libertarian index	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.
Effectiveness index	If the US were to introduce a tax on sugary drinks, it would reduce sugary beverage consumption .
	If the US were to introduce a tax on sugary drinks, it would reduce the prevalence of overweight and obesity.
	If the US were to introduce a tax on sugary drinks, it would raise tax revenue.
Self-interest index	During the past month, how often did you drink sugary drinks?
	Leaving aside any health or nutrition considerations, how much would you say you like the taste and generally enjoy drinking sugary drinks (cola, soda, pop, etc.)?

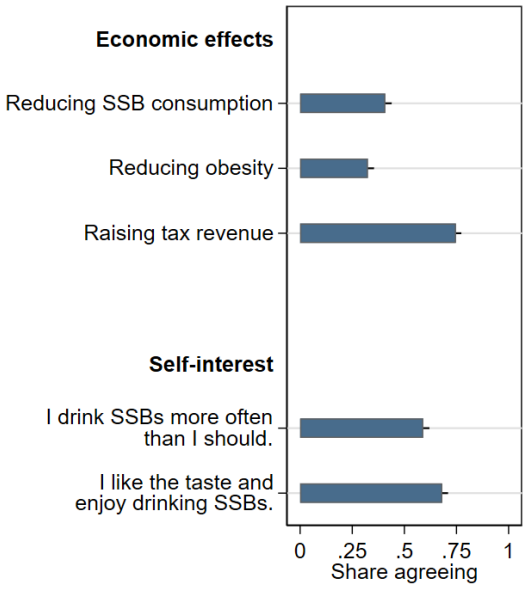
Notes: The table shows the items included in the indices used throughout the paper. The indices are constructed by taking the average of their z-standardized items and then z-standardizing again (Kling et al., 2007; Stantcheva, 2021). The z-scores are constructed by subtracting the control group mean and dividing by the control group standard deviation.

Figure C.2: Correlations of policy index with demographics



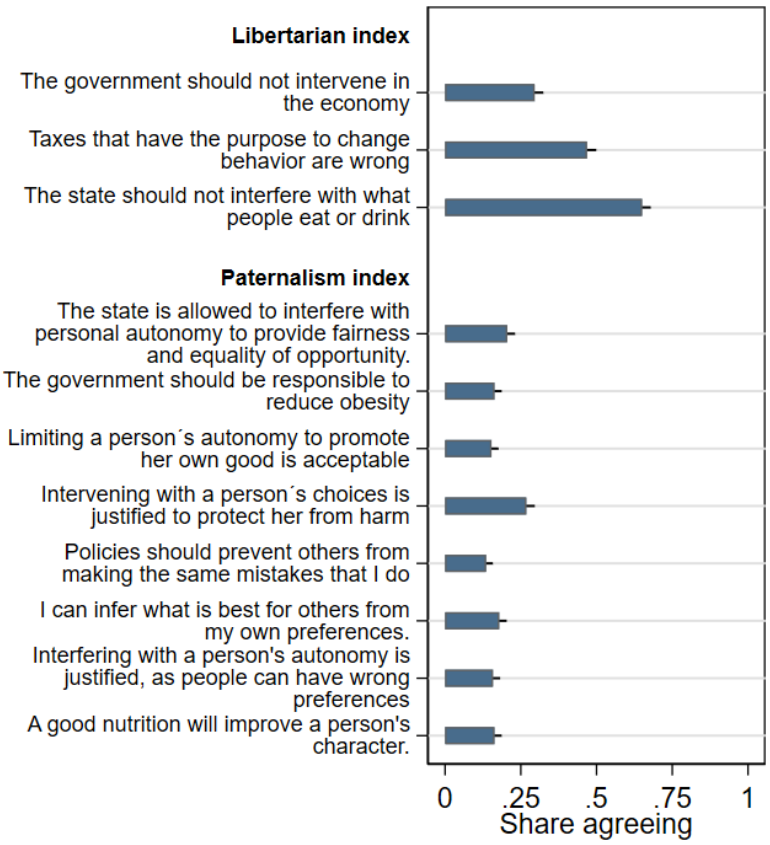
Notes: Graph shows coefficients and 95% confidence intervals from an OLS regression with z-transformed preference for a federal SSB tax (policy index) as dependent variable. Standard errors are robust. The omitted reference categories are younger than 35 (age), less than $35k (income), high-school or 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 estimation.

Figure C.3: Agreement with economic effects and self-interested motives



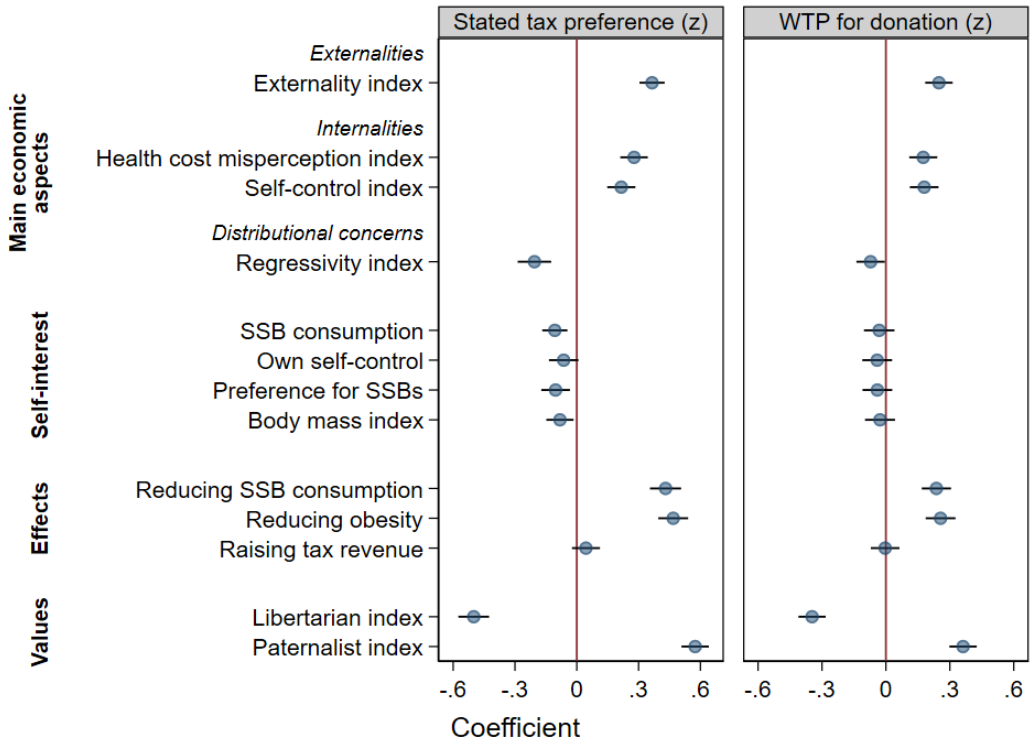
Notes: The figure shows the share of individuals who agree with the given statement with 95% Wilson confidence intervals for proportions. For economic effects, this is the share of respondents who state that the SSB tax entails the described outcome "a moderate amount," "a lot," or "a great deal." For self-interested motives, it is the share that responds "somewhat," "mostly," or "definitely" to the first statement and "like somewhat" or "like a great deal" to the second statement. Only respondents from the control condition are considered.

