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Prices or bans? Understanding public preferences over policy options

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Abstract

When a policy goal is set or mandated, e.g., by a higher level of governance, policymakers have a range of instruments to choose from to reach this goal, such as pricing instruments or bans. However, implementation of such policies may fail when they lack public support. We thus study the determinants of public preferences for these instruments in two contexts using a survey experiment with more than 4,000 participants from the general German population. Respondents choose between pricing instruments and bans aimed towards the goals of reducing car traffic in city centers and sugar consumption, while we vary the price of the pricing instrument via the newly introduced Policy Price List. In addition, we vary the stringency of the ban, and information about policy effectiveness. We find that preferences over the presented policy options are sensitive to policy design for a large majority of respondents. Higher prices can both increase and decrease support for pricing, while more stringent bans are not necessarily less popular. In addition, perceived policy effectiveness matters: providing information about effectiveness increases support for the pricing instrument. By contrast, moral convictions and trait reactance primarily predict support for the policy goal itself rather than relative policy preferences.

Keywords: Policy preferences, Pricing instruments, Bans, Moral convictions, Reactance, Effectiveness

JEL Codes: D63, D72, D91, H23, K32

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1 Introduction

When pursuing a certain policy goal, policymakers have a range of instruments to choose from. This choice between instruments becomes particularly relevant in contexts where the policy goal itself is mandated, determined at a higher level of governance or set by previous governments. For instance, the European Union frequently sets environmental or public health targets that member states must achieve, leaving them discretion over which policy instruments to use. Similarly, local administrations can face legally binding targets from federal or state governments and must decide how to achieve them. In such settings, the relevant policy question is not whether to implement a policy at all, but which policy instrument to adopt to reach a predetermined goal.

A recurring theme in this choice is deciding between pricing instruments and bans. For instance, tobacco taxes and advertisement bans are prominently discussed to limit tobacco consumption (e.g., DeCicca et al., 2022), sugar taxes are compared to the regulation of the retail environment to limit sugar consumption (e.g., Pomeranz, 2012), and purchase or fuel taxes are compared to vehicle or fuel standards to reduce transport externalities (e.g., Austin & Dinan, 2005; Santos et al., 2010). This choice between pricing instruments and bans is not straightforward as it usually implies some trade-off between financial burden, individual freedom, fairness, and efficiency. Pricing preserves individual freedom and is often considered more efficient but imposes financial costs that may disproportionately affect low-income households and raise fairness concerns (e.g., Maestre-Andrés et al., 2019). Goulder and Parry, 2008, for instance, show that in the case of environmental policies distributional equity is usually traded off against cost-effectiveness. In contrast, bans, while frequently less cost-efficient and more restrictive, may be perceived as fairer due to the absence of direct financial costs, and strict bans can be more effective by design. Scientists often advocate for pricing instruments, such as congestion pricing (e.g., Cramton et al., 2018), due to their cost-efficiency. However, in democratic settings, policies can only be politically viable if they gain support from a critical mass of the public (Grelle & Hofmann, 2024), and many scientifically recommended policies fail to be implemented because of insufficient public support (Carattini et al., 2024).

To implement effective and politically viable policies in settings with given policy goals, it is therefore crucial to understand how the public chooses between instruments aimed to achieve the same goal. That is, besides absolute support for a specific policy, relative policy preferences are a crucial dimension to consider.

Against this backdrop, we address three key research questions. Firstly, we examine how individuals trade off different policy instruments—specifically, pricing instruments versus bans—that aim to achieve the same goal. Secondly, we explore whether the public's relative policy preferences remain consistent in different contexts. Thirdly, we investigate which individual characteristics shape relative policy preferences.

To address these questions, we introduce a novel methodology for eliciting relative policy preferences: The Policy Price List (PPL), a survey instrument adapted from the multiple price list methodology, considers a predetermined policy goal and presents respondents with choices between

a fixed ban and a pricing instrument at various prices. This design allows us to observe how people trade off policy instruments directly, and how relative preferences shift dynamically as the price of a policy rises.

We employed the PPL in a pre-registered survey experiment, that was conducted in September and October 2024 with more than 4,000 respondents from the German general population. We elicited relative policy preferences by asking respondents to choose between pricing and bans in the two contexts of car traffic in city centers and sugar consumption, where we varied the price of the pricing instrument and the stringency of the bans. Additionally, we gathered data on respondents' support for the policy goal, desire for government intervention, and their perceived policy characteristics. Furthermore, to provide causal insights into the factors that determine the policy instrument choice, we experimentally varied whether respondents received information on the effectiveness and potentially regressive distributional consequences of the pricing instruments. Finally, we elicited moral convictions (utilitarian vs. deontological) to speak to the idea that a universal worldview might influence policy preferences, and trait reactance, a personality trait marked by the tendency to see persuasive attempts as a threat to personal freedom.

Our findings reveal that public preferences are highly sensitive to policy design. Only 10 percent of respondents consistently preferred one instrument type across all choices, suggesting that preferences are malleable rather than anchored in general worldviews. The relationship between price and support is context-dependent: higher prices received greater support than low prices in one context but not in the other. Similarly, more stringent bans are not uniformly unpopular; in some cases, they received higher support than milder versions. Concerning perceived policy characteristics, we find that perceived effectiveness, fairness, and financial impacts on one's household shape relative policy preferences, and that providing information about effectiveness increases support for the pricing instrument. Finally, we find that moral convictions and psychological reactance primarily predict support for the policy goal rather than relative policy preferences.

Our study thereby contributes to the literature in four ways. First, our PPL offers a methodological advance in measuring policy preferences. Existing research on policy support can be broadly categorized into two strands. The first strand has extensively studied public support for individual policies. Survey experiments are prominently used to study how policy design and framing affects support (e.g., Bergquist et al., 2022; Carattini et al., 2017; Dechezleprêtre et al., 2025; Douenne & Fabre, 2022; König & Schmacker, 2025; Kuziemko et al., 2015; Stantcheva, 2021). For example, these studies show that support for policies such as environmental taxes is sensitive to features like revenue use, perceived fairness and effectiveness, and the public's understanding of the policies. Prior studies also document a general preference for softer, less intrusive policies that encourage desired behavior over more stringent measures aimed at discouraging undesired behavior (Banerjee et al., 2021; Drews & Van den Bergh, 2016; Grelle & Hofmann, 2024). A related literature uses observational or quasi-experimental data to examine how experiencing policies in practice shapes public support (e.g., Andersson & Nässén, 2016; Börjesson & Kristoffersson, 2018; Carattini et al., 2018, 2025; Cherry et al., 2014; Ciccone et al., 2025; Janusch et al., 2021; Mildenberger et al.,

2022; Murray & Rivers, 2015; Schuitema et al., 2010). These studies suggest that exposure to policies—for instance through congestion charges or environmental taxes—can influence attitudes by providing information about their costs and benefits. While such measures capture absolute support for a specific policy, they may conflate support for the policy instrument with support for the underlying policy goal. The second strand concerns contingent valuation studies which presuppose that support is not absolute but depends on the financial burden associated with the policy (e.g., Hoehn & Randall, 1987), and focus on how willingness to pay can be credibly measured. These studies attempt to convince participants that the government is considering implementing a specific policy to address a particular issue (Carson, 2012). As a result, they generally abstract from the possibility that the same policy objective could be achieved through alternative policy instruments.

Our PPL approach goes beyond these two strands, enabling us to capture more complex patterns of preference. Rather than merely measuring public preferences for one specific policy, we also capture trade-offs between policy instruments, such as weighing up the financial costs of pricing instruments against the restrictiveness of bans. By presenting respondents with choices between a fixed ban and a pricing instrument with increasing prices, the PPL allows us to directly identify how the cost of a policy shapes individual preferences. Its structure also enables us to track switching behavior between policy types as switching in both directions is possible. We can observe, for example, whether respondents initially favor the pricing instrument when the price is low and then shift toward the ban as the cost of the pricing instrument rises—or vice versa. Repeating the PPL with different types of bans also enables us to examine the interaction between stringency of a ban and price.

Second, we test the stability of relative policy preferences across distinct contexts. Previous studies often focused on one specific context such as support for climate policies (Dechezleprêtre et al., 2025) or sugar intake reduction (Hagmann et al., 2018). This leaves open the question whether policy preferences are stable across domains, potentially driven by deeply rooted worldviews, or whether they are highly specific to the context. On one hand, there may be cross-contextual policy preferences that are driven by general worldviews, such as an "anti-market bias" (Caplan, 2008; Cherry et al., 2014; Jacobsen, 2020). On the other hand, some studies indicate that preferences underlying the public acceptance of policies vary by context (Carlsson et al., 2024; Diepeveen et al., 2013; Hauge et al., 2024; Reynolds et al., 2019). This contextual variation may arise from different perceptions of fairness in each context. For example, Costa-Font and Cowell (2025) show that inequality aversion is context-dependent. They argue that these differences can arise from variations in available choices and information in each context, and the relative importance of certain contexts to individuals' well-being. We therefore study two distinct contexts: (1) the car traffic context, where the goal is to reduce traffic in city centers; and (2) the sugar consumption context, where the goal is to limit sugar intake. The two contexts were chosen as both are matters of everyday life and may imply negative effects. However, there are two important differences between these activities. While driving is often regarded as a necessity, sugar consumption is

largely a matter of personal choice. Moreover, driving in city centers primarily generates external costs (Cook et al., 2025), whereas sugar consumption also involves significant internalities, i.e., harmful effects on consumers themselves that they tend to ignore (Allcott et al., 2019b). Thus far, Germany has not yet implemented any large-scale policy measures to address car traffic in city centers or sugar consumption. However, policies addressing both issues have been prominently implemented in other countries, various interest groups are calling for political action, and both issues are frequently discussed in the media.

Third, we provide causal evidence on the drivers of instrument choice. Reviews of the literature demonstrate that perceived effectiveness, transparency, fairness, costs, benefits, and the use of revenues (if applicable) influence public support for policies (Bergquist et al., 2022; Drews & Van den Bergh, 2016). However, most of this literature relies on observational associations between perceived characteristics and policy support, limiting causal inference about which characteristics actually drive instrument choice. To isolate the causal impact of these factors, we employ an information provision experiment that varies whether respondents receive information on the effectiveness and potentially regressive distributional consequences of the pricing instruments. This allows us to draw causal conclusions on how perceived effectiveness and distributional consequences shape the choice between pricing instruments and bans.

Fourth, we examine the role of moral convictions and psychological reactance for relative policy preferences. A growing literature in economics studies how psychological factors and moral values predict policy support and political views. Previous studies have shown, for instance, that self-transcendent values and egalitarian worldviews predict higher support, while individualistic and self-enhancing orientations are linked to lower support (Bergquist et al., 2022; Drews & Van den Bergh, 2016). Other studies have found that moral universalism predicts political views (Cappelen et al., 2025; Enke et al., 2023) and that moral convictions, specifically utilitarianism versus deontology, shape preferences and behavior (see e.g., Bénabou et al., 2024; Dewatripont & Tirole, 2024; Herweg & Schmidt, 2022; Kaufmann et al., 2024). In particular, Cherry et al. (2017) document a link between cultural worldviews and the public acceptance across different types of policy instruments. While prior work has linked moral values to broad policy support, the specific role of utilitarian vs. deontological convictions in trade-offs between instrument types remains unexplored. However, one might expect that utilitarians—who evaluate actions based on their consequences—may prefer pricing instruments, which may be seen as more efficient. In contrast, deontologists—who focus on the intrinsic rightness or wrongness of actions—may prefer bans which seem to affect everyone equally. Furthermore, psychological research suggests that psychological reactance can trigger resistance to certain political measures, even if this resistance may subside after a measure has been introduced (Granulo et al., 2025). Bans can be interpreted as "hard" constraints that directly eliminate behavioral options, whereas pricing instruments could be perceived as "softer" constraints that preserve the formal option to act (even if costly). Therefore, we investigate how preferences for pricing versus bans are related to trait reactance.

The remainder of the paper proceeds as follows. Section 2 explains the experimental design and

the study sample. Section 3 presents the results and section 4 concludes.

2 Experimental design and study sample

The pre-registered[1] experiment focuses on the participants' relative preferences for pricing instruments versus bans in two contexts: sugar consumption through sugary soft drinks and car traffic in city centers. To elicit these preferences, participants completed four policy price lists (PPLs), in each of which they repeatedly chose between a pricing instrument and a ban as the price of the pricing instrument increased in five steps. There were two PPLs for each context. Within each context, the PPLs varied in the stringency of the ban, while the pricing measure was held constant. To investigate predictors of policy preferences, we elicited the participants' perceived effectiveness, fairness, and financial consequences of the proposed policies for their household, their trait reactance, and moral convictions. In addition, we incorporated an information provision experiment to exogenously vary the perceived policy effectiveness and fairness. Figure 1 illustrates the experimental design for eliciting policy preferences and perceived policy characteristics. Our pre-specified hypotheses are provided in Appendix D, the survey questionnaire in Appendix E.

2.1 Policy preferences

Within each context, participants first reported whether they agreed with the general policy goal—limiting sugar consumption or reducing car traffic in city centers—and whether they believed the government should implement measures to achieve this goal. We then asked participants to assume that the German government had already agreed on the general policy goal and now had to choose between specific measures to achieve it. Immediately before each PPL, the two policy measures under consideration were clearly defined.

There were two bans that varied in their stringency and one pricing instrument for each context. An example PPL is given in Table 2 below and Table 1 provides an overview of these policies:

[1] The Design, as well as the main hypotheses and analyses were pre-registered at the AEA-RCT Registry under trial number AEARCTR-0014765: https://doi.org/10.1257/rct.14765-1.0.

Figure 1 Experimental flow

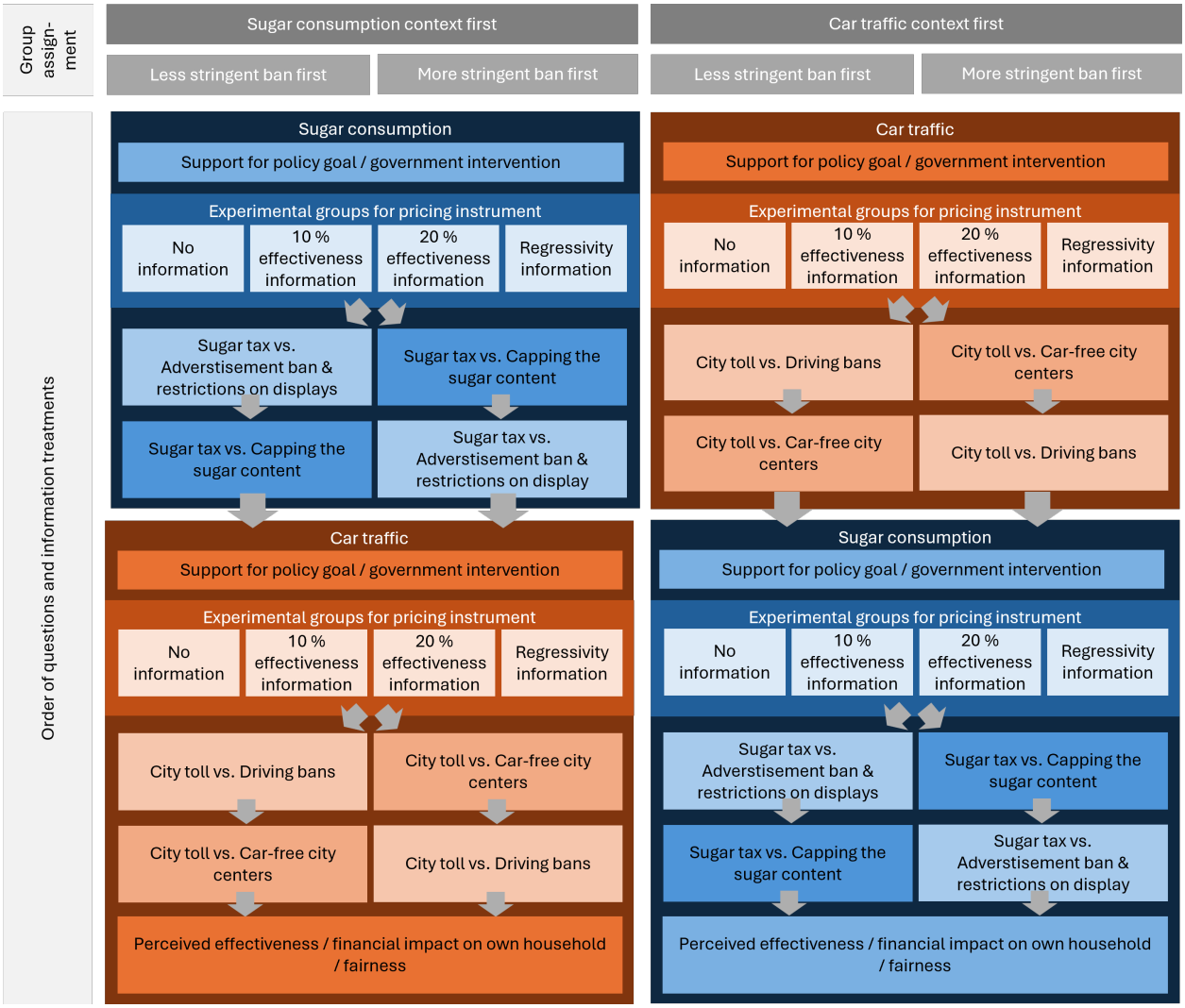


Table 1 Overview of policy measures

Context	Bans		Pricing instrument
Sugary soft drinks	Less stringent	Ban on advertising and restrictions on supermarket displays	Charges on the purchase of sugary soft drinks (10, 20, 30, 40, 50 cents per liter on average)
	More stringent	Capping the sugar content	
Car traffic	Less stringent	Driving bans based on license plates	City toll (€2, €4, €6, €8, €10 per trip to the city center)
	More stringent	Largely car-free city centers	

All policy options presented are based on actual proposals from the public discourse in Germany, either demanded by political actors or debated in the media. The lowest price of the city toll of €2 per entry to the city center aligns with congestion charges that have been implemented in some European cities. For instance, in the cities of Gothenburg, Stockholm, and Oslo, the cost of entering the city center is approximately €1 to €4 per trip, with multiple passes through toll stations within a one-hour time frame included, depending on factors such as season, time of day, and vehicle type (Swedish Transport Agency, 2024a, 2024b; Visit Oslo, 2024). Milan imposes a higher congestion charge of €7.5 (Comune di Milano, 2024), and in London, the charge amounts to approximately €17 (Transport for London, 2024), which is even higher than the highest price in our setting. However, charges in Milan and London are valid for an entire day. The lowest sugar tax rate of 10 cents per liter is equivalent to a tax level of 8.5 percent on average, when taking into account the price of soft drinks in the year the study was conducted, which was €1.17 per liter. The highest sugar tax rate of 50 cents per liter is equivalent to a tax level of 47 percent.[2] For comparison, the UK introduced a tax on sugary soft drinks in 2018, which amounted to roughly €0.20 and €0.30 per liter for a sugar content of 5-8 g and more than 8 g, respectively (Government UK, 2026).

To elicit the participants' relative preferences for the specific policies in each context, we asked them to complete four PPLs, in each of which they repeatedly chose between a pricing instrument and a ban. The ban varied in stringency across the two lists per context, while the pricing instrument remained constant. That is, in each list, participants chose between either the less or more stringent ban and the pricing alternative at five distinct prices. As an alternative, respondents could select "don't know" or "no answer". See Table 2 for an example of a PPL. To minimize non-responses, we acknowledged that choosing between the options might be difficult and encouraged participants to select the option that seemed most favorable to them. Note that the order of the contexts and the order of the PPLs within each context were randomized to mitigate order effects, with the order of the two PPLs within a context being kept constant across contexts. For an overview of the randomization see Figure 1.

The following illustrates an example from the car traffic context, showing the less stringent ban (driving bans) compared to escalating city tolls.

[2]The price is based on the average purchase price of one liter of soft drinks in Germany in 2016 (Statista, 2024), which was adjusted for inflation using the index of retail prices for retail beverages in Germany (Federal Statistical Office (Destatis), 2024).

Let's assume that a binding decision to reduce car traffic in city centers has been made in Germany. Now there is a debate about what measures should be taken to achieve this goal.
We are now interested in your opinion on these two measures:

1. Driving bans based on license plates
The number of cars that are allowed to drive into the city center is reduced by driving bans on certain days for certain cars. The last digit of the license plate is used to decide which vehicles are affected by this ban on which days.

2. City toll
All drivers must pay a fee when entering the city center.

Which of the two measures would you prefer: driving bans based on license plates or a city toll?

In the following, we ask you to answer this question for different levels of the city toll per trip into the city center. Please fill in all lines.

Table 2 Policy price list for the choice between driving bans based on license plates and a city toll

Driving bans based on license plates			*City toll of* ***€2 per trip*** *to the city center*
Driving bans based on license plates			*City toll of* ***€4 per trip*** *to the city center*
Driving bans based on license plates			*City toll of* ***€6 per trip*** *to the city center*
Driving bans based on license plates			*City toll of* ***€8 per trip*** *to the city center*
Driving bans based on license plates			*City toll of* ***€10 per trip*** *to the city center*

- Don't know
- No answer

The more stringent ban in the car traffic context was defined as follows:

1. Largely car-free city centers
The city center is no longer accessible to motorized vehicles, with the exception of delivery traffic and residents, for example.

In the sugar-consumption context, we told participants:

Let's assume that a binding decision has been made in Germany to reduce sugar consumption. Now there is a debate about what measures should be taken to achieve this goal. In particular, the consumption of sugary soft drinks (cola, iced tea, lemonade, etc.) is being considered.

We are now interested in your opinion on these two measures:

1. [less stringent] Ban on advertising for sugary soft drinks and restriction of display in supermarkets
Sugary soft drinks may no longer be advertised. In addition, they may only be offered in the drinks section of the supermarket and no longer in the entrance or checkout area or in separate displays.

OR

1. [more stringent] Capping the sugar content
The amount of sugar that soft drinks may contain is capped. This means that a certain sugar content may not be exceeded.

2. Charges on the purchase of sugary soft drinks
A charge is levied on the purchase of sugary soft drinks, making them more expensive.

Our PPL approach to eliciting policy preferences has the advantage of providing a nuanced picture of policy preferences. As each respondent chose between the pricing instrument and the ban at five distinct prices, there were many ways to respond. Therefore, for our main analyses, we create a categorical variable for six distinct preference types, which meaningfully summarize possible response patterns. The categories are:

- *Always ban*: respondents who prefer the ban at all prices
- *Always pricing*: respondents who prefer the pricing instrument at all prices
- *Switch pricing to ban*: respondents who prefer pricing at low prices and prefer the ban at high prices (regardless of the price at which they switch their preference)
- *Switch ban to pricing*: respondents who prefer the ban at low prices and prefer pricing at high prices (regardless of the price at which they switch their preference)
- *Multiple switches*: respondents who switch between preferring pricing and the ban more than once
- *Don't know/no answer*: respondents who select "Don't know" or "No answer"

2.2 Perceived policy characteristics

After eliciting respondents' relative policy preferences in both contexts, we asked them to evaluate the perceived effectiveness, financial impact on their own household, and fairness of the policies. These follow-up questions—adapted from Dechezleprêtre et al. (2025)—focused on the last context presented. For example, participants who first completed the PPLs concerning car traffic in city centers and then concerning sugar consumption were subsequently asked about the effectiveness, financial implications, and fairness of the two regulatory sugar reduction policies, as well as charges of 10 and 50 cents per liter on sugary soft drinks, but they did not rate the policy characteristics of policies from the car traffic context. For each of these three perceived policy characteristics,

subjects used a matrix to rate them on a 5-point Likert scale with the additional options of "don't know" or "no answer".

2.3 Information provision experiment

For the information provision experiment, respondents were randomized into four experimental groups, each comprising around 1,000 respondents: (1) *Control* (2) *10 % effectiveness* (3) *20 % effectiveness* (4) *Regressivity*. The sample is balanced in socioeconomic characteristics across the groups (Table B.2 in the Appendix). The control group received no additional information, while the treatment groups received additional group-specific information about the pricing instrument. This information was provided before the first PPL in each context. It equally referred to the second PPL within a context, which featured the same pricing instrument as the first PPL. However, to avoid overburdening respondents and reduce experimenter demand effects, we did not repeat the information before the second PPL.

Each treatment was presented in the form of a note below the description of the pricing instrument. In the treatments, we referred to the scientific study the information was based on. For example, in the effectiveness treatments concerning the city toll, we informed respondents about the potential reduction of car traffic in city centers resulting from such a policy.[3] The text provided was constant between the two effectiveness treatments, with only the estimates varying (10 percent in the *10 % effectiveness* treatment and 20 percent in the *20 % effectiveness* treatment):

> *Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a congestion charge of €2 per trip into the city center could reduce car traffic by around 10/20 %.*

In the car traffic context, the estimates are based on the analysis of Swedish city tolls by Börjesson and Kristoffersson (2018). In the sugar context, they are based on the confidence interval from Andreyeva et al. (2022) for the price elasticity of demand for sugar-sweetened beverages. Respondents in both treatment groups received a debriefing at the end of the survey experiment, informing them that the estimates provided were subject to uncertainty and that effects could turn out to be higher or lower.

Respondents in the *Regressivity* treatment were provided with information about how charges on sugar-sweetened soft drinks and a city toll can have regressive effects, based on Allcott et al. (2019a) for the sugar context and Kristoffersson et al. (2017) for the car traffic context. For example, we used the following text for the city toll:

> *Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden in the journal Transport Policy, a congestion charge can place a greater*

[3] Appendix C provides the calculations we made for the effect estimates of the price-based measure in the *10 % effectiveness* and *20 % effectiveness* treatments, as well as the exact wording of all treatments.

financial burden on low-income households than higher-income households. This is particularly the case if districts with affordable housing are located further away from districts with more jobs.

2.4 Moral convictions and trait reactance

To explore how policy preferences are determined by moral values and psychological traits, we assessed the respondents' utilitarian vs. deontological tendencies and trait reactance. First, individuals have different moral convictions. For instance, they tend to follow utilitarian or deontological principles. While utilitarians only care about whether an action increases or decreases utility, that is, they consider the outcome of an action (Bentham, 1789; Mill, 1863), deontological ethics stresses that the rightness of an action lies in its guiding principle rather than in its outcomes (Kant, 1785). Applied to policy preferences, these theories suggest that utilitarians care primarily about the outcomes of a policy—whether it achieves a particular goal—regardless of the means by which it does so. Deontologists, by contrast, place greater importance on the design of the policy, that is, on how a given goal is achieved.

To assess moral convictions in terms of utilitarian and deontological orientations, we rely on the Oxford Utilitarianism Scale (Kahane et al., 2018) (see Appendix E, Question PH.2). It measures utilitarianism along two dimensions: impartial beneficence (IB) and instrumental harm (IH). Impartial beneficence refers to the utilitarians' concern for everyone's well-being without favoring any particular group. Instrumental harm refers to the moral permissibility of causing harm to achieve a greater good, such as killing someone to save many others. Respondents rate their agreement with four or five items for each component on a 7-point Likert scale with the option of selecting "don't know/no answer" instead. We follow the approach of Bénabou et al. (2024) and operationalize utilitarian preferences calculating the mean over the items of each subscale separately.

Second, trait reactance is characterized by the tendency to resist threats to or elimination of individual freedom and trying to restore this loss of freedom. For instance, individuals "will resist [...] invasion of personal space" (Hong & Faedda, 1996, p. 173). Bans often restrict freedom, whereas pricing policies allow individuals to continue the behavior in question if they are willing to pay the corresponding price. Consequently, a higher trait reactance may be related to a preference for pricing instruments over bans.

To assess trait reactance, we follow Andor et al., 2025 and use three selected items from the Hong Psychological Reactance Scale (Hong & Faedda, 1996).[4] Respondents rated their agreement

[4]The wording of the three items is given the questionnaire provided in Appendix E, Question PK_Reac. Note that we operationalize psychological reactance by using a measure of trait reactance, i.e., the general tendency to view persuasive efforts as threats to one's personal freedom. While psychological reactance is typically viewed as a motivational state, for example in the study by Granulo et al., 2025, it has also been argued that it can be viewed as a personality trait that determines a person's proneness to feel and act in a reactant manner (Shen & Dillard, 2005). Since it was more viable to obtain a general measure of trait reactance later in the survey without overburdening the already demanding experiment with additional questions about motivational states, we opted for this variant. In a previous study on behavior during the COVID-19 pandemic, we have already found that our employed measure of trait reactance has strong explanatory power for individual decision-making behavior (Andor et al., 2025). However, it should be noted that results based on our measurement of trait reactance are likely, but not certain, to be transferable

with each statement on a 5-point Likert scale with an additional "don't know / no answer" option. Trait reactance is then operationalized by calculating the mean over all items and dividing the distribution of scores into terciles.

2.5 Study Sample

Our survey experiment was administered within the fourth wave of the Socio-Ecological Panel, a survey on preferences for and the effect of policies in the context of the German energy transition. The survey was conducted between September 25th and October 9th, 2024, in cooperation with the survey institute *forsa*. *forsa* maintains the online panel *forsa.omninet* with about 150,000 subjects, which is representative for German-speaking internet users aged 14 or older in Germany. Panel members are recruited offline and cannot recruit themselves, which reduces self-selection. For this study, panel members aged 18 and above who had already participated in previous surveys of the Socio-Ecological Panel (Eßer et al., 2025) were eligible to participate. For data collection, *forsa* allows panelists to complete the questionnaire online using common devices such as computers or smartphones. Respondents can interrupt and continue the survey at any time.

For this survey, 5,413 panelists were invited to participate, out of which 1,087 (20 %) didn't respond to the invitation, 286 (5 %) didn't finish the survey and 4,040 (75 %) completed the survey. We only use complete interviews for our analysis.

Table 3 provides an overview of the socioeconomic characteristics of the respondents in the sample. The average age is 62 years, with 57 percent being male and 43 percent female or non-binary. 39 percent of the respondents have a college degree, the median household income lies between €2700 and €4200 per month and the average household consists of two persons. A comparison with data from the Microcensus 2024 shows that the study sample is less female, older, better educated, less likely to live in a two-person household and more likely to live in larger ones, and has a lower household net income compared to a representative German sample (Table B.1 in Appendix B). Still, our sample covers a broad cross-section of the general German population.

to contexts in which psychological reactance is understood as a motivational state.

Table 3 Means of respondents' socioeconomic characteristics

	Mean	N
Non-male (female or non-binary)	0.424	4040
Age	61.492	4040
College degree	0.388	4004
Household size	2.058	4027
Monthly household net income		
Below 1,200 Euro	0.035	3719
1,200 to below 2,700 Euro	0.260	3719
2,700 to below 4,200 Euro	0.319	3719
4,200 Euro and more	0.385	3719

Note: The sample size differs across socioeconomic variables as respondents had the possibility to refrain from answering. There are only 4 respondents identifying as non-binary, which represent less than one percent of the sample.

3 Results

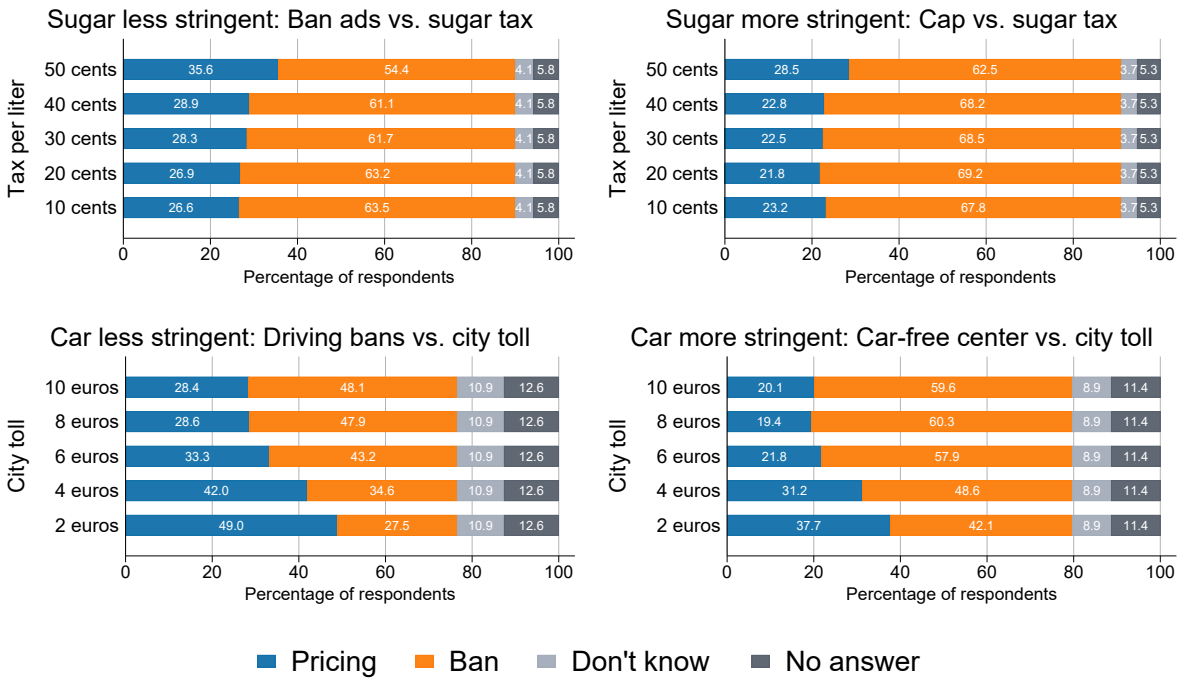
This section follows the order of our experimental design. We begin by describing policy preferences and by presenting our pre-specified analysis of how they are shaped by policy design and context (Section 3.1). We then report results on perceived policy characteristics (Section 3.2) and the pre-specified analysis of the effects of the information treatments (Section 3.3). Next, we examine pre-specified heterogeneity with respect to moral convictions and trait reactance (Section 3.4). Finally, we present exploratory results on support for the policy goal in Section 3.5. To ease readability, we provide a graphic presentation of the results in this section; tables with detailed regression results can be found in Appendix B.