Figure C.4: Agreement with political values



Notes: The figure shows the share of individuals who agree or fully agree with the given statement with 95% Wilson confidence intervals for proportions. Only respondents from the control condition are considered.

Figure C.5: Correlations with policy preferences for SSB taxes



Notes: Graph shows coefficients and 95% confidence intervals from separate regressions of the stated policy index and the WTP for donation on the respective variables. All regressions control for the background characteristics from section 4.2.3. Except for the controls, all variables are z-standardized. The indices are defined in Table C.3. Only the control group is used for the estimations.

Table C.4: Correlations with policy index (stated preference for federal tax)

	(1)	(2)	(3)	(4)	(5)
Economic factors					
Externality index		0.271	0.260	0.207	0.199
		(0.031)	(0.031)	(0.030)	(0.030)
Internality index		0.177	0.180	0.133	0.136
		(0.035)	(0.035)	(0.032)	(0.032)
Regressivity index		-0.269	-0.265	-0.242	-0.239
		(0.034)	(0.034)	(0.032)	(0.032)
Self-interest index			-0.078		-0.064
			(0.028)		(0.027)
Effectiveness index				0.287	0.284
				(0.033)	(0.033)
Political affiliation					
Republican	-0.166	-0.167	-0.155	-0.166	-0.155
	(0.074)	(0.065)	(0.065)	(0.062)	(0.062)
Democrat	0.203	0.161	0.167	0.151	0.156
	(0.081)	(0.071)	(0.071)	(0.067)	(0.067)
Controls	✓	✓	✓	✓	✓
Adj. R2	0.059	0.244	0.249	0.316	0.319
Observations	1018	1018	1018	1018	1018

Notes: The table reports OLS regressions. The dependent variable is the z-standardized policy index. Political affiliations are dummy variables (reference category is "other"). All other independent variables are z-standardized. The indices are defined in Table C.3. Only the control group is considered. Significance levels are indicated by * $< .1$, ** $< .05$, *** $< .01$.

Table C.5: Correlations with WTP for donation

	(1)	(2)	(3)	(4)	(5)
Economic factors					
Externality index		0.197	0.195	0.167	0.167
		(0.037)	(0.038)	(0.038)	(0.039)
Internality index		0.133	0.133	0.113	0.113
		(0.038)	(0.038)	(0.038)	(0.038)
Regressivity index		-0.111	-0.110	-0.096	-0.095
		(0.032)	(0.032)	(0.031)	(0.032)
Self-interest index			-0.015		-0.007
			(0.036)		(0.036)
Effectiveness index				0.127	0.126
				(0.038)	(0.038)
Political affiliation					
Republican	-0.242	-0.253	-0.250	-0.251	-0.250
	(0.084)	(0.080)	(0.080)	(0.079)	(0.080)
Democrat	0.159	0.110	0.111	0.104	0.105
	(0.089)	(0.085)	(0.085)	(0.084)	(0.084)
Controls	✓	✓	✓	✓	✓
Adj. R2	0.033	0.114	0.113	0.126	0.125
Observations	819	819	819	819	819

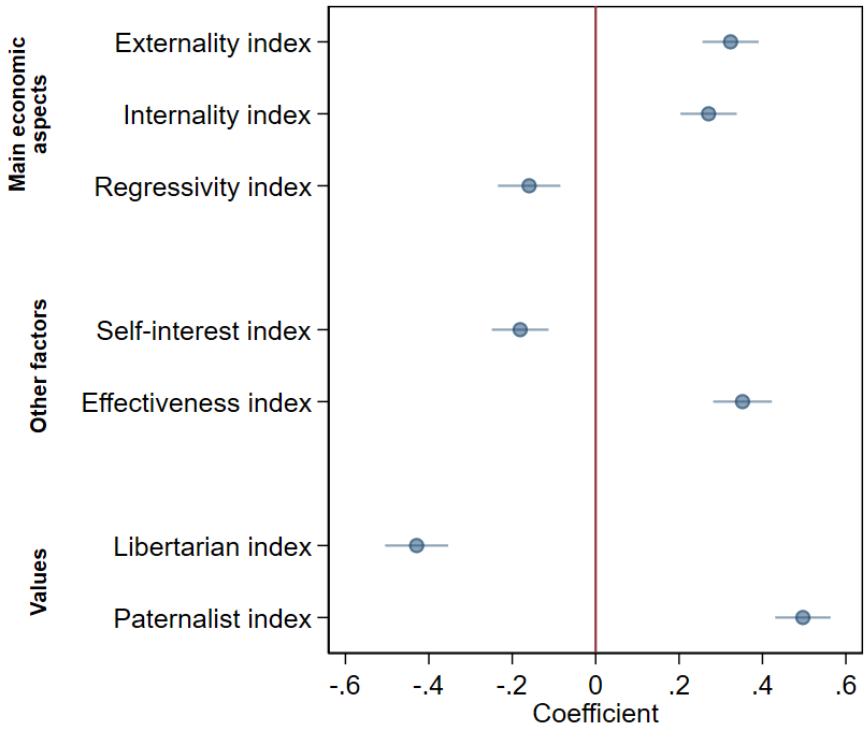
Notes: The table reports OLS regressions. The dependent variable is the z-standardized WTP for the donation to the CSPI (only respondents with consistent price lists are considered). Political affiliations are dummy variables (reference category is "other"). All other independent variables are z-standardized. Only the control group is considered. The indices are defined in Table C.3.

Table C.6: Interaction of values with economic aspects

	(1)	(2)	(3)
Panel A: Interaction with Paternalism index			
Externality index	0.125		
	(0.040)		
Externality index × Paternalist index	0.704		
	(0.162)		
Internality index		0.104	
		(0.046)	
Internality index × Paternalist index		0.483	
		(0.165)	
Regressivity index			-0.092
			(0.064)
Regressivity index × Paternalist index			-0.328
			(0.191)
Controls	✓	✓	✓
Adj. R2	0.183	0.138	0.109
Observations	1018	1018	1018
Panel B: Interaction with Libertarian index			
Externality index	0.725		
	(0.107)		
Externality index × Libertarian index	-0.619		
	(0.141)		
Internality index		0.467	
		(0.125)	
Internality index × Libertarian index		-0.336	
		(0.173)	
Regressivity index			-0.397
			(0.106)
Regressivity index × Libertarian index			0.323
			(0.156)
Controls	✓	✓	✓
Adj. R2	0.186	0.134	0.111
Observations	1018	1018	1018

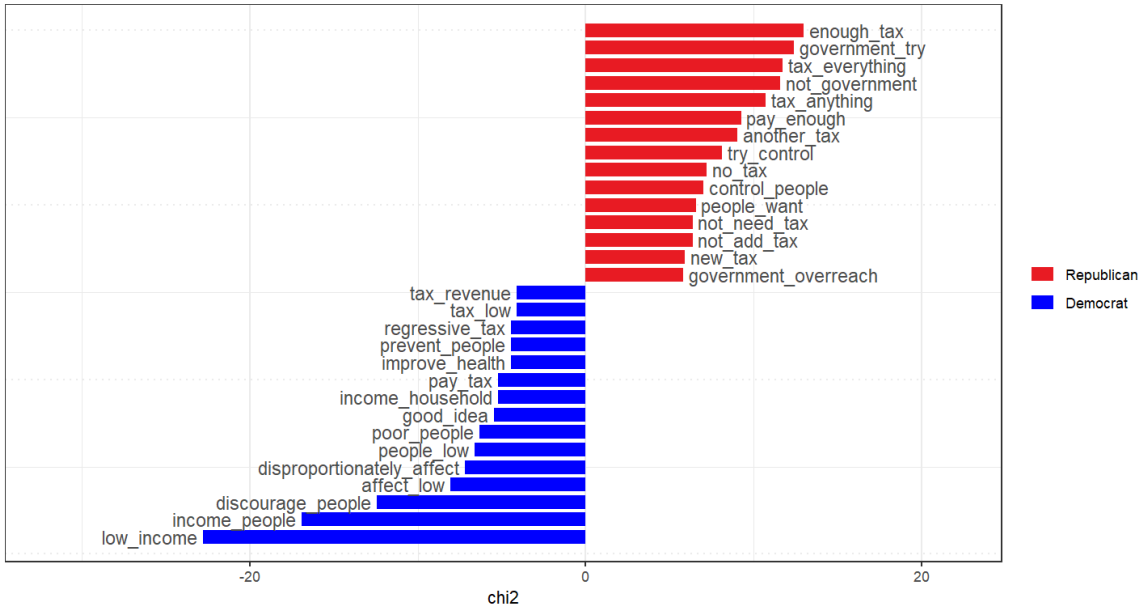
Notes: The table reports treatment effects based on OLS regressions. The dependent variable is the z-standardized policy index. The indices used as independent variables are z-standardized as well. The indices are defined in Table C.3. Only the control group is considered.

Figure C.6: Correlations with stated preference for SSB taxes in another state

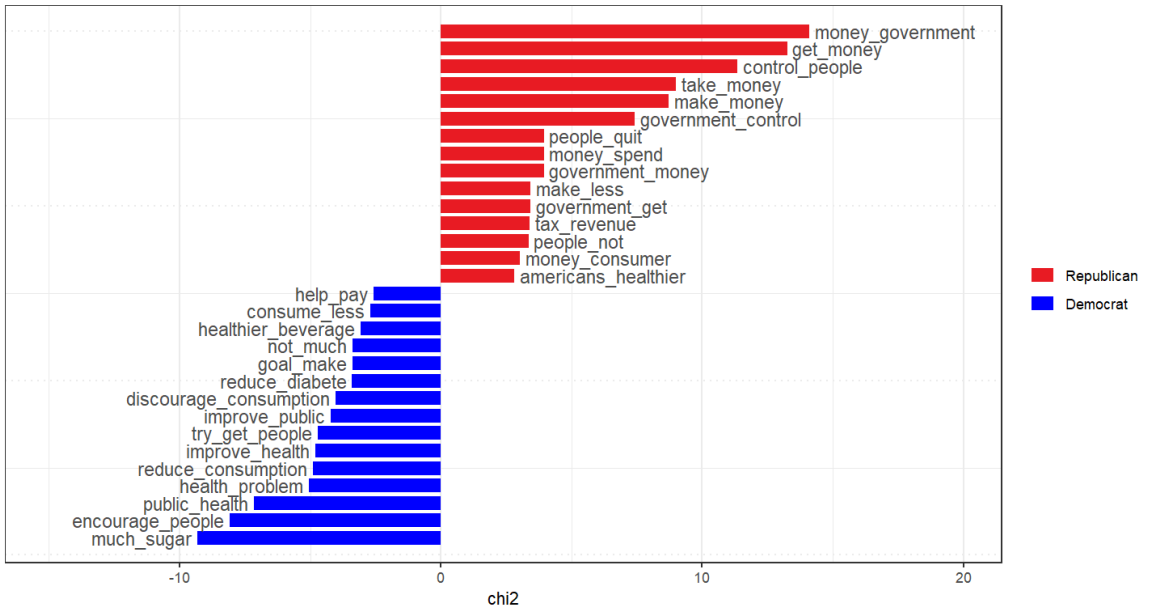


Notes: Graph shows coefficients and 95% confidence intervals from separate regressions of the preference for the tax in another state on the respective variables and control variables. All variables are z-standardized except for the party affiliation, which are dummy variables. The indices are defined in Table C.3. Only the control group is used for the estimations.