3.1 Policy preferences

Support among respondents is high for both policy goals: about 80 percent support limiting sugar consumption and about 60 percent support reducing car traffic in city centers (Figure A.2 in Appendix A). Yet, support decreases to about 50 percent in both contexts when the question is whether the government should intervene to achieve the respective goal. Considering respondents' choices in the PPLs reveals that about 10 and 20 percent opted out of the choice between the pricing instruments and bans in the sugar consumption and the car traffic context, respectively, by choosing the response options "don't know" or "no answer" (Figure 2). While the proportion of respondents opting out of the choice is much higher among those who reported to not support the policy goal, not all respondents who rejected the goal opted out of the choice (Figure A.3 in Appendix A).

Considering the choices between policy instruments in the PPLs, we find that in most choice situations, the proportion of those who favor the ban is greater than the proportion of those who favor the pricing instrument (Figure 2). This pattern is similar for both contexts but more pronounced in the sugar consumption context: Averaging over all prices and the two bans, 64 percent preferred the ban in the sugar context, and 47 percent in the car traffic context. The preference for bans is slightly higher when the choice was between the pricing instrument and the more stringent bans. In addition, the strength of the preference for the ban over the pricing instrument depends on the price and the context: In the car traffic context, the preference for the ban increased by about 20 percentage points—from 28 to 48 percent for driving bans, and from 42 to 59 percent for car-free city centers—when the city toll increased from €2 to €10. In the sugar consumption context, in contrast, this relationship is reversed and less pronounced.[5]

Figure 2 Distribution of relative policy preferences across all choice tasks in the control group



Note: This figure shows the percentage of respondents selecting each option at the five distinct prices within each of the four PPLs. Selection of the opt-out option applied across all choices within a given PPL.

To evaluate the respondents' policy preferences in more detail, we sort participants into the six previously defined preference types based on their response behavior: always ban, always pricing, switch pricing to ban, switch ban to pricing, multiple switches and don't know/no answer.

There are about 10 percent of respondents who chose the same policy instrument at all five distinct prices in all four PPLs: About 2.6 percent of respondents preferred the pricing policy across

[5] Price effects are statistically significant for both contexts. See Figure A.4 in Appendix A for regression results.

all 20 individual choices in the four PPLs, and about 7 percent always preferred the ban (Figure A.5 in Appendix A). That is, for these respondents, relative policy preferences seem to be independent of the prices of the pricing instruments, the specific design of the bans, and the contexts considered in this study. For the remaining 90 percent of respondents, however, at least one of these factors influenced their relative policy preferences, which we investigate in more detail in the following.

First, we find that for a majority of participants, relative policy preferences show some degree of sensitivity to the proposed **price of the pricing instrument**: Among all respondents, 59 percent switched the preferred policy within at least one of the four PPLs, reflecting a change in preferences as the price increases (Figure A.1).[6]

Evaluating all four PPLs separately, provides a more detailed picture of the participants' choice behavior (Figure 3). In each PPL, between 20 and 50 percent of individuals consistently chose the ban at all five distinct prices (the "always ban" group), while 14 to 24 percent consistently opted for the pricing instrument regardless of price (the "always pricing" group). For example, in the PPL comparing car-free city centers with a city toll, approximately 31 percent can be classified as "always ban", and roughly 14 percent as "always pricing", totaling around 45 percent of respondents whose choices were unaffected by the price (and didn't opt out of the choice). In the PPL comparing a sugar cap with a sugar tax approximately 50 percent opted for the cap at all prices, while roughly 14 percent always chose the tax, totaling even 64 percent of price-insensitive respondents. For these respondents, the price did thus not influence their choices within a given PPL.

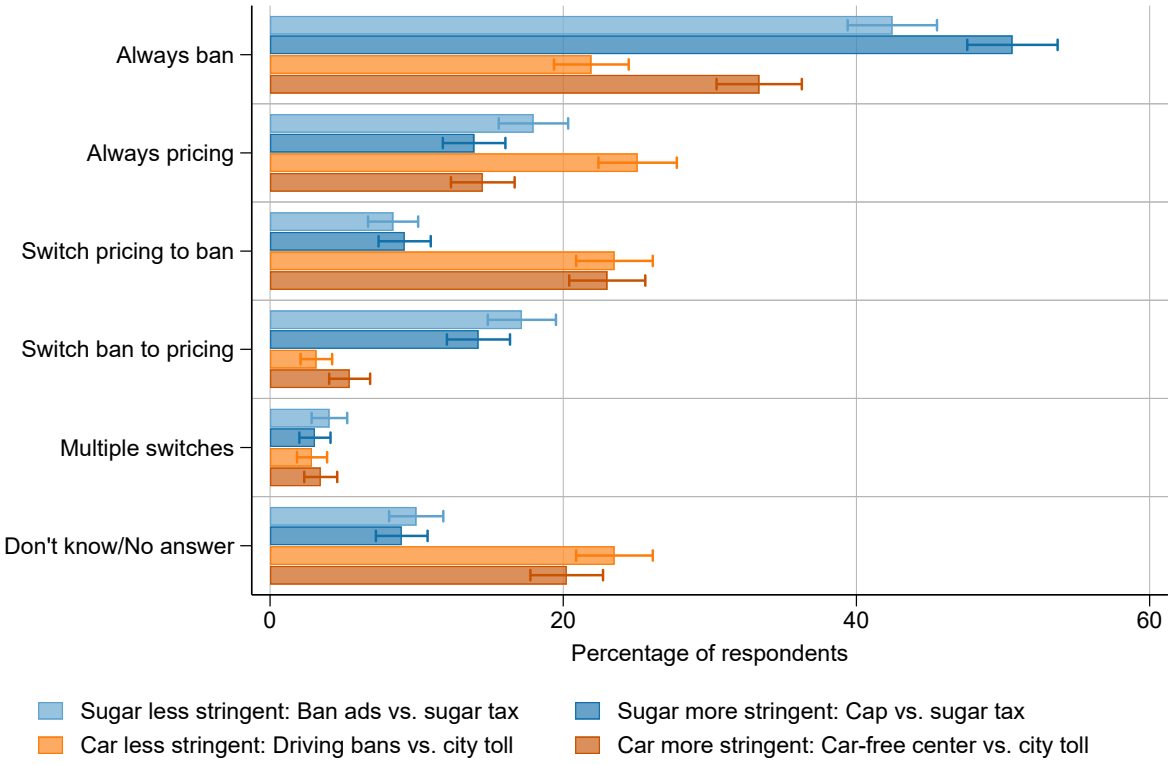
For many individuals, however, the price influenced their policy preferences: Between 10 and 26 percent of respondents preferred the pricing instrument at low prices but switched to the ban as prices increased. For instance, 11 percent opted for the sugar tax at low prices but preferred the advertising ban for sugary soft drinks when prices increased. Conversely, 4 to 17 percent of respondents preferred the ban at low prices but switched to the pricing instrument at high prices. Note that across all PPLs, there is only a minority of less than 4 percent who switched between the two proposed policies more than once, while roughly 10 and 20 to 24 percent opted out of the policy price list task in the sugar consumption and car traffic context, respectively.

Second, with respect to **context-dependence of policy preferences**, we find that 79 percent of respondents displayed different relative policy preferences when comparing PPLs with the same stringency level (either low or high) across the sugar and car contexts (Figure A.1).[7] To analyze context-effects on the different preference types, we use a multinomial logistic regression with clustered standard errors, in which we regress the categorical variable for the six distinct preference types on a binary variable for the two contexts. We find that the proportion of respondents who consistently chose the ban within a given PPL is substantially and significantly higher by almost 20 percentage points in the sugar consumption context than in the car traffic context (Figure 3; see Figure A.6 in Appendix A for the pooled regression results). Conversely, a slightly but also statistically significantly larger share of individuals consistently preferred the pricing instrument

[6] Excluding respondents that have answered at least one PPL with "don't know / no answer" this share increases to 70 percent.

[7] The share is the same when considering respondents who never answered with "don't know / no answer".

Figure 3 Distribution of preference types across the four PPLs in the control group



Note: This figure depicts the percentage of respondents exhibiting each preference type within each of the four PPLs. Whiskers represent 95 percent confidence intervals.

in the car traffic context than in the sugar consumption context. Furthermore, the proportion of respondents switching from the ban to the pricing instrument is significantly higher by more than 10 percentage points in the context of sugar consumption than in the context of car traffic in city centers. In contrast, switching from the pricing to the ban is considerably and significantly more common in the car traffic context (+14 percentage points). Relative policy preferences thus seem to be context-dependent. One reason for the higher preference for the ban in the sugar consumption than in the car traffic context may be addiction to sugar. According to Allcott et al. (2019a) and Becker and Murphy (1988), present-biased consumers who are not able to reduce their consumption of a good may benefit more from bans that directly restrict their consumption than from taxes.

Third, we find that policy preferences depend on the **different levels of stringency of the ban**: Among all respondents, 58 percent showed different policy preferences when comparing the less stringent and the more stringent bans within the same context in at least one context (Figure A.1).[8] For a more detailed analysis, we use a multinomial logistic regression with clustered standard errors, in which we regress preference types on a binary variable for lower and higher stringency

[8]Excluding respondents that have answered at least one PPL with "don't know / no answer" this share is 60 percent.

of the ban, interacted with a binary variable for the two contexts. For each context, we then calculate marginal effects to estimate the difference in predicted probabilities between stringency levels for each preference type (see Table B.3 in Appendix B for the pooled regression results). For both contexts, sugar consumption and car traffic, we find that respondents were significantly more likely to always prefer the ban by 8 and 11 percentage points, respectively, and significantly less likely to always prefer the pricing instrument (4 and 11 percentage points) when the ban was more stringent. This suggests that the more stringent the ban, the higher the relative preference for it. This finding contrasts the existing literature, which generally concludes that the public prefers softer policy instruments that are less intrusive and encourage desired behavior over harsher, more intrusive ones that discourage undesired behavior (Banerjee et al., 2021; Drews & Van den Bergh, 2016; Grelle & Hofmann, 2024). One possible reason for this divergence may lay in our elicitation format for policy preferences. While most studies measure support for individual policies and then compare the level of support across policies, our elicitation method involves a direct choice between two policies in a scenario where it is given that one or the other policy will be implemented.

Taken together, these results suggest that a substantial majority of respondents exhibit sensitivity to at least one of the three features discussed: the price of the pricing instrument, stringency of the ban, or the policy context. Figure A.1 in Appendix A presents the share of respondents sensitive to each combination of features. More than 40 percent of respondents are sensitive to all three features.

3.2 Perceived policy characteristics in the control group

Concerning the perceived policy characteristics, we find that, first, respondents consider the ban to be more effective than the pricing instrument (Figure 4). Within each policy type, the stricter ban and the highest price are perceived as more effective than the less stringent one or the lowest price, respectively. These differences are stronger for the sugar consumption context.

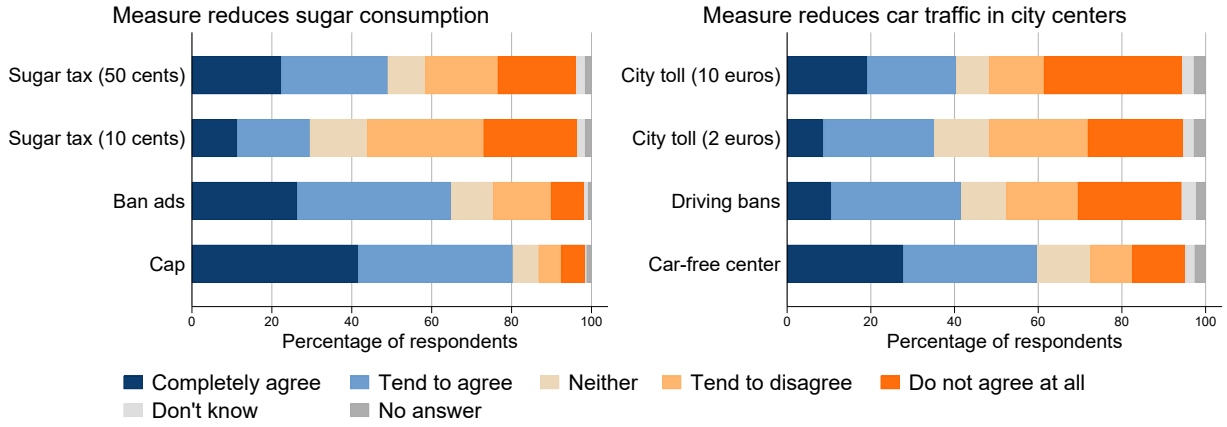
Second, bans are also perceived as fairer than the pricing instruments, with the difference in the perceived fairness being larger in the sugar consumption context. Additionally, stricter bans and higher prices are considered less fair than their respective counterparts, an effect that is more pronounced in the car traffic context. Furthermore, respondents consider the policy measures in the car traffic context as much less fair than those in the sugar consumption context. These contextual differences may reflect differences in the perceived necessity of the behavior to be reduced. Sugar consumption may be seen as a behavior that can be freely chosen and nobody is dependent on, which may reduce fairness concerns and justify high prices and strict bans that effectively limit the target behavior. Car use, in contrast, may be considered a necessity, making high prices and strict bans seem less fair.

Third, regarding the financial effects, a majority does not expect any impact on their household. However, while in the sugar consumption context there are more respondents that expect to win than to lose from the policy measures, especially from the two bans, there are more respondents expecting to lose than to win in the car traffic context, especially from the two pricing instruments.