Figure C.7: Keyness graphs by political affiliation



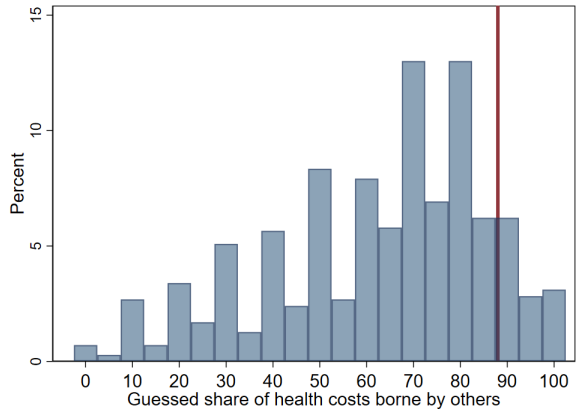
(a) Main considerations



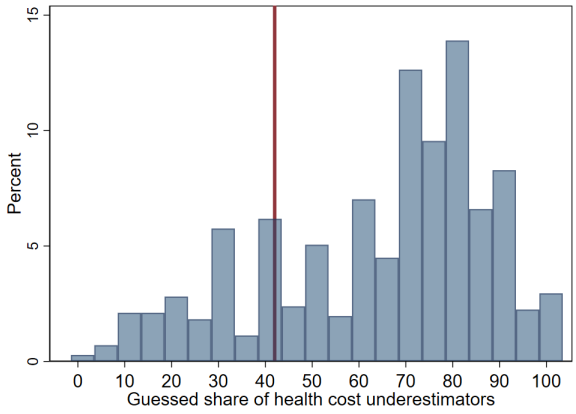
(b) Goals of an SSB tax

Notes: Graph shows word clouds and keyness graphs for perceived goals of an SSB tax. Panel (a) shows the most frequent 2-grams and Panel (b) a comparison of the relative frequency of 2-grams for Democrats and Republicans (by their chi2).

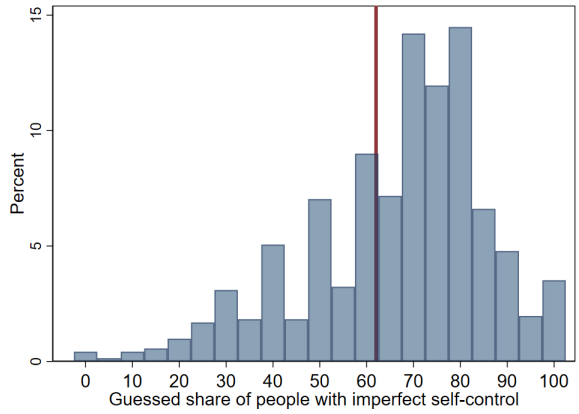
Figure C.8: Distribution of guesses in the respective treatment



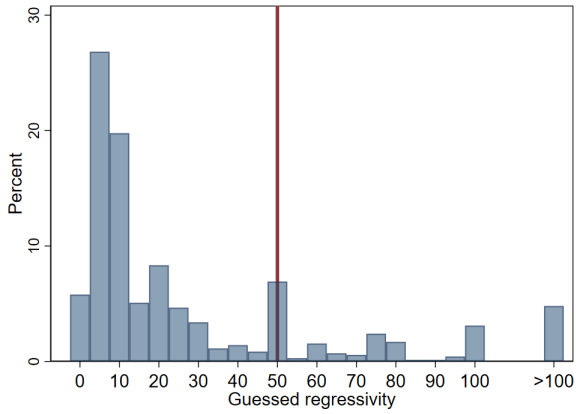
(a) Externalities



(b) Health cost misperceptions



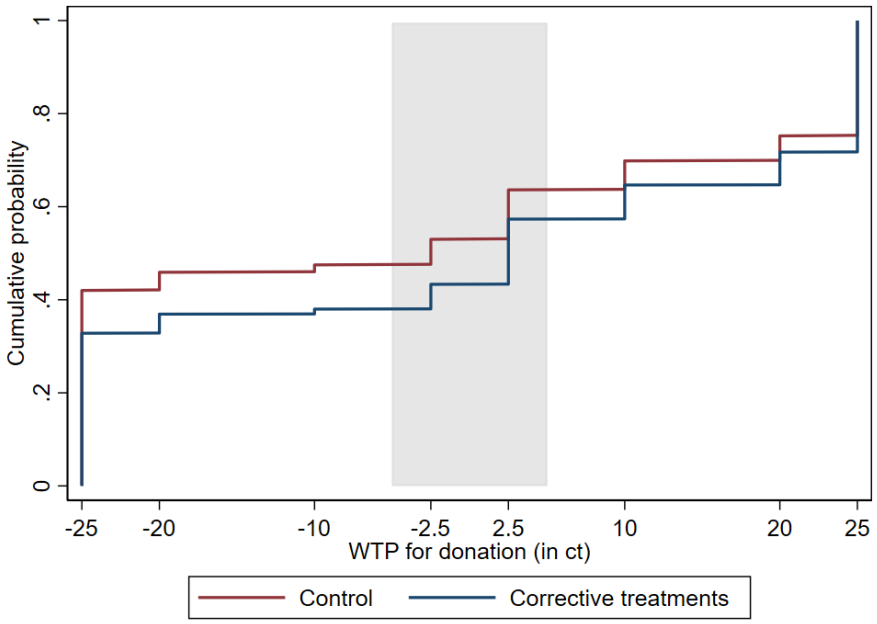
(c) Self-control



(d) Regressivity

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

Figure C.9: CDF for willingness to pay for donation by treatment



Notes: Graph shows CDF of WTP for donation in the control condition and the pooled corrective treatments.

Table C.7: Treatment effects on WTP for donation

	(1) Mean WTP	(2) Positive WTP	(3) WTP of -25ct	(4) WTP of +25ct
T Externality	3.447	0.085	-0.102	0.022
	(1.105)	(0.027)	(0.025)	(0.023)
T Health cost misperception	4.170	0.114	-0.099	0.030
	(1.108)	(0.026)	(0.025)	(0.024)
T Self-control	2.210	0.060	-0.058	0.031
	(1.144)	(0.027)	(0.026)	(0.024)
T Regressivity	2.940	0.076	-0.059	0.036
	(1.145)	(0.027)	(0.026)	(0.024)
Controls	✓	✓	✓	✓
Observations	3111	3111	3111	3111

Notes: The table reports treatment effects based on OLS regressions (compared to the control). The dependent variable in Column (1) is the mean WTP for a 25ct donation to the CSPI. The dependent variables in Column (2) to (4) are indicator variables for a positive WTP, a WTP of -25ct, and a WTP of +25ct, respectively.

Table C.8: Treatment effects on agreement with the economic aspects of SSB taxes (without controls)

	(1) Externality index	(2) Misperceptions index	(3) Self-control index	(4) Regressivity index
T Externality	0.346	-0.019	0.069	-0.061
	(0.047)	(0.049)	(0.050)	(0.050)
T Health cost misperception	0.253	0.345	0.192	0.067
	(0.047)	(0.045)	(0.047)	(0.047)
T Self-control	0.168	-0.044	0.186	0.024
	(0.047)	(0.048)	(0.048)	(0.048)
T Regressivity	0.175	-0.014	0.078	0.229
	(0.048)	(0.049)	(0.049)	(0.044)
Controls				
Wald p-value (equal coeff)	0.001	0.000	0.022	0.000
Observations	3864	3864	3864	3864

Notes: The table reports treatment effects based on OLS regressions. The dependent variables are the z-standardized indices for agreement with the respective arguments. The indices are defined in Table C.3.

Table C.9: Treatment effects on outcomes (without controls)

	Federal SSB tax			Donation
	(1) Policy index (z)	(2) Favors tax	(3) Tax level	(4) WTP (z)
T Externality	0.157	0.049	2.553	0.179
	(0.049)	(0.019)	(1.172)	(0.053)
T Health cost misperception	0.151	0.055	2.349	0.211
	(0.049)	(0.019)	(1.174)	(0.053)
T Self-control	0.182	0.054	3.892	0.144
	(0.051)	(0.019)	(1.235)	(0.054)
T Regressivity	0.096	0.060	0.476	0.164
	(0.049)	(0.019)	(1.119)	(0.055)
Controls				
Observations	3864	3864	3864	3111

Notes: Table reports treatment effects based on OLS regressions. In Columns (1) to (3), approval of the federal SSB tax is measured by the z-standardized policy index, z-standardized support for a federal tax, and by the preferred tax level in US cents per liter. In Columns (4), the dependent variable is the mean WTP in cents for a 25ct donation to the CSPI. Robust standard errors are in parentheses.

Table C.10: Heterogeneous treatment effects by political affiliation and income

	(1) Policy index	(2) WTP for donation	(3) Policy index	(4) WTP for donation
T Externality	0.239	0.221	0.190	0.304
	(0.089)	(0.092)	(0.090)	(0.093)
T Health cost misperception	0.165	0.291	0.085	0.166
	(0.091)	(0.095)	(0.089)	(0.096)
T Self-control	0.197	0.081	0.109	0.227
	(0.094)	(0.095)	(0.090)	(0.095)
T Regressivity	0.063	0.161	0.141	0.266
	(0.092)	(0.098)	(0.088)	(0.097)
Republican	-0.471	-0.461		
	(0.079)	(0.088)		
× T Externality	-0.162	-0.011		
	(0.120)	(0.131)		
× T Health cost misperception	-0.075	-0.161		
	(0.120)	(0.131)		
× T Self-control	-0.028	0.078		
	(0.131)	(0.139)		
× T Regressivity	0.003	-0.040		
	(0.126)	(0.139)		
Below 35k			-0.111	-0.007
			(0.082)	(0.093)
× T Externality			-0.055	-0.240
			(0.127)	(0.139)
× T Health cost misperception			0.152	0.032
			(0.132)	(0.143)
× T Self-control			0.171	-0.149
			(0.134)	(0.144)
× T Regressivity			-0.033	-0.167
			(0.129)	(0.148)
Above 75k			0.040	0.085
			(0.074)	(0.082)
× T Externality			-0.040	-0.146
			(0.119)	(0.124)
× T Health cost misperception			0.054	0.077
			(0.116)	(0.126)
× T Self-control			0.067	-0.105
			(0.120)	(0.127)
× T Regressivity			-0.090	-0.143
			(0.116)	(0.127)
Constant	0.250	0.233	0.012	-0.035
	(0.062)	(0.067)	(0.056)	(0.062)
Observations	2420	1927	3864	3111

Notes: Table reports heterogeneous treatment effects based on OLS regressions. Reference categories are Democrats and respondents with income between 35k and 75k US Dollars. In Columns 1 and 2, individuals with political affiliation "Independent/Other" are excluded. Robust standard errors are in parentheses.

Table C.11: Demand treatment effects on outcomes

	Federal SSB tax			Donation
	(1)	(2)	(3)	(4)
	Policy index (z)	Support for tax (z)	Tax level	WTP (z)
Demand treatment	-0.068	-0.060	-1.501	-0.186
	(0.114)	(0.111)	(3.095)	(0.123)
	[-0.255,0.120]	[-0.243,0.123]	[-6.608,3.606]	[-0.389,0.017]
Controls	✓	✓	✓	✓
Observations	295	295	295	274

Notes: Table reports treatment effects based on OLS regressions. In the demand treatment, subjects are told "We hypothesize that participants who are shown the same instructions as you report higher support for sugary beverage taxes" (de Quidt et al., 2018; Roth and Wohlfart, 2020). In Columns (1) to (3), approval of the federal SSB tax is measured by the z-standardized policy index, z-standardized support for a federal tax, and by the preferred tax level in US cents per liter. In Columns (4), the dependent variable is the z-standardized mean WTP in cents for a 25ct donation to the CSPI. Robust standard errors are in parentheses. 90% confidence intervals are shown in square brackets.

Table C.12: Within-treatment guesses

	(1) Policy index (z)	(2) WTP for donation (z)
Panel A: Externality		
Guess externality	0.006	0.005
	(0.002)	(0.002)
Controls	✓	✓
Observations	707	583
Panel B: Health costs		
Guess health costs	0.002	0.004
	(0.002)	(0.002)
Controls	✓	✓
Observations	712	578
Panel C: Self-control		
Guess self-control	0.001	-0.001
	(0.002)	(0.002)
Controls	✓	✓
Observations	711	568
Panel D: Regressivity		
Log Guess regressivity	0.027	-0.031
	(0.031)	(0.033)
Controls	✓	✓
Observations	705	556

Notes Table reports regression estimates of the z-standardized policy index and the WTP for the donation on the within-treatment guesses and control variables. The guessing questions are: share of obesity-related health costs borne by others (externalities), share of respondents underestimating health costs (health cost misperception), share of respondents stating a lack of self-control (self-control), and how much more poor consumers spend on SSBs than rich consumers (regressivity).