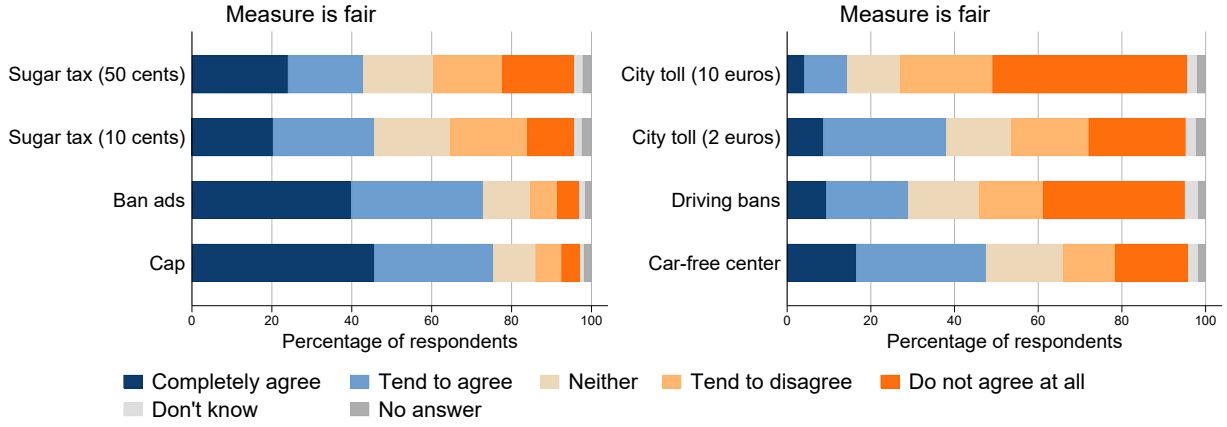
Considering the relationship between perceived policy characteristics and policy preferences, we find that respondents' ratings of the policies' effectiveness, fairness, and financial effects are in line with their choice behavior (Figure 5). On average, respondents who always chose the ban in a given

Figure 4 Perceived policy characteristics in the control group

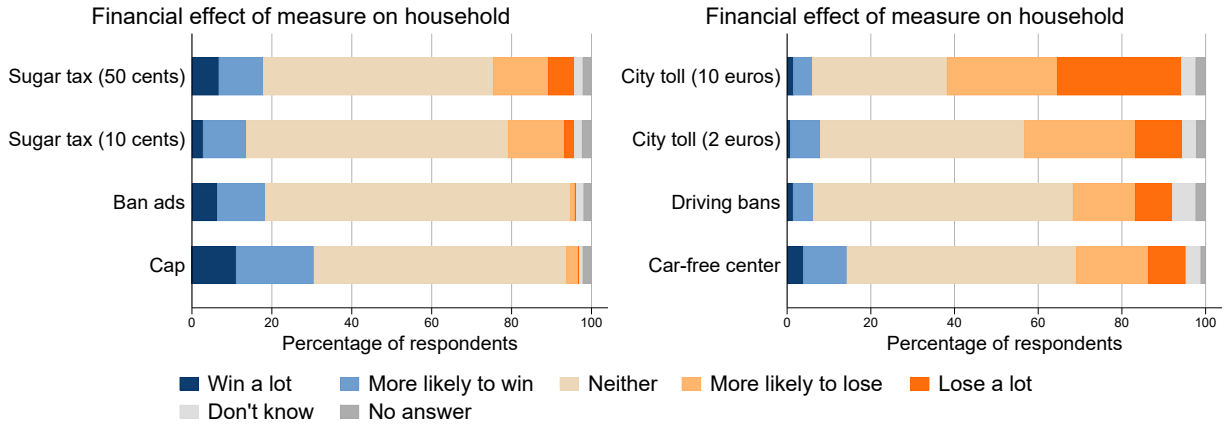
(a) Effectiveness



(b) Fairness

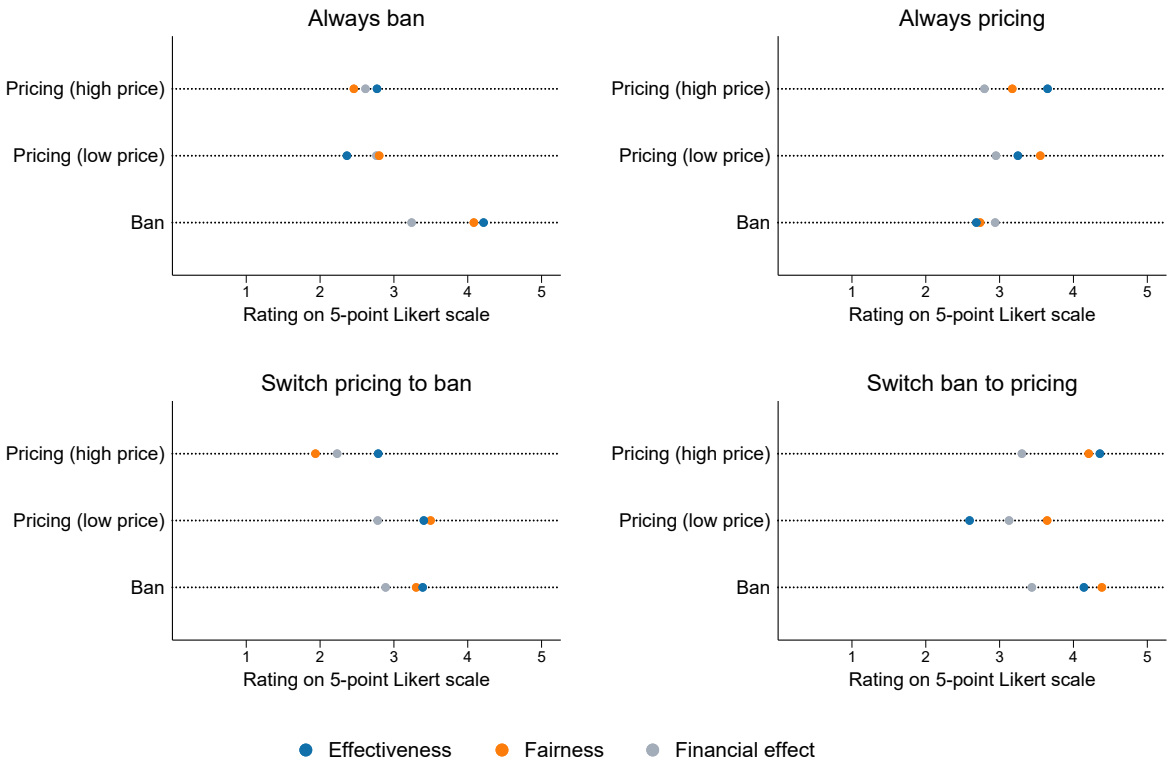


(c) Financial effects



PPL considered the ban more effective, fairer, and to have a less negative financial impact on their household than the pricing instrument at both the lowest and highest price. In contrast, those who chose the pricing instrument at all five distinct prices rated the pricing instrument higher than the ban in all dimensions at both the lowest and the highest prices. For those who switched from one policy to the other when prices increased, the perceived characteristics depend on the price of the pricing instrument: While respondents who switched from the pricing instrument to the ban in a given PPL rated the ban similar to pricing at the lowest price but higher at the highest price, the opposite holds for respondents who switched from bans to pricing. Since respondents, on average, preferred the pricing instrument when they rated both policies similarly, this suggests that another dimension of perceived policy characteristics influences preferences. A likely candidate is individual freedom of choice, which is greater in pricing instruments than in bans.

Figure 5 Average perceived policy characteristics across preference types in the control group

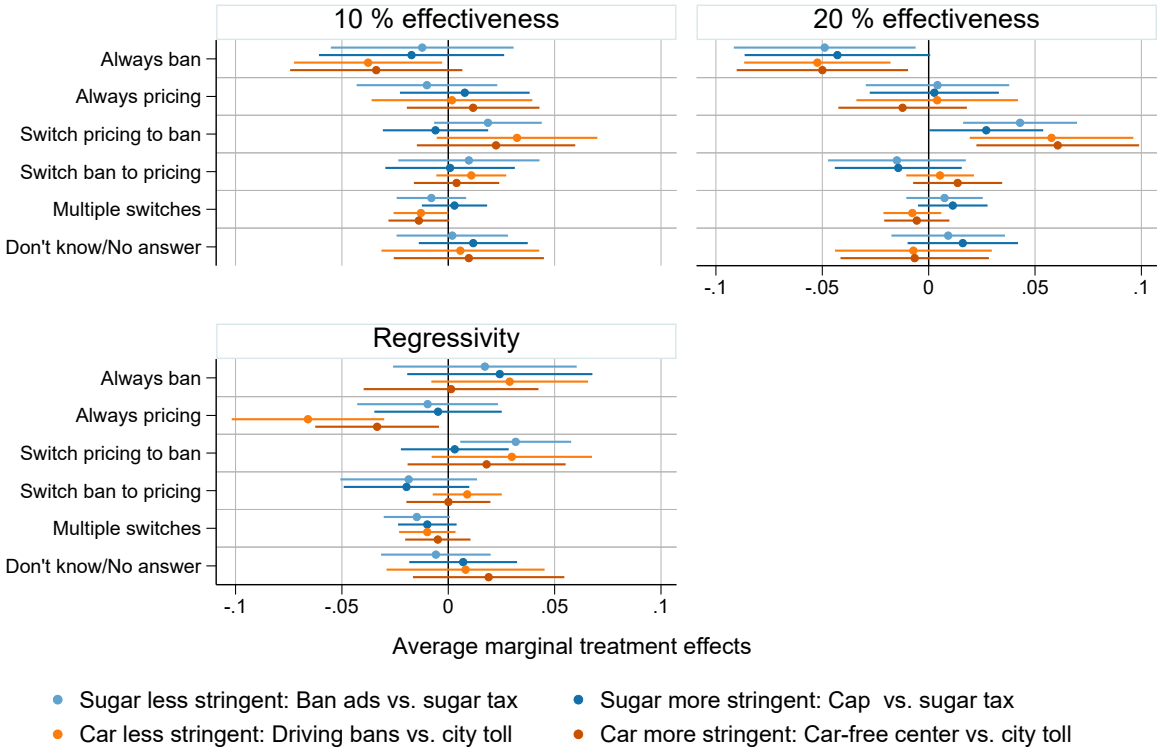


Note: Respondents were first classified into preference types. Within each type, perceived policy characteristics were aggregated across the four PPLs. Prices were analyzed separately (low vs. high), while perceptions of varying stringencies of the bans were combined. That is, we pooled perceptions of all bans (Ban)—advertising ban, sugar cap, driving bans and car-free city centers. Similarly, perceptions of the €2 city toll and 10-cent sugar tax were averaged (Pricing (low price)), as well as the €10 toll and 50-cent tax (Pricing (high price)). This aggregation enables us to determine whether, for instance, consistent choices for bans in a given PPL (featuring a ban with either low or high stringency) stem from a stable, high rating of the ban compared to the pricing instrument that persists across all prices, or whether the evaluation of the ban varies relative to the price of the alternative.

3.3 Information on effectiveness and regressivity of pricing instruments

To investigate the effects of the effectiveness and regressivity treatments on relative policy preferences, we use a multinomial logit model where the outcome is the categorical variable for the six preference types, which is regressed on treatment assignment. Figure 6 presents the average marginal effects of the information treatments on preference types. Similarly, we estimate treatment effects on perceived policy characteristics. Results for the perceived effectiveness of the policies are reported in Table B.5 in Appendix B, while Tables B.6 and B.7 present the results for perceived fairness and perceived financial effects, respectively.

Figure 6 Treatment effects on policy preferences across the four PPLs



Note: The plot depicts point estimates and 95 percent confidence intervals from a multinomial logit regression of the six preference types on treatment assignment. See Table B.4 in Appendix B for detailed regression results.

We find that the *20 % effectiveness* treatment, which provides respondents with a high effect estimate (20 percent) for the lowest price of the pricing instrument, significantly reduced the proportion of respondents who always preferred the ban by roughly 5 percentage points in each PPL, and simultaneously significantly increased the share of respondents who switched from the pricing instrument to the ban as the price increased by between 3 and 7 percentage points, depending on the PPL. The result suggests that under the *20 % effectiveness* treatment those respondents who would have preferred the ban in absence of the information were more likely to favor the pricing

instrument at lower prices, potentially due to a desire for an effective policy. Consistent with this, the *20 % effectiveness* treatment significantly increased perceived effectiveness at the lowest price, but had no effect at the highest price (Table B.5 in Appendix B).

The *10 % effectiveness* treatment, which provided respondents with a lower effect estimate than the *20 % effectiveness* treatment, also reduced the share of respondents always preferring the ban, but this effect is only statistically significant for the choice between driving bans and a city toll. Similar to the *20 % effectiveness* treatment, we find that the *10 % effectiveness* treatment significantly increased the perceived effectiveness of the pricing instrument at the lowest price in both contexts (Table B.5 in Appendix B). In addition, it tends to have increased the perceived effectiveness of the highest price in the car traffic context.

The differences in the effects on relative policy preferences between the *10 % effectiveness* and the *20 % effectiveness* treatment suggest that respondents reacted to the size of the effect estimate provided, as the treatments were otherwise identical. The finding that both treatments affect the perceived effectiveness almost identically may result from the Likert scale query, which only allows for limited increases in perceived effectiveness.

Unlike the *effectiveness* treatments, we expected the *Regressivity* treatment to reduce the preference for the pricing instrument. While it indeed reduced the share of respondents who always preferred the pricing instrument in the car traffic context, there is no such effect in the sugar context. The limited effectiveness of the regressivity treatment in the sugar context is in line with König and Schmacker, 2025. In a U.S.-based information experiment, they find that a regressivity treatment somewhat counterintuitively increases support for some indicators of policy acceptance of a sugar tax but does not affect others. This again suggests that concerns about regressivity play a limited role in the sugar context, assuming that, first, sugar is not considered a necessity and its consumption is seen as a matter of personal responsibility and, second, lower-income households consume more sugar than higher-income households (see Purohit et al. (2023) for a meta-analysis showing that lower socioeconomic status tends to be related to higher consumption of sugar-sweetened beverages).

In contrast to our expectation, the *Regressivity* treatment had no effect on the perceived policy characteristics of the low-price measure. Instead, it positively affected the perceived fairness and effectiveness of the less stringent ban in the car traffic context, and reduced the perceived financial loss through the more stringent ban in the sugar context.

3.4 Heterogeneity analyses regarding moral convictions and trait reactance (pre-specified)

To examine the relationship between moral convictions and policy preferences, we assessed moral convictions using the Oxford Utilitarianism Scale (Kahane et al., 2018), which evaluates two dimensions of utilitarians. Impartial Beneficence (IB) considers the concern for everyone's well-being without favoring any particular group, and Instrumental Harm (IH) measures the moral permissibility of causing harm to achieve a greater good.

Regressing policy support and the desire for government intervention on the mean scores of the IB and IH subscales,[9] we find that a higher IB score is associated with a greater support for the policy goal and a stronger desire for government intervention in both contexts (see Table B.8 in Appendix B). A higher IH score is associated with greater support of the policy goal and government intervention in the sugar context, while it is associated with lower support in the car traffic context. The positive relationship between the IH score and support in the sugar context is in line with the definition of instrumental harm that it is acceptable to harm someone to achieve a greater good. In the context of sugar consumption this could be interpreted in a way that those with a high sugar consumption should be punished in order to increase overall welfare. The motivation behind this reasoning could be a reduction of the externality of sugar consumption, or a more paternalistic view in terms of protecting high quantity consumers from the negative internal effects of sugar consumption.

To examine the link between moral convictions and policy preferences, we pool the policy preferences from all choice situations and use a multinomial logit model on the categorical preference types with the scores on the IB and IH subscales as regressors. In line with the positive relationship between the IB score and support for the policy goal and government intervention, we find that respondents with a higher IB score were slightly less likely to choose "don't know/no answer" by about 5 percentage points (see Table B.9 in Appendix B). Apart from this, moral convictions seem to only play a negligible role in determining relative policy preferences.

An alternative individual characteristic that may be related to policy preferences is trait reactance, a motivational state that occurs when one's freedom is threatened and is characterized by the motivation to restore this freedom. Thus, individuals who are prone to reactance may exhibit a preference for policy measures they perceive as less intrusive (Granulo et al., 2025). In our context, the perceived relative intrusiveness of the pricing instruments versus bans may vary with the stringency of the bans. Therefore, we investigate the link between trait reactance and policy preferences conditional on the stringency of the ban by pooling the preference types separately for the two stringency levels. In a multinomial logit model, we regress the categorical variable for the six preference types on trait reactance terciles interacted with a binary variable that indicates the PPLs with more stringent bans.

We find that respondents with high trait reactance were significantly more likely to decline to answer by roughly 15 percentage points, irrespective of the stringency of the regulatory measure (see Table B.10 in Appendix B). This suggests that they prefer to not implement any policy and is in line with their desire to maintain or restore their freedom. However, for those with medium trait reactance, this relationship is weaker and insignificant.

Moreover, both medium and, in particular, high trait reactance are negatively related to switching from ban to pricing, irrespective of the stringency of the ban. With respect to less stringent bans, we further find that higher trait reactance is significantly related to a lower likelihood of always choosing the pricing instrument, while the reverse tends to hold for more stringent bans.

[9] Note that "don't know" and "no answer" responses are excluded from this analysis.