D Willingness to pay for donation

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

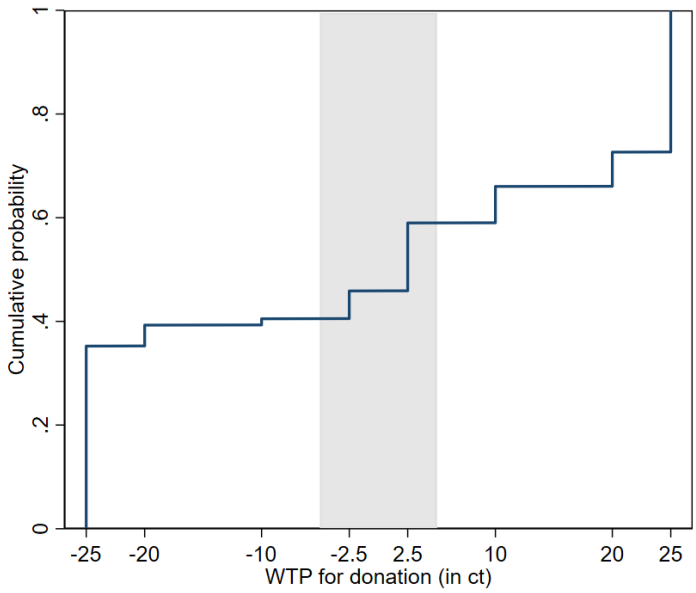
The survey requires subjects to make a decision in each row of the multiple price list shown in Figure 1. They decide on an allocation of (x_i, x_j), where x_i is a payout for herself, and x_j is a donation to the CSPI. Based on their switching point, their willingness to pay for a 25ct donation can be assigned to one of the intervals: $(-\infty, -25]$, (-25,-15], (-15,-5], (-5,0], [0,5), [5,15), [15,25), $[25, \infty)$. 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 a 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 implausible aversion to money).[46] 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 D.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).

[46] For example, in the first and second row everything is fixed except for the payout to the respondent. If a respondent prefers the right option in the first row, she should also prefer the right option in the second row, as it will pay her additional 10ct, everything else constant.

Figure D.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 corresponding to individuals who have a WTP of zero.

E Political value indices

To measure political values, we perform an exploratory factor analysis using all twelve items. The scree plot in Figure E.1 suggests that two factors ought to be extracted.

The rotated factor loadings of the two items are shown in Table E.1. The first factor loads high on items associated with general paternalistic attitudes (e.g., "Limiting a person's autonomy to promote her own good is acceptable"). It also loads high on items related to the two types of paternalism as classified by Ambuehl et al. (2021): mistakes-projective paternalism ("Policies should prevent others from making the same mistakes that I do") and ideals-projective paternalism ("Policies should prevent others from making the same mistakes that I do"). Moreover, there is a high factor loading for rather authoritarian views ("Sugary beverage consumption is wrong, irrespective of the consequences"). For simplicity, we form an equal-weighted "paternalism" index based on all eight items that load with at least 0.6 on factor 1.

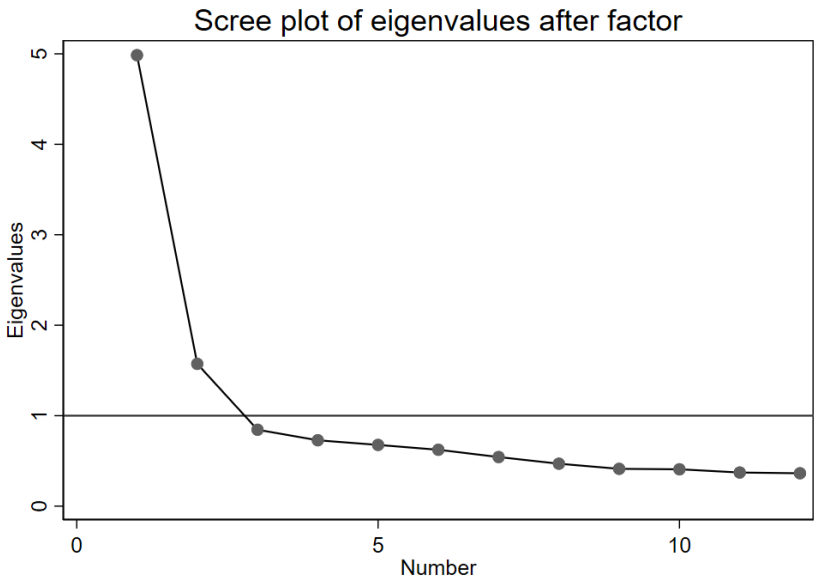
The second factor loads high on libertarian attitudes ("The government should not intervene in the economy") and critical views on state intervention in consumption decisions ("The state should not interfere with what people eat or drink"). Based on the three items that load with at least 0.6 on factor 2, we form a "libertarianism" index.

Table E.1: Rotated factor loadings of political values scale

	Factor1	Factor2
The state is allowed to interfere with personal autonomy to provide fairness and equality of opportunity.	**0.673**	-0.399
The government should be responsible to reduce obesity.	**0.650**	-0.331
The government should not intervene in the economy.	-0.020	**0.757**
Taxes that have the purpose to change behavior are wrong.	-0.218	**0.717**
The state should not interfere with what people eat or drink.	-0.334	**0.683**
Limiting a person's autonomy to promote her own good is acceptable.	**0.750**	-0.235
Intervening with a person's choices is justified if the person interfered with will be protected from harm.	**0.707**	-0.335
Policies should prevent others from making the same mistakes that I do.	**0.769**	-0.181
I can infer what is best for others from my own preferences.	**0.611**	0.268
Interfering with a person's autonomy is justified, as people can have wrong preferences.	**0.769**	-0.230
A good nutrition will improve a person's character.	0.565	0.175
Sugary beverage consumption is wrong, irrespective of the consequences	**0.648**	0.065

Notes: Table shows rotated factor loadings after principal component factor analysis (varimax rotation). Factor loadings above 0.6 are in bold. Only the control group is used (N=1,017).