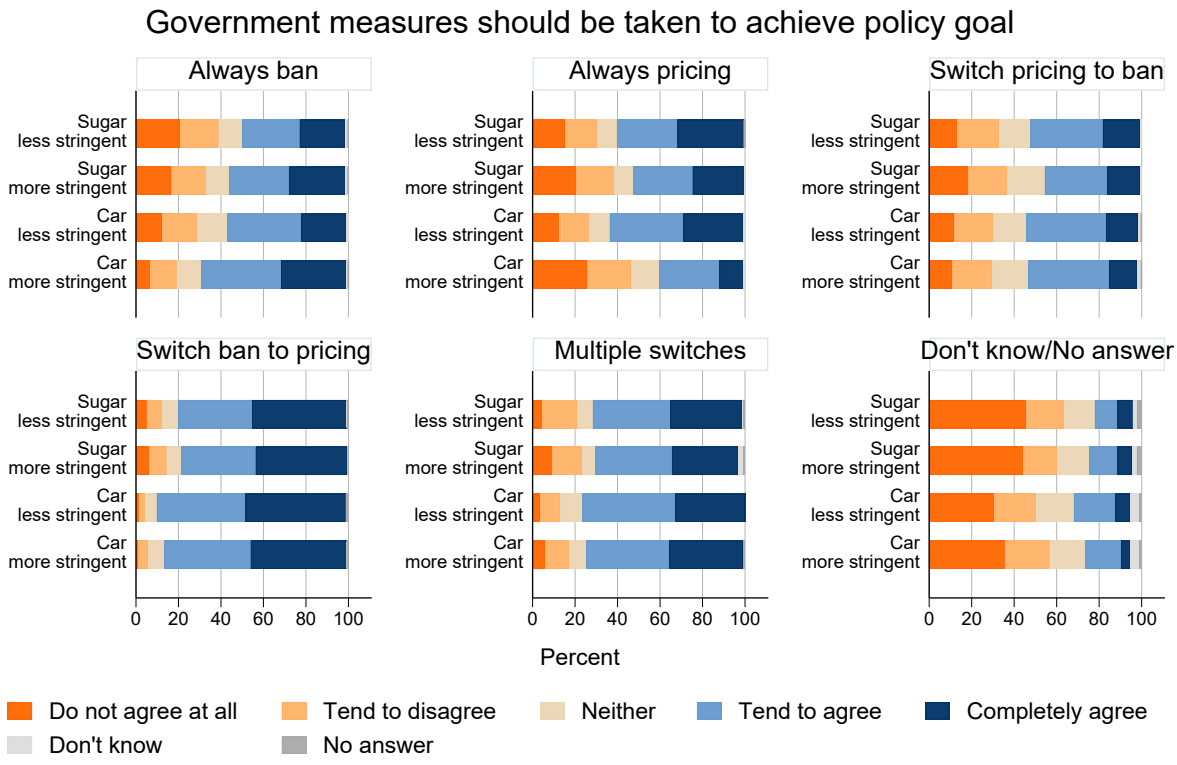
Finally, respondents with high trait reactance were significantly more likely to always prefer the more stringent ban over the pricing instrument, while there is no such relationship for the less stringent ban or respondents with medium trait reactance.

3.5 Heterogeneity analysis regarding policy support (exploratory)

Next to the pre-specified heterogeneity, we investigate whether policy preferences depend on respondents' support for the policy goal. As expected, those individuals who did not explicitly support the goal were much more likely to choose the responses "don't know" and "no answer" (see Figure A.7 in the Appendix). In addition, they were less likely to always choose the ban—especially when the ban under consideration was the stricter one—and less likely to switch from the ban to the pricing instrument. At the same time, they were more likely to always prefer the pricing instrument over the stricter ban.

Figure 7 shows support for government intervention for each goal, separately for each of the six preference types. Respondents who always opted for the pricing instrument within a PPL, who always preferred the ban, or switched from pricing to ban showed a similar behavior: Around half of the respondents desired government intervention. In stark contrast, respondents who switched from ban to pricing measures showed nearly unanimous support: In every PPL at least around 80 percent of respondents of this preference type supported government intervention. This hints toward the interpretation of this group as people who desire the most effective policy. Finally, we observe that in the category "don't know / no answer" a majority did not want government intervention. This also supports the interpretation of using this answer option to express discontent with any government intervention aiming at the policy goals.

Figure 7 Distribution of support for government intervention across preference types



Note: The figure depicts the distribution of the desire for a government intervention by preference type, separately for each PPL.

4 Conclusion

In this paper, we investigated public preferences for pricing instruments versus bans across two contexts: reducing car traffic in city centers and limiting sugar consumption through soft drinks. Using a survey of a probability sample of 4,000 individuals from the general German population, we employed a novel elicitation format—the Policy Price List—to examine how respondents trade off between pricing and bans targeting the same goal across varying prices of the pricing instrument and stringency of the ban. An embedded information-provision experiment further provides causal evidence on the determinants of these preferences.

Our study contributes to the literature on the public acceptability of policies addressing major societal challenges. While some scholars examine the fundamental traits that shape broad policy attitudes (Bénabou et al., 2024; Cappelen et al., 2025; Enke et al., 2023), others focus on how specific design features influence the acceptability of policy instruments (Grelle & Hofmann, 2024; Hagmann et al., 2018; König & Schmacker, 2025; Reynolds et al., 2019). Positioned between these strands, we examined whether individuals hold stable preferences for broad categories of policy instruments or whether instrument choice depends primarily on specific design features, such as

price, stringency, and perceived consequences. Our results support the latter.

Only 10 percent of respondents consistently preferred one instrument over the other across all 20 choice tasks, indicating stable instrument preferences. For the vast majority, preferences varied with the price, stringency of the ban, or the policy goal. In particular, the effect of an increasing price on support for pricing instruments is context-dependent. Higher prices increase the probability of choosing a pricing instrument over an alternative ban for sugar consumption, but decrease it for policies targeting car use.

Similarly, stringency of bans does not uniformly reduce acceptability. Contrary to prior evidence (e.g., Banerjee et al., 2021; Drews & Van den Bergh, 2016), we find that more stringent bans sometimes garner greater support than milder alternatives. Although seemingly counterintuitive, this pattern aligns with respondents' perceived evaluations of the policies: on average, individuals favored the instrument they perceived as more effective, fairer, and less financially burdensome to their household. We further show that providing information on the effectiveness of the pricing instrument increased support for them, whereas highlighting their potential regressivity reduced support.

Finally, moral convictions and trait reactance exhibit limited predictive power for instrument choice, shaping support for the underlying policy goal instead.

In summary, most respondents do not hold consistent preferences for either pricing instruments or bans. Instead, their choices depend on the specific policy context and design parameters. Policymakers and advisers should therefore avoid excluding instruments based solely on assumed political unpopularity. A systematic comparison of alternatives—facilitated by our proposed Policy Price List—offers a practical approach to evaluating public acceptability across contexts.

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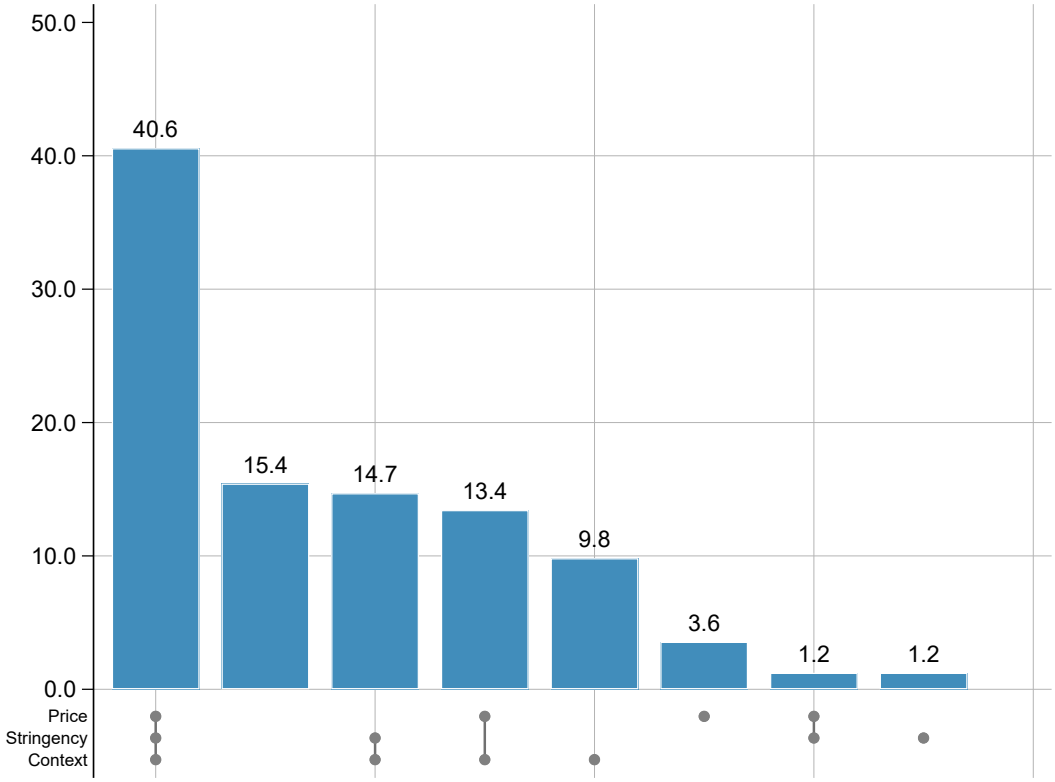
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Appendices

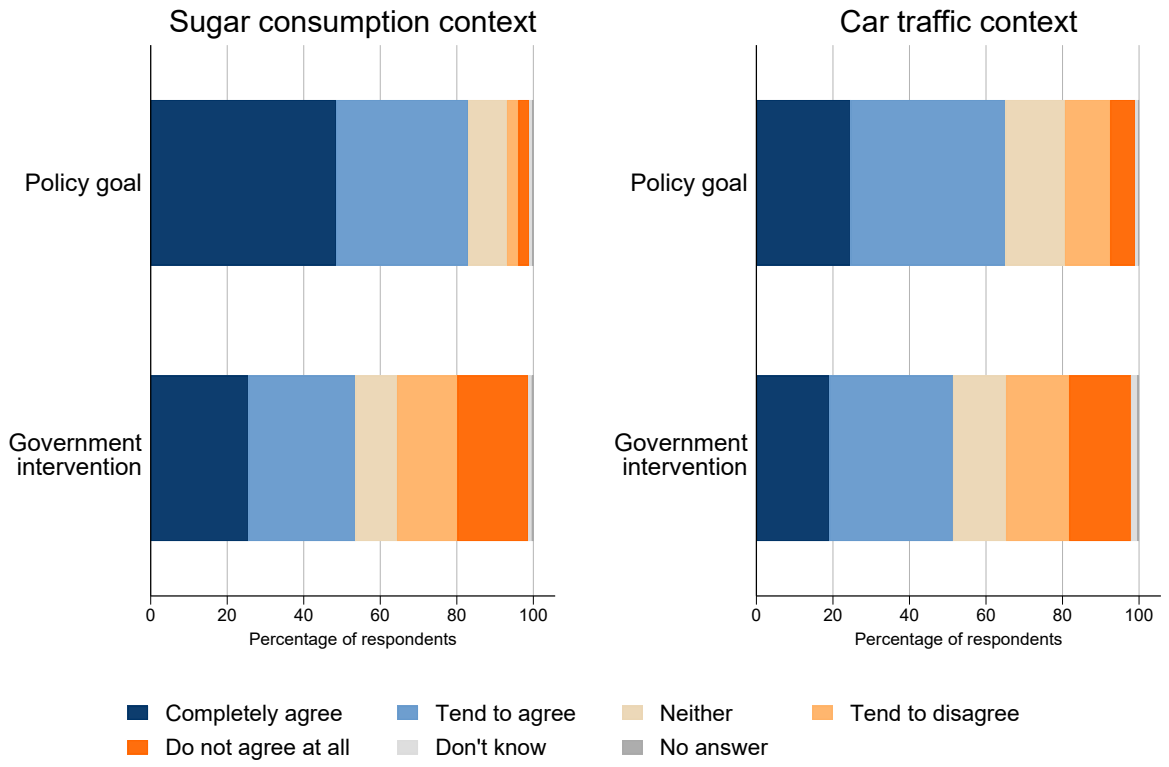
A Additional figures

Figure A.1 Percentage of respondents sensitive to each combination of features (price, stringency of ban, context)



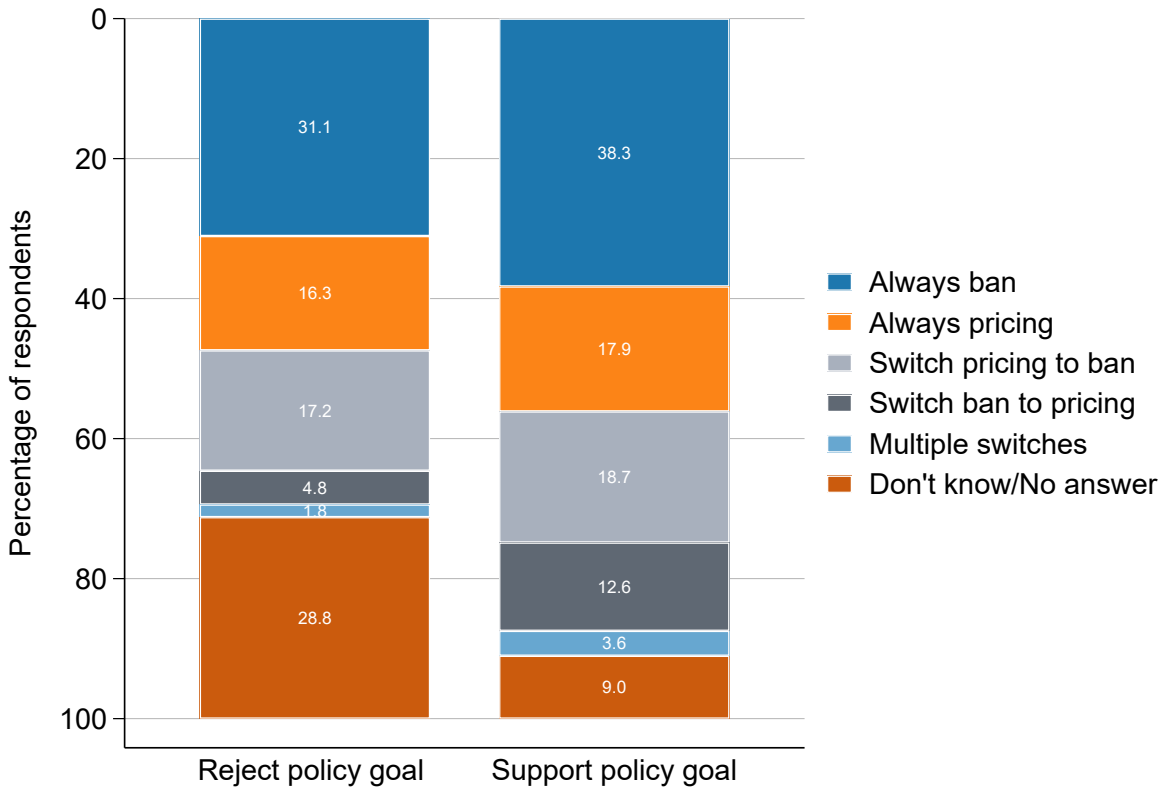
Note: The figure depicts the share of respondents (N = 4,040) that are sensitive to the price of the pricing instrument, the stringency of the ban and the context as well as all combinations of these characteristics. The symbols below the bars act as a binary indicator for the group of respondents being sensitive to the corresponding feature. Respondents are classified as reacting to the price if they switch in at least one PPL (within one PPL, choose at least once the pricing instrument and at least once the ban). They are classified as reacting to the stringency of the ban if they belong to different preference types across the the less vs. more stringent ban within a context. Respondents that belong to different preference types in the PPL with the same level of stringency across two contexts are considered to be sensitive to the context. Importantly, "Don't know / no answer" responses are included as a distinct preference type, which implies that a change to or from "Don't know / no answer" between questions is counted as a reaction to that dimension.