Figure E.1: Screeplot for political values



Notes: Graph shows scree plot after principal component factor analysis using the twelve items of the political values scale. Only the control group is used.

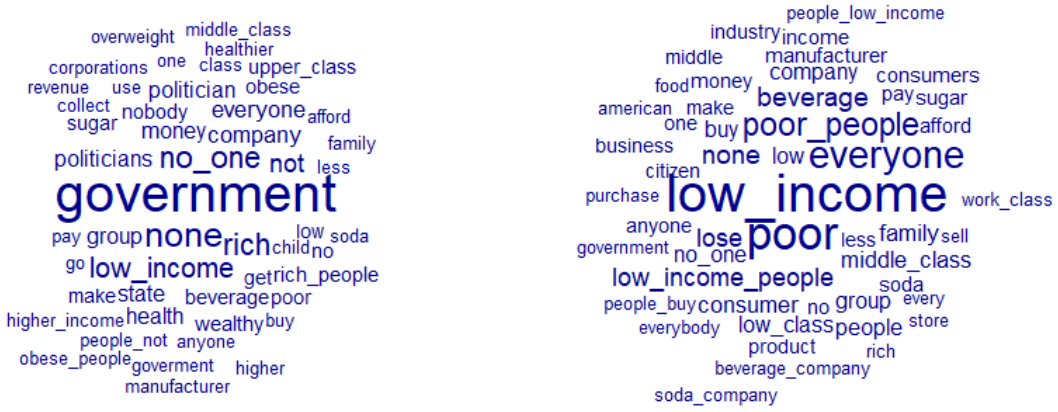
F Text analysis

Our analysis of the free text responses follows Ferrario and Stantcheva (2022). First, we lemmatize the free-text responses, that is, we replace inflected forms of words with their dictionary form (e.g., "went" is replaced by "go"). For that purpose, we use the R package udpipe. Next, we use the quanteda package by Benoit et al. (2018) to pre-process the text data. We remove numbers, punctuation, symbols, and separators. Moreover, we remove stopwords that have no intrinsic meaning (e.g., "I," "that," or "and") and words that repeat the question (e.g., "sugary," "drink," "implement") or do not add information (e.g., "think," "believe," "feel"). We group together collocations that frequently occur together, but are not understandable as a 2-gram (e.g., "get people").

For the analysis of main considerations and goals of an SSB tax in Figures 2 and C.7, we generate 2-grams as sets of two subsequent words each. We group together 2-grams that share the same elements but are in a different order (e.g., "tax enough" and "enough tax") and we remove 2-grams that are not informative (e.g., "tax tax," "not sure," or "sugar tax"). Since some 2-grams contain a collocation they can also consist of three words.

For the analysis of winners and losers of an SSB tax in Figure F.1, we plot 1-grams since many respondents give 1-word responses. Here too, we group together the most frequent collocations (e.g., "no one", "low income", "poor people"), which means that some 1-grams consist of two words.

Figure F.1: Word clouds for winners and losers of an SSB tax

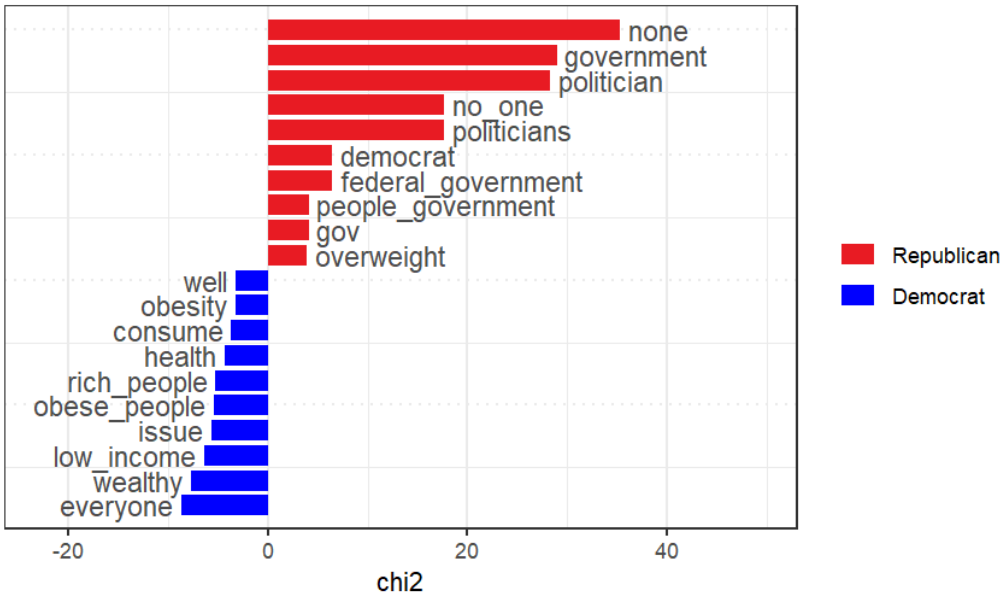


(a) Winners

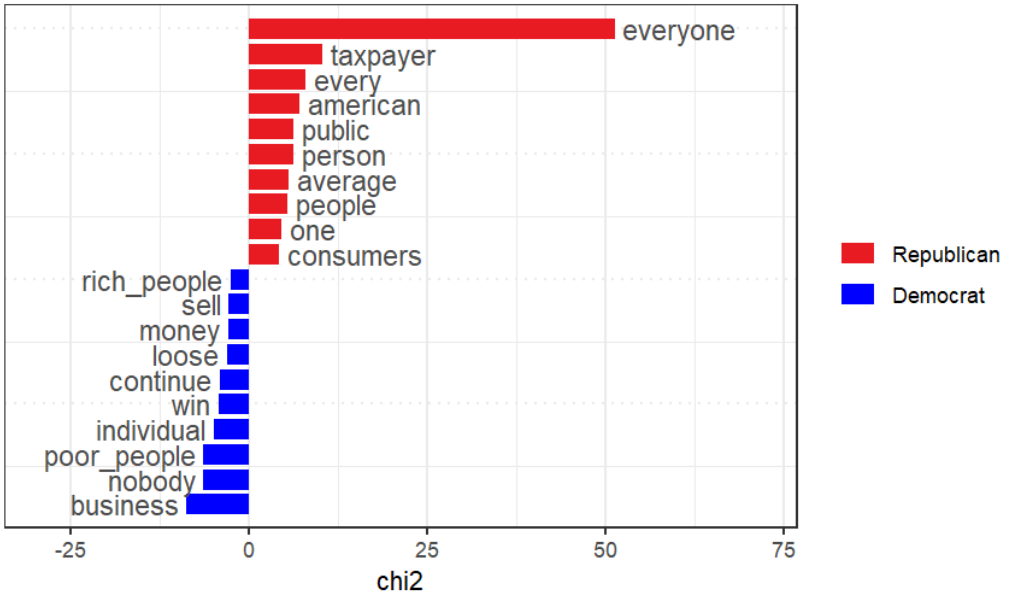
(b) Losers

Notes: Graph shows word clouds for potential winners and losers of an SSB tax. The graph shows the most frequent 2-grams mentioned by the political groups.