Figure A.2 Distribution of support for policy goal and government intervention



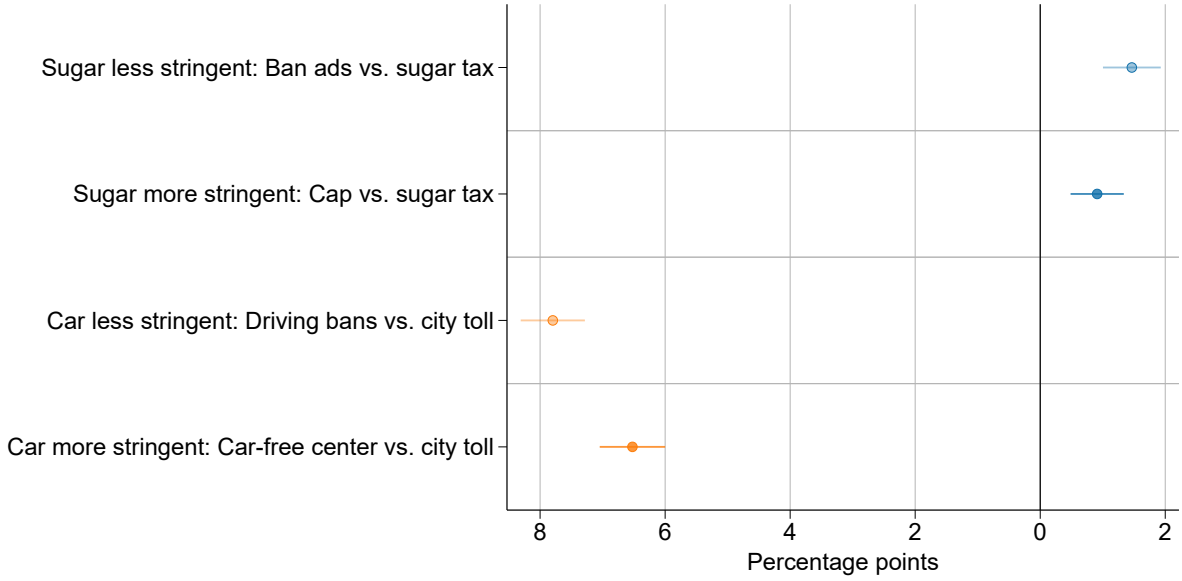
Note: Respondents indicated their agreement with the statements: "The sugar consumption of the population/car traffic in city centers should be reduced" and "Government measures should be taken to reduce sugar consumption/the level of car traffic in city centers."

Figure A.3 Distribution of preference types by support for the policy goal in control group



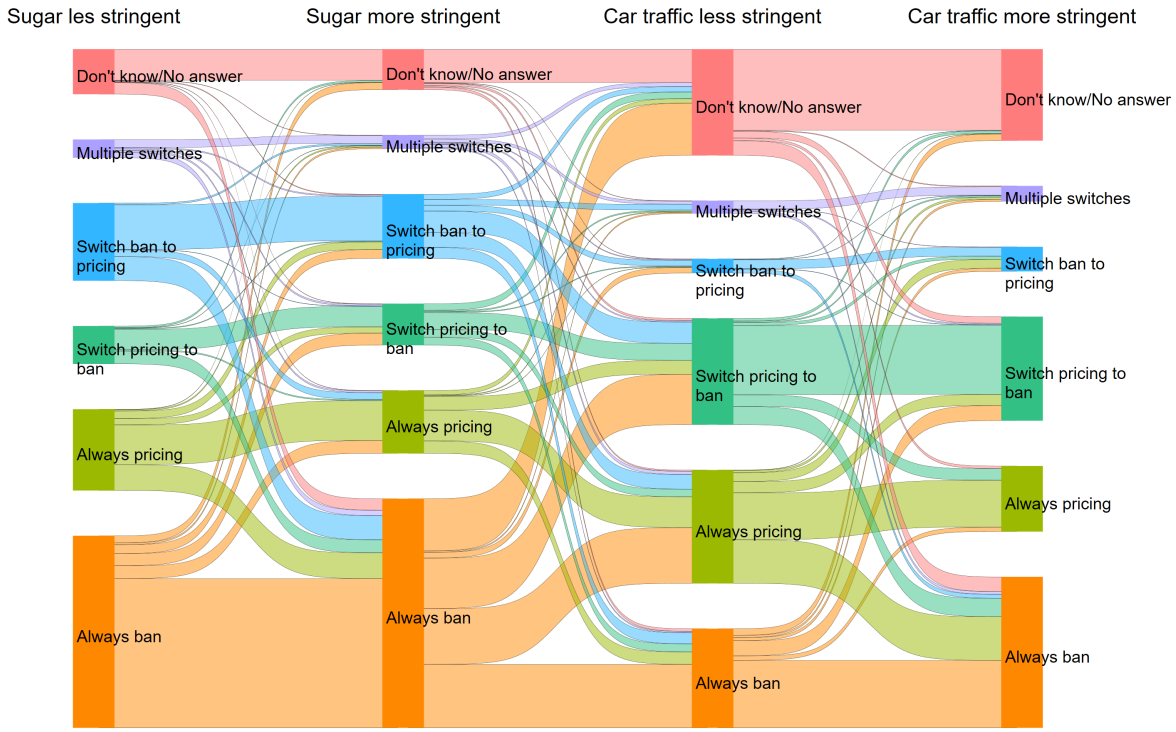
Note: Respondents are classified as supporters if they completely or tend to agree that sugar consumption or car traffic in city centers should be reduced, and as non-supporters if they express neither agreement nor disagreement or (tend to) oppose the policy goal.

Figure A.4 Price effect on the choice of the pricing policy



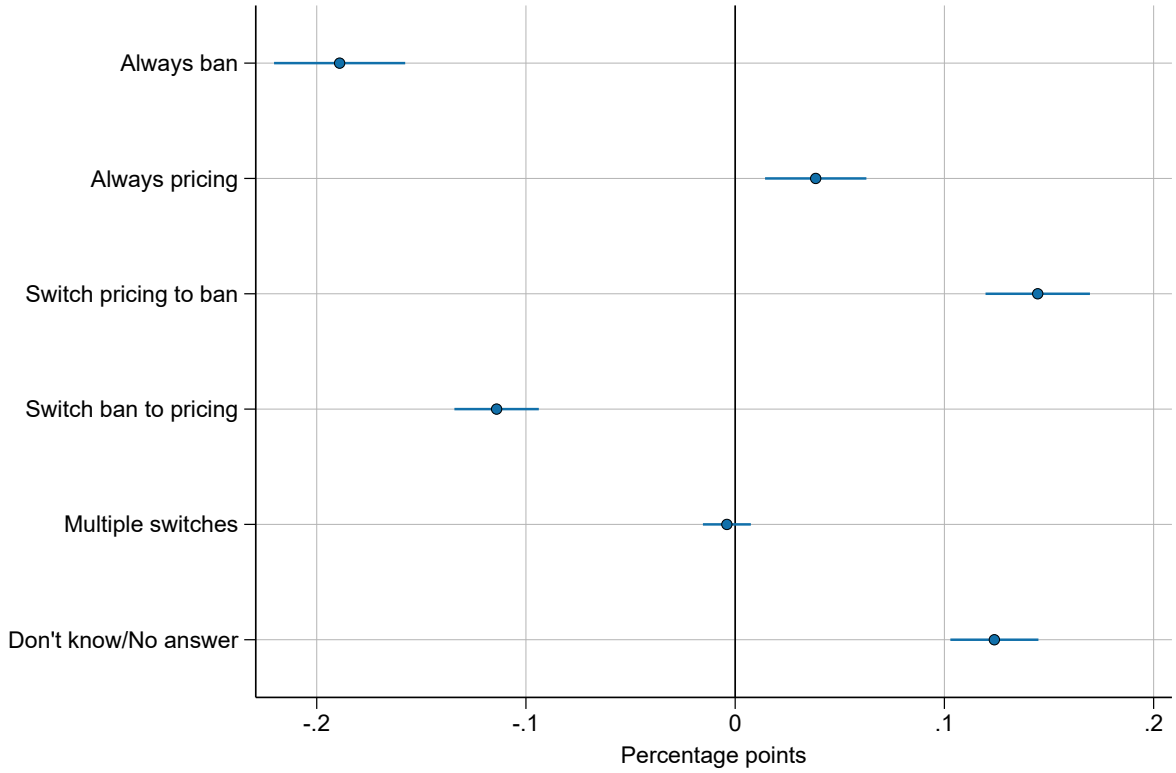
Note: The figure shows point estimates and 95% confidence intervals from a fixed-effects regression of a binary indicator for preferring the pricing instrument on the five distinct prices of that policy. The model includes individual fixed effects, with standard errors clustered at the individual level. Coefficients represent the change in the probability of choosing the pricing policy when moving up one price point in the PPL, i.e. when the price increases by 10 cents in the sugar consumption context or €2 in the car traffic context.

Figure A.5 Development of choice behavior across policy price lists



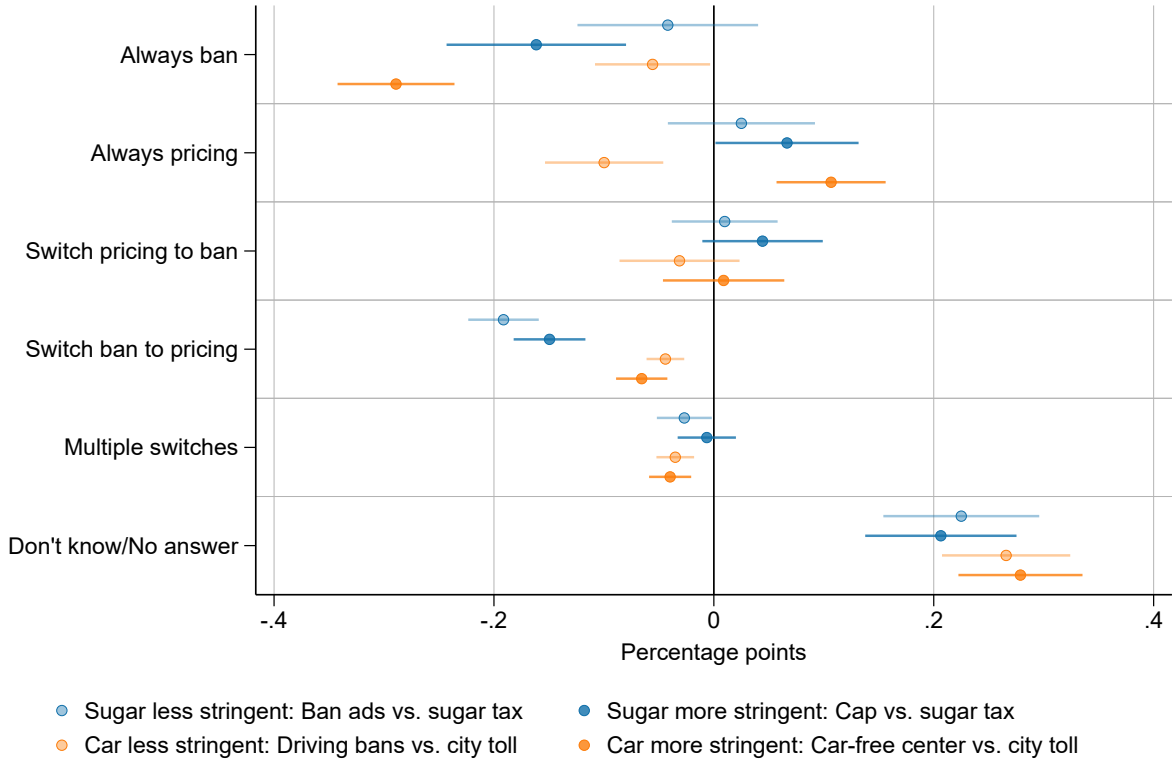
Note: This Sankey plot illustrates preference types across the different PPLs. While the order of the PPLs was randomized in the survey, they are displayed here in a fixed sequence to facilitate interpretation.

Figure A.6 Average marginal effects of car traffic context (compared to sugar consumption context) on preference types



Note: The figure displays average marginal effects and 95% confidence intervals of an indicator for the car traffic context (relative to the sugar context) from a multinomial logit model on preference types.

Figure A.7 Average marginal effects for the relationship between lack of support for the policy goal and preference types



Note: Point estimates and 95% confidence intervals of a multinomial logit regression of preference types on a binary variable for non-support for the policy goal.

B Additional tables

Table B.1 Comparison of study sample and data from the German Microcensus 2024

	Microcensus 2024	Study sample
Female	51.0%	42.4%
Age		
20–29 years	13.8%	1.5%
30–39 years	16.4%	7.0%
40–49 years	15.4%	13.1%
50–59 years	17.9%	20.5%
60–69 years	17.3%	24.7%
70 years and older	19.2%	33.2%
College degree	22.5%	38.8%
Household size		
one person	25.8%	28.0%
two persons	38.8%	51.5%
three persons or more	35.3%	20.5%
Monthly household net income		
below 1,200 Euro	6.9%	3.5%
1,200 to below 2,500 Euro	21.1%	26.0%
2,500 to below 4,000 Euro	27.1%	31.9%
4,000 Euro and more	44.8%	38.5%

Note: Microcensus data for gender, age and household size are retrieved from Federal Statistical Office (Destatis) (2026c); data for education are retrieved from Federal Statistical Office (Destatis) (2026a); data for income are retrieved from Federal Statistical Office (Destatis) (2026b). For age and gender, we only consider individuals aged 20 and older as the study sample is restricted to adults. For education, Microcensus data were adjusted by excluding individuals still in education, thereby defining the remaining population as the new full population.

Table B.2 Balance table: Means of respondents' socioeconomic characteristics across experimental groups

	Control	10 % effectiveness	20 % effectiveness	Regressivity	Whole sample
Non-male (female or non-binary)	0.40	0.43	0.44	0.43	0.42
Age	62.24	61.42	61.59	60.72	61.49
College degree	0.37	0.39	0.39	0.40	0.39
Household size	2.09	2.05	2.05	2.05	2.06
Monthly household net income					
Below 1,200 Euro	0.03	0.03	0.04	0.03	0.04
1,200 to below 2,700 Euro	0.24	0.27	0.27	0.26	0.26
2,700 to below 4,200 Euro	0.34	0.30	0.33	0.30	0.32
4,200 Euro and more	0.39	0.39	0.36	0.40	0.39
Observations	1013	1014	1001	1012	4040

Table B.3 Average marginal effects of stringency of the ban on preference types in the control group

	Always ban	Always pricing	Switch pricing to ban	Switch ban to pricing	Multiple switches	Don't know/ No answer
Sugar consumption context						
More stringent	0.082***	-0.040***	0.008	-0.030***	-0.010*	-0.010
	(0.016)	(0.012)	(0.009)	(0.011)	(0.006)	(0.007)
Car traffic context						
More stringent	0.115***	-0.106***	-0.005	0.023***	0.006	-0.033***
	(0.015)	(0.013)	(0.013)	(0.007)	(0.005)	(0.009)
N	4052	4052	4052	4052	4052	4052

Note: The table reports average marginal effects from a multinomial logit model estimated on control-group respondents only. The specification includes a full interaction between an indicator for a more stringent ban and an indicator for the policy context, estimating the effect of a more stringent ban on the probability of each preference type by context. Marginal effects are computed holding all other variables at their observed values. Standard errors are clustered at the individual level. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.4 Average marginal treatment effects on preference types

	Always ban	Always pricing	Switch pricing to ban	Switch ban to pricing	Multiple switches	Don't know/ No answer
Sugar less stringent: Ban ads vs. sugar tax						
10 % effectiveness	-0.012	-0.010	0.019	0.010	-0.008	0.002
	(0.022)	(0.017)	(0.013)	(0.017)	(0.008)	(0.013)
20 % effectiveness	-0.049**	0.004	0.043***	-0.015	0.007	0.009
	(0.022)	(0.017)	(0.014)	(0.017)	(0.009)	(0.014)
Regressivity	0.017	-0.010	0.032**	-0.019	-0.015*	-0.006
	(0.022)	(0.017)	(0.013)	(0.016)	(0.008)	(0.013)
Sugar more stringent: Cap vs. sugar tax						
10 % effectiveness	-0.017	0.008	-0.006	0.001	0.003	0.012
	(0.022)	(0.016)	(0.013)	(0.016)	(0.008)	(0.013)
20 % effectiveness	-0.043*	0.003	0.027**	-0.014	0.011	0.016
	(0.022)	(0.015)	(0.014)	(0.015)	(0.008)	(0.013)
Regressivity	0.024	-0.005	0.003	-0.020	-0.010	0.007
	(0.022)	(0.015)	(0.013)	(0.015)	(0.007)	(0.013)
Car less stringent: Driving bans vs. city toll						
10 % effectiveness	-0.038**	0.002	0.032*	0.011	-0.013**	0.006
	(0.018)	(0.019)	(0.019)	(0.008)	(0.007)	(0.019)
20 % effectiveness	-0.052***	0.004	0.058***	0.005	-0.008	-0.007
	(0.018)	(0.019)	(0.020)	(0.008)	(0.007)	(0.019)
Regressivity	0.029	-0.066***	0.030	0.009	-0.010	0.008
	(0.019)	(0.018)	(0.019)	(0.008)	(0.007)	(0.019)
Car more stringent: Car-free center vs. city toll						
10 % effectiveness	-0.034	0.012	0.022	0.004	-0.014*	0.010
	(0.021)	(0.016)	(0.019)	(0.010)	(0.007)	(0.018)
20 % effectiveness	-0.050**	-0.012	0.061***	0.014	-0.006	-0.007
	(0.021)	(0.015)	(0.020)	(0.011)	(0.008)	(0.018)
Regressivity	0.001	-0.033**	0.018	0.000	-0.005	0.019
	(0.021)	(0.015)	(0.019)	(0.010)	(0.008)	(0.018)
Observations	16160	16160	16160	16160	16160	16160

Note: The table reports average marginal treatment effects from a multinomial logit model that regresses preference types on a full interaction between treatment status and PPL. This specification allows treatment effects to vary across PPLs within a single regression. For each PPL, marginal effects are computed and reported for each treatment condition relative to the control group and for each outcome category, while all other variables are held at their observed values. Each individual is observed in four PPLs; consequently, the number of observations equals four times the number of unique individuals. Standard errors are clustered at the individual level to account for within-person correlation across PPLs. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.5 Average marginal treatment effects on perceived effectiveness of policies

	Pricing (lowest price)	Pricing (highest price)	Less stringent ban	More stringent ban
Sugar consumption context				
10 % effectiveness	0.205**	0.071	0.076	0.022
	(0.086)	(0.095)	(0.079)	(0.072)
20 % effectiveness	0.211**	0.071	0.013	0.021
	(0.088)	(0.095)	(0.079)	(0.072)
Regressivity	0.043	0.045	-0.034	-0.008
	(0.086)	(0.095)	(0.081)	(0.072)
Constant	2.637***	3.145***	3.613***	4.062***
	(0.061)	(0.067)	(0.056)	(0.050)
Observations	1960	1960	1989	1990
Car traffic context				
10 % effectiveness	0.195**	0.170	0.087	0.026
	(0.085)	(0.104)	(0.089)	(0.086)
20 % effectiveness	0.181**	0.032	0.145	0.047
	(0.086)	(0.104)	(0.091)	(0.086)
Regressivity	-0.022	0.153	0.293***	0.139
	(0.084)	(0.105)	(0.089)	(0.086)
Constant	2.734***	2.792***	2.847***	3.547***
	(0.061)	(0.073)	(0.065)	(0.062)
Observations	1923	1920	1902	1926

Note: The table reports OLS estimates of the effect of treatment assignment on perceived policy effectiveness (measured on a 5-point Likert scale). Regressions are estimated separately for each policy context (sugar and car traffic) and for each policy type: pricing instrument at the lowest price level, pricing instrument at the highest price level, a less stringent ban, and a more stringent ban. Robust standard errors are reported in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.6 Average marginal treatment effects on perceived fairness of policies

	Pricing (lowest price)	Pricing (highest price)	Less stringent ban	More stringent ban
Sugar consumption context				
10 % effectiveness	-0.048	-0.117	-0.047	-0.071
	(0.085)	(0.093)	(0.076)	(0.073)
20 % effectiveness	0.079	-0.024	0.006	-0.013
	(0.085)	(0.094)	(0.075)	(0.074)
Regressivity	0.003	-0.097	-0.049	-0.087
	(0.086)	(0.093)	(0.074)	(0.074)
Constant	3.245***	3.144***	3.978***	4.081***
	(0.060)	(0.066)	(0.052)	(0.051)
Observations	1929	1929	1958	1961
Car traffic context				
10 % effectiveness	0.148*	0.061	0.096	0.015
	(0.087)	(0.079)	(0.090)	(0.087)
20 % effectiveness	0.138	0.014	0.126	0.013
	(0.086)	(0.078)	(0.089)	(0.087)
Regressivity	0.028	0.033	0.217**	0.020
	(0.087)	(0.080)	(0.090)	(0.089)
Constant	2.811***	1.992***	2.529***	3.176***
	(0.061)	(0.055)	(0.064)	(0.062)
Observations	1923	1921	1920	1934

Note: The table reports OLS estimates of the effect of treatment assignment on perceived policy fairness (measured on a 5-point Likert scale). Regressions are estimated separately for each policy context (sugar and car traffic) and for each policy type: pricing instrument at the lowest price level, pricing instrument at the highest price level, a less stringent ban, and a more stringent ban. Robust standard errors are reported in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.7 Average marginal treatment effects on perceived financial effect of policies

	Pricing (lowest price)	Pricing (highest price)	Less stringent ban	More stringent ban
Sugar consumption context				
10 % effectiveness	-0.083***	-0.202***	-0.026	-0.035
	(0.022)	(0.029)	(0.019)	(0.024)
20 % effectiveness	0.004	-0.075***	-0.064***	-0.055**
	(0.021)	(0.028)	(0.018)	(0.023)
Regressivity	-0.021	-0.089***	-0.066***	-0.090***
	(0.022)	(0.028)	(0.019)	(0.023)
Constant	2.973***	2.977***	3.235***	3.389***
	(0.016)	(0.020)	(0.014)	(0.017)
Observations	7736	7720	7804	7820
Car traffic context				
10 % effectiveness	0.014	-0.020	-0.013	-0.039
	(0.028)	(0.033)	(0.025)	(0.030)
20 % effectiveness	0.101***	0.085**	0.032	0.007
	(0.027)	(0.034)	(0.025)	(0.029)
Regressivity	0.031	-0.008	0.014	-0.001
	(0.027)	(0.032)	(0.026)	(0.030)
Constant	2.572***	2.172***	2.729***	2.823***
	(0.019)	(0.023)	(0.018)	(0.020)
Observations	7560	7548	7396	7552

Note: The table reports OLS estimates of the effect of treatment assignment on perceived financial effect in the own household (measured on a 5-point Likert scale). Regressions are estimated separately for each policy context (sugar and car traffic) and for each policy type: pricing instrument at the lowest price level, pricing instrument at the highest price level, a less stringent ban, and a more stringent ban. Robust standard errors are reported in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.8 Relationship between moral convictions and support for the policy goal and desire for government intervention

	Support policy goal			Desire government intervention		
	IB only	IH only	Both	IB only	IH only	Both
Sugar consumption context						
IB score	0.185***		0.186***	0.319***		0.319***
	(0.014)		(0.015)	(0.020)		(0.020)
IH score		0.046***	0.033***		0.115***	0.093***
		(0.013)	(0.012)		(0.019)	(0.019)
Constant	3.565***	4.118***	3.469***	2.097***	2.961***	1.849***
	(0.059)	(0.039)	(0.068)	(0.080)	(0.058)	(0.092)
Observations	3913	3850	3841	3900	3835	3826
Car traffic context						
IB score	0.303***		0.318***	0.345***		0.358***
	(0.016)		(0.016)	(0.019)		(0.019)
IH score		-0.019	-0.042***		0.001	-0.024
		(0.016)	(0.015)		(0.018)	(0.018)
Constant	2.546***	3.710***	2.605***	1.958***	3.219***	1.973***
	(0.065)	(0.047)	(0.077)	(0.075)	(0.055)	(0.088)
Observations	3910	3845	3836	3868	3806	3797

Note: The table reports OLS estimates of the association between the Oxford Utilitarianism subscales for Impartial Beneficence (IB) and Instrumental Harm (IH) and support for the policy goal and desire for government intervention. All outcomes are measured on 5-point Likert scales. Regressions are estimated separately for each policy context (sugar and car traffic). Columns labeled "IB only" and "IH only" include each subscale separately. Columns labeled "Both" include both subscales simultaneously in the same regression. Robust standard errors are reported in parentheses. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.9 Relationship between moral convictions and policy preference types in the control group

	Always ban	Always pricing	Switch pricing to ban	Switch ban to pricing	Multiple switches	Don't know/ No answer
Univariate models						
IB score	0.013	-0.005	0.003	0.022***	0.010***	-0.044***
	(0.008)	(0.007)	(0.006)	(0.005)	(0.003)	(0.008)
IH score	-0.010	0.013**	-0.001	0.003	0.004	-0.008
	(0.008)	(0.006)	(0.006)	(0.005)	(0.003)	(0.008)
Bivariate model						
IB score	0.015*	-0.005	0.003	0.024***	0.010***	-0.047***
	(0.008)	(0.007)	(0.007)	(0.006)	(0.004)	(0.008)
IH score	-0.012	0.013**	-0.001	0.001	0.004	-0.005
	(0.008)	(0.006)	(0.006)	(0.005)	(0.003)	(0.007)

Note: The table reports average marginal effects from multinomial logit models that regress preference types on the Oxford Utilitarianism subscales for Impartial Beneficence (IB) and Instrumental Harm (IH). The top panel shows univariate specifications; the bottom panel presents a bivariate model estimating the simultaneous effects of both subscales. The model is estimated on the control group only. Reported coefficients are marginal effects representing the change in the probability of selecting each policy option for a one-unit increase in the predictor. Standard errors are clustered at the individual level. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.10 Relationship between trait reactance and preference types in the control group

	Always ban	Always pricing	Switch pricing to ban	Switch ban to pricing	Multiple switches	Don't know/ No answer
Less stringent bans						
Medium trait reactance	0.021	-0.051**	0.045**	-0.037**	-0.012	0.034*
	(0.025)	(0.023)	(0.019)	(0.017)	(0.011)	(0.019)
High trait reactance	0.006	-0.090***	0.003	-0.069***	-0.022*	0.173***
	(0.029)	(0.027)	(0.023)	(0.018)	(0.012)	(0.029)
More stringent bans						
Medium trait reactance	-0.005	0.019	0.031	-0.040**	-0.015	0.011
	(0.026)	(0.018)	(0.019)	(0.017)	(0.011)	(0.018)
High trait reactance	-0.104***	0.049**	0.011	-0.091***	-0.018	0.153***
	(0.031)	(0.024)	(0.023)	(0.017)	(0.012)	(0.029)

Note: The table reports average marginal effects from a pooled multinomial logit model that regresses preference typeson an interaction between a dummy for a more stringent ban and terciles of trait reactance. The model is estimated on the control group only. Reported coefficients are marginal effects of belonging to the medium or high trait reactance tercile (relative to the low reactance tercile) on the probability of each preference type. Marginal effects are computed separately for less stringent bans and more stringent bans, holding all other variables at their observed values. Standard errors are clustered at the individual level. Statistical significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

C Details on information treatments

C.1 *10 % effectiveness* and *20 % effectiveness* treatments

The *10 % effectiveness* and *20 % effectiveness* treatments provide respondents with estimates of the effect of the pricing instrument. We hold the information text provided to the respondents constant between the two treatments and vary only the estimate provided. Additionally, the text provided in the two contexts is very similar.

In the sugar context, the estimates of the effect of the tax on sugary soft drinks come from the systematic review of sugar-sweetened beverage (SSB) taxes by Andreyeva et al. (2022). They conducted a meta-analysis of the effect of SSB taxes on several outcomes, including prices. Their estimated price elasticity of demand is -1.59 with a 95 percent confidence interval of (-2.11, -1.08). We use the upper and lower bounds of this confidence interval to obtain two estimates of the effect of a 10-cent charge on the purchase of sugar-sweetened soft drinks. For this, we first require the average price of soft drinks in Germany. Janson and Brandt (2018) states the average price was €0.90 per liter in 2016. Using data from the Federal Statistical Office of Germany retail beverage prices increased by 24 percent between 2016 and 2023 (Federal Statistical Office (Destatis), 2024). This gives us an average price of soft drinks today of approximately €1.12 per liter. The effect estimate is calculated by determining the percentage increase from a 10-cent price increase and multiplying this with the high and low elasticity estimates, which gives us

$$\text{effect estimate} = \frac{0.1}{1.12} * \text{elasticity estimate}.$$

Thus, we obtain a decrease in demand of around 20 percent for the *20 % effectiveness* treatment, and for the *10 % effectiveness* treatment, an estimated decrease in demand of around 10 percent. This is incorporated as a treatment in the following way:

> *Based on the results of a scientific study by researchers at the University of Connecticut, published in a journal of the American Medical Association, the introduction of a tax of 10 cents per liter on sugary soft drinks could result in around 10/20% fewer sugary soft drinks being purchased.*

In the context of car traffic, the estimates for the effect of a €2 city toll are based on the analysis of Swedish city tolls by Börjesson and Kristoffersson (2018). They use arc elasticities calculated as

$$\text{arc elasticity estimate} = \frac{ln(D_2) - ln(D_1)}{ln(P_2) - ln(P_1)},$$

where D_1 denotes the demand before the introduction/increase of the city toll, D_2 the demand after, P_1 the real average trip costs into the city before the introduction/increase of the city toll, and P_2 the real average trip costs into the city after including the toll (increase). The authors assume that trip costs, aside from the toll, remain constant around the introduction/increase of the city toll. In their calculations, P_2 is thus given by the sum of P_1 and the average toll (increase).

Using this method, we can estimate the hypothetical effect of an inflation-adjusted €2 toll. Based on the above formula, we can calculate the effect of the city toll as the percentage change in demand after the introduction/increase as

$$\text{effect estimate} = \frac{P_1 * exp(\text{elasticity estimate} * (ln(P_2^{adj}) - ln(P_1)) - P_1}{P_1}$$

where P_2^{adj} is the sum of P_1 and an inflation-adjusted €2 increase. To align the €2 increase with the price levels at the time of the city tolls analyzed by Börjesson and Kristoffersson (2018), we utilize the Harmonised Index of Consumer Prices for Sweden from Eurostat (2024). For the high estimate, we use the numbers from their Table 8 for the introduction of the city toll in Gothenburg in 2013 during peak hours. For the low estimate, we use the numbers for the increase of the city toll in Stockholm in 2016 from their Table 6. The details are given in Table C.1.

Table C.1 Effect estimates for €2 city toll based on Börjesson and Kristoffersson (2018)

	High estimate (Gothenburg 2013)	**Low estimate** (Stockholm 2016)
P_1	2,78	4,52
Inflation adjusted €2 increase	1,56	1,58
P_2^{adj}	4,34	6,1
Elasticity	−0.53	−0.28
Effect estimate	21%	8%

These effect estimates are rounded to 20 percent for the *20 % effectiveness* treatment and 10 percent for the *10 % effectiveness* treatment. The text of the treatment is formulated similarly to the sugar context.

> *Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a congestion charge of €2 per journey into the city center could reduce car traffic by around 10/20%.*

C.2 *Regressivity* treatment

The *Regressivity* treatment provides the respondents with information about how charges on sugar-sweetened soft drinks and a city toll can have regressive effects based on Allcott et al. (2019) for the sugar context and Kristoffersson et al. (2017) for the car traffic context. Since the information provided to respondents in both treatments is very similar, and we do not want to create experimenter demand effects, the treatment text for the context that is shown as the second one refers to the first context. Specifically, respondents who receive the sugar context first are shown the following text:

According to a scientific study by the US National Bureau of Economic Research in the Quarterly Journal of Economics, a tax on sugary soft drinks places a greater financial burden on low-income households than higher-income households. This is because they spend a higher proportion of their income on such products.

If respondents are shown the sugar context after the car traffic context, the treatment text is modified to refer to the car traffic context:

Similar to a city toll, researchers from the US National Bureau of Economic Research were able to show in the Quarterly Journal of Economics that low-income households are more financially burdened by a tax on sugary soft drinks than higher-income households. This is because they spend a higher proportion of their income on such products.

In the same way, the treatment texts for the car traffic context differ based on the order in which the context is presented. If the car traffic context is shown first, the following text is presented:

Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden in the journal Transport Policy, a congestion charge can place a greater financial burden on low-income households than higher-income households. This is particularly the case if districts with affordable housing are located further away from districts with more jobs.

If the car traffic context follows the sugar context, respondents are presented with the following:

Similar to a tax on sugary soft drinks, researchers at the Royal Institute of Technology in Sweden were able to show in the journal Transport Policy that a congestion charge can place a greater financial burden on low-income households than higher-income households. This is particularly the case when districts with affordable housing are further away from districts with more jobs.

D Pre-specified hypotheses

Informed by the existing literature, our experiment is designed to investigate the public's preferences for pricing instruments versus bans in two policy contexts. More specifically, we investigated the following pre-specified hypotheses.

First, we expect that respondents' policy preferences will differ between the sugar and the car traffic context. This is motivated by previous findings by Diepeveen et al. (2013), who show that public acceptability of public health policies differs significantly between behavioral domains, i.e., smoking vs. alcohol consumption, and findings by Carlsson et al. (2024), who show differences between the "food and health" domain and the "transport and climate" domain. We thus hypothesize that

Hypothesis 1: The preferences for pricing instruments versus bans are context-dependent, i.e., they differ between the sugar context and the car traffic context.