Figure F.2: Keyness analyses for winners and losers of an SSB tax



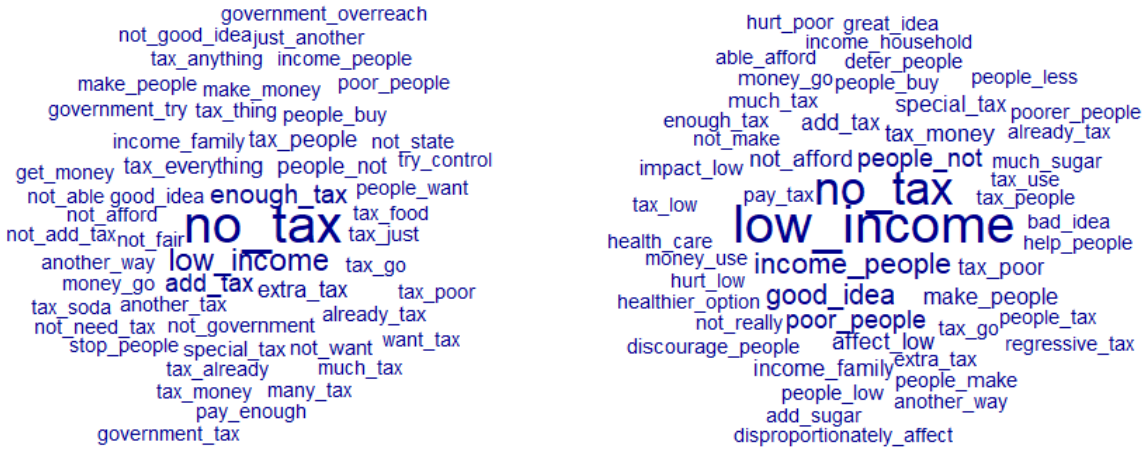
(a) Winners



(b) Losers

Notes: Graph shows word keyness graphs for potential winners and losers of an SSB tax by political affiliation. The graph shows a comparison of the relative frequency of 1-grams and 2-grams by Democrats and Republicans (by their chi2).

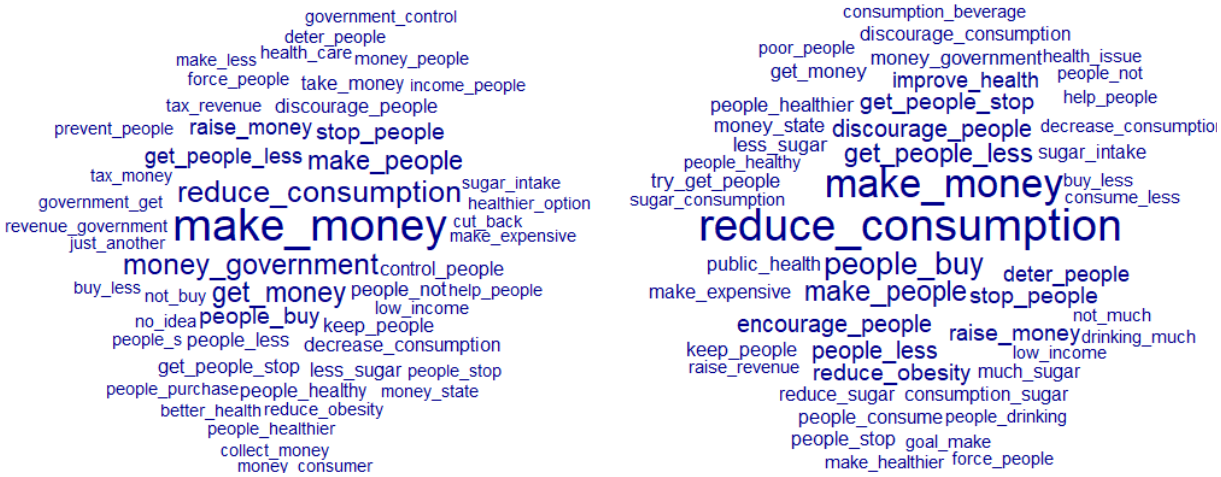
Figure F.3: Word clouds for considerations about SSB tax (by political affiliation)



(a) Republicans (b) Democrats

Notes: Graph shows word clouds for main considerations regarding an SSB tax and its possible introduction by political affiliation. The graph shows the most frequent 2-grams mentioned by the political groups.

Figure F.4: Word clouds for goals of SSB tax (by political affiliation)



(a) Republicans (b) Democrats

Notes: Graph shows word clouds for goals of an SSB tax by political affiliation. The graph shows the most frequent 2-grams mentioned by the political groups.

G Instructions

G.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]

G.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.]

G.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]

G.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]

G.5 Attention check

If subjects fail the attention check question below, they are automatically screened out and redirected to the survey company via a dedicated link.

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? _____

G.6 Beliefs about SSB 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]

G.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]

G.8 Information treatments

[Instructions for the information treatments are provided in Appendix B]

G.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]

G.10 Preferences for 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]

G.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]

G.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]

H Demand treatment

The demand treatment follows the control group instructions in Appendix G up until the point when we elicit preferences for the SSB tax. For a randomized subsample, We replace the preference elicitation in G.10 with a demand treatment:

- 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.

[Demand treatment:] In this study, participants are randomly assigned to receive different instructions. We hypothesize that participants who are shown the same instructions as you report higher support for sugary beverage taxes.

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]