Second, we expect that the preferences for pricing instruments versus bans will depend on the specific design of the ban presented. As Grelle and Hofmann (2024) point out, stringency is an important factor for policy preferences: the more stringent a policy is, the less support it receives from the public. Therefore, we hypothesize that

Hypothesis 2: Within both contexts, the preference for pricing instruments versus bans depends on the ban presented in a PPL.

Third, with respect to the 10 % and 20 % effectiveness treatments, we formulate three hypotheses:

Hypothesis 3a: The 20 % effectiveness treatment and the 10 % effectiveness treatment significantly affect the preference for pricing instruments versus bans in each PPL.

Hypothesis 3b: The effect of the 20 % effectiveness treatment will differ from that of the 10 % effectiveness treatment.

Hypothesis 3c: The 20 % effectiveness and the 10 % effectiveness treatment significantly affect the perceived effectiveness of the pricing instrument for the lowest price in both contexts.

We expect both effectiveness treatments to alter the perceived effectiveness of the pricing instrument for the lowest price. Both treatments provide respondents with an estimate of the instrument's effect at this price, thereby demonstrating its effectiveness, albeit at different intensities. Because the treatment refers only to the lowest price, we do not formulate a hypothesis about its effect on other prices, as it does not directly address them.

Fourth, concerning the regressivity treatment, we formulate the following two hypotheses.

Hypothesis 4a: The regressivity treatment significantly affects the preference for pricing instruments versus bans in each PPL.

Hypothesis 4b: The regressivity treatment significantly affects the perceived fairness of the pricing instrument for the lowest price in both contexts.

Fifth, we investigate how moral convictions shape policy preferences:

Hypothesis 5a: Moral convictions in the form of utilitarian tendencies increase the support for the policy goal and the desire for the government to act in order to meet the policy goal in both choice contexts.

This hypothesis is based on the findings of a previous study in which respondents who exhibited deontological tendencies, as opposed to utilitarian ones, were found to assign lower ratings to both pricing instruments and different types of regulatory measures, including bans. This finding may suggest that deontologists tend to oppose policies in general. One potential explanation for this observation is that every policy has the potential to disadvantage some individuals, prompting deontologists to refrain from interference rather than taking action and thereby accepting the possibility of harm to others.

In addition, previous research has found a strong link between perceived fairness and policy preferences (e.g., Grelle & Hofmann, 2024). A policy's perceived fairness, in turn, might be shaped by moral convictions in terms of utilitarian versus deontological tendencies. Thus, we expect a link between the preference for pricing instruments versus bans and moral convictions:

> *Hypothesis 5b:* Moral convictions measured as inclinations towards utilitarianism predict the policy preferences for pricing instruments versus bans.

Sixth, we expect that policy preferences will be influenced by trait reactance. Individuals with higher trait reactance may respond to the threat of losing certain freedoms by being motivated to restore them. Bans often restrict freedom, such as driving bans for cars in city centers or limits on the sugar content of soft drinks. In contrast, pricing instruments allow individuals to continue the behavior in question, such as driving into the city center or consuming sugary soft drinks at a cost. As a result, individuals with higher trait reactance may show a stronger preference for pricing instruments versus bans.

> *Hypothesis 6a:* There is a link between the respondent's level of trait reactance and their preference for pricing instruments versus bans.

> *Hypothesis 6b:* The link between trait reactance and the preference for pricing instruments versus bans is stronger for PPLs featuring the more stringent ban compared to the less stringent ban.

E Survey Questionnaire

Sample allocation

The sample is being divided into 16 groups of equal size (Q1 to Q16) based on the following criteria:

Allocation A
- A1: control group
- A2: high effectiveness
- A3: low effectiveness
- A4: regressivity

Allocation B
- B1: sugar more stringent, sugar less stringent, car traffic more stringent, car traffic less stringent
- B2: sugar less stringent, sugar more stringent, car traffic less stringent, car traffic more stringent
- B3: car traffic more stringent, car traffic less stringent, sugar more stringent, sugar less stringent
- B4: car traffic less stringent, car traffic more stringent, sugar less stringent, sugar more stringent

We create a variable with 16 values (groups) by taking all combinations of the groups:
- Q1: A1+B1
- Q2: A1+B2
- Q3: A1+B3
- Q4: A1+B4
- Q5: A2+B1
- Q6: A2+B2
- Q7: A2+B3
- Q8: A2+B4
- Q9: A3+B1
- Q10: A3+B2
- Q11: A3+B3
- Q12: A3+B4
- Q13: A4+B1
- Q14: A4+B2
- Q15: A4+B3
- Q16: A4+B4

Summary for the filters
- Z1: Q1+Q5+Q9+Q13
- Z2: Q2+Q6+Q10+Q14
- Z3: Q3+Q7+Q11+Q15
- Z4: Q4+Q8+Q12+Q16

Introductory screens

In the following, we are interested in your opinion on various political measures. In some places you will be asked to choose between two options. We are aware that this decision is sometimes not easy to make. Nevertheless, we would like to ask you to choose the option that is most relevant to you.

Introductory sentence first block
If group Z1, Z2:
The first area is health.
If group Z3, Z4:

The first area is transportation.

Introductory sentence second block
If group Z1, Z2:
Now it's all about transportation.
If group Z3, Z4:
Now it's all about health

Block on sugar consumption

Question V0 Sugar
Please indicate to what extent you agree with the following statements.
- The sugar consumption of the population should be reduced.
- Government measures should be taken to reduce the sugar consumption of the population.

Scale:
- Do not agree at all
- Tend to disagree
- Neither
- Tend to agree
- Agree completely
- Don't know
- No answer

Screen overview measures: Less stringent regulatory measure
If group Z2 or Z4 (first less stringent, then more stringent):
Let's assume that a binding decision has been made in Germany to reduce sugar consumption. Now there is a debate about what measures should be taken to achieve this goal. In particular, the consumption of sugary soft drinks (cola, iced tea, lemonade, etc.) is being considered.

If group Z1 or Z3 (first more stringent then less stringent):
Assume further that a binding decision has been made in Germany to reduce sugar consumption. We are now interested in your opinion on these two measures:

All:

1. **Ban on advertising for sugary soft drinks and restriction of display in supermarkets**
   Sugary soft drinks may no longer be advertised. In addition, they may only be offered in the drinks section of the supermarket and no longer in the entrance or checkout area or in separate displays.

2. **Charges on the purchase of sugary soft drinks**
   A charge is levied on the purchase of sugary soft drinks, making them more expensive.

If Q6 or Q8 (high effectiveness)
Based on the results of a scientific study by researchers at the University of Connecticut, published in a journal of the American Medical Association, the introduction of a 10 cents per liter charge on sugary soft drinks could lead to around 20% fewer purchases of sugary soft drinks.

If Q10 or Q12 (low effectiveness)
Based on the results of a scientific study by researchers at the University of Connecticut, published in a journal of the American Medical Association, the introduction of a charge of 10 cents per liter on sugary soft drinks could result in around 10% fewer sugary soft drinks being purchased.

If Q14 (regressivity, sugar as first context)
According to a scientific study by the US National Bureau of Economic Research in the Quarterly Journal of Economics, a charge on sugary soft drinks places a greater financial burden on low-income households than higher-income households. This is because they spend a higher proportion of their income on such products.

If Q16 (regressivity, sugar as second context)
Similar to a city toll, researchers from the US National Bureau of Economic Research were able to show in the Quarterly Journal of Economics that low-income households are more financially burdened by a charge on sugary soft drinks than higher-income households. This is because they spend a higher proportion of their income on such products.

All others
No treatment

Question V1:
Which of the two measures would you prefer: a ban on advertising and restrictions on supermarket displays or a charge on the purchase of sugary soft drinks?
In the following, we ask you to answer this question for different levels of charges for sugary soft drinks. Please fill in all lines.

Ban on advertising for sugary soft drinks and restrictions on supermarket displays			Charge on the purchase of sugary soft drinks of 10 cents per liter on average
Ban on advertising for sugary soft drinks and restrictions on supermarket displays			Charge on the purchase of sugary soft drinks of 20 cents per liter on average
Ban on advertising for sugary soft drinks and restrictions on supermarket displays			Charge on the purchase of sugary soft drinks of 30 cents per liter on average
Ban on advertising for sugary soft drinks and restrictions on supermarket displays			Charge on the purchase of sugary soft drinks of 40 cents per liter on average
Ban on advertising for sugary soft drinks and restrictions on supermarket displays			Charge on the purchase of sugary soft drinks of 50 cents per liter on average

- Don't know
- No answer

Screen overview measures: More stringent regulatory measure

If group Z1 or Z3 (first more stringent, then less stringent):

Let's assume that a binding decision has been made in Germany to reduce sugar consumption. Now there is a debate about what measures should be taken to achieve this goal. In particular, the consumption of sugary soft drinks (cola, iced tea, lemonade, etc.) is being considered.

If group Z2 or Z4 (first less stringent, then more stringent):

Assume further that a binding decision has been made in Germany to reduce sugar consumption. We are now interested in your opinion on these two measures:

All:

1. **Capping the sugar content**
   The amount of sugar that soft drinks may contain is capped. This means that a certain sugar content may not be exceeded.

2. **Charges on the purchase of sugary soft drinks**
   A charge is levied on the purchase of sugary soft drinks, making them more expensive.

If Q5 or Q7 (low effectiveness)

Based on the results of a scientific study by researchers at the University of Connecticut, published in a journal of the American Medical Association, the introduction of a 10 cents per liter charge on sugary soft drinks could lead to around 20% fewer purchases of sugary soft drinks.

If Q9 or Q11 (high effectiveness)
Based on the results of a scientific study by researchers at the University of Connecticut, published in a journal of the American Medical Association, the introduction of a 10 cents per liter charge on sugary soft drinks could lead to around 10% fewer purchases of sugary soft drinks.

If Q13 (regressivity, sugar as first context)
According to a scientific study by the US National Bureau of Economic Research in the Quarterly Journal of Economics, a charge on sugary soft drinks places a greater financial burden on low-income households than higher-income households, as they spend a higher proportion of their income on such products.

If Q15 (regressivity, sugar as second context)
Similar to a city toll, researchers from the US National Bureau of Economic Research were able to show in the Quarterly Journal of Economics that low-income households are more financially burdened by a charge on sugary soft drinks than higher-income households. This is because they spend a higher proportion of their income on such products.

All others
No treatment

Question V2:
Which of the two measures would you prefer: a cap on sugar content or levies on the purchase of sugary soft drinks?
In the following, we ask you to answer this question for different levels of charges on purchases of sugary soft drinks. Please fill in all lines.

Capping the sugar content			Charge on the purchase of sugary soft drinks of 10 cents per liter on average
Capping the sugar content			Charge on the purchase of sugary soft drinks of 20 cents per liter on average
Capping the sugar content			Charge on the purchase of sugary soft drinks of 30 cents per liter on average
Capping the sugar content			Charge on the purchase of sugary soft drinks of 40 cents per liter on average
Capping the sugar content			Charge on the purchase of sugary soft drinks of 50 cents per liter on average

- Don't know
- No answer

Block on car traffic

Question V0 Car Traffic

Please indicate to what extent you agree with the following statements.
- Car traffic in city centers should be reduced.
- Government measures should be taken to reduce car traffic in city centers.

Scale:
- Do not agree at all
- Tend to disagree
- Neither
- Tend to agree
- Agree completely
- Don't know
- No answer

Screen overview measures: Less stringent regulatory measure

If group Z2 or Z4 (first less stringent, then more stringent):

Let's assume that a binding decision to reduce car traffic in city centers has been made in Germany. Now there is a debate about what measures should be taken to achieve this goal.

If group Z1 or Z3 (first more stringent, then less stringent):

Assume further that a binding decision has been made in Germany to reduce car traffic in city centers. We are now interested in your opinion on these two measures:

All:

1. **Driving bans based on license plates**
   The number of cars that can drive into the city center is reduced by driving bans on certain days for certain cars. The last digit of the license plate is used to decide which vehicles are affected by this ban on which days.

2. **City toll**
   All drivers must pay a fee when entering the city center.

If Q6 or Q8 (high effectiveness)

Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a city toll

of €2 per trip to the city center could lead to a reduction in car traffic to the city center of around 20%.

If Q10 or Q12 (low effectiveness)
Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a city toll of €2 per trip to the city center could lead to a reduction in car traffic to the city center of around 10%.

If Q16 (regressivity, car traffic as first context)
Based on the results of a scientific study published in the journal Transport Policy by researchers at the Royal Institute of Technology in Sweden, a city toll can place a greater financial burden on low-income households than on higher-income households. This is particularly the case if districts with affordable housing are located further away from districts with more jobs.
If Q14 (regressivity, car traffic as second context)
Similar to a charge on sugary soft drinks, researchers at the Royal Institute of Technology in Sweden were able to show in the journal Transport Policy that a city toll can place a greater financial burden on low-income households than higher-income households. This is particularly the case when districts with affordable housing are further away from districts with more jobs.

All others
No treatment

Question V3:
Which of the two measures would you prefer: driving bans based on license plates or a city toll? In the following, we ask you to answer this question for different levels of the city toll per trip into the city center. Please fill in all lines.

Driving bans based on license plates			City toll of €2 per trip to the city center
Driving bans based on license plates			City toll of €4 per trip to the city center
Driving bans based on license plates			City toll of €6 per trip to the city center
Driving bans based on license plates			City toll of €8 per trip to the city center
Driving bans based on license plates			City toll of €10 per trip to the city center

- Don't know
- No answer

Screen overview measures: More stringent regulatory measure

If group Z1 or Z3 (first more stringent, then less stringent):

Let's assume that a binding decision has been made in Germany to reduce car traffic in city centers. Now there is a debate about what measures should be taken to achieve this goal. We are now interested in your opinion on these two measures:

If group Z2 or Z4 (first less stringent, then more stringent):

Assume further that a binding decision has been made in Germany to reduce car traffic in city centers. We are now interested in your opinion on these two measures:

All:

1. **Largely car-free city centers**
   The city center is no longer accessible to motorized vehicles, with the exception of delivery traffic and residents, for example.

2. **City toll**
   All drivers must pay a fee when entering the city center.

If Q5 or Q7 (high effectiveness)

Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a city toll of €2 per trip to the city center could lead to a reduction in car traffic to the city center of around 20%.

If Q9 or Q11 (low effectiveness)

Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden, published in the journal Transportation Research Part A, the introduction of a city toll of €2 per trip to the city center could lead to a reduction in car traffic to the city center of around 10%.

If Q15 (regressivity, car traffic as first context)

Based on the results of a scientific study by researchers at the Royal Institute of Technology in Sweden in the journal Transport Policy, a city toll can place a greater financial burden on low-income households than higher-income households. This is particularly the case if districts with affordable housing are located further away from districts with more jobs.

If Q13 (regressivity, car traffic as second context)

Similar to a charge on sugary soft drinks, researchers from the Royal Institute of Technology in Sweden were able to show in the journal Transport Policy that a city toll can place a greater financial burden on low-income households than higher-income households. This is particularly the case when districts with affordable housing are further away from districts with more jobs.

All others

No treatment

Question V4:

Which of the two measures would you prefer: largely car-free city centers or a city toll?
In the following, we ask you to answer this question for different levels of the city toll per trip into the city center. Please fill in all lines.

Largely car-free city centers			City toll of €2 per trip to the city center
Largely car-free city centers			City toll of €4 per trip to the city center
Largely car-free city centers			City toll of €6 per trip to the city center
Largely car-free city centers			City toll of €8 per trip to the city center
Largely car-free city centers			City toll of €10 per trip to the city center

- Don't know
- No answer

Policy characteristics

Question V5: Effectiveness

If group Z1 or Z2:

To what extent do you agree with the statement that the respective measure would significantly reduce the number of cars in city centers?

	do not agree at all	tend to disagree	neither	tend to agree	fully agree	don't know	no answer
Driving bans based on license plates							
Largely car-free city centers							
City toll in the amount of...							
€2 per trip to the city center							
€10 per trip to the city center							

If group Z3 or Z4:

To what extent do you agree with the statement that the respective measure would significantly reduce sugar consumption through soft drinks?

	do not agree at all	tend to disagree	neither	tend to agree	fully agree	don't know	no answer
Ban on advertising for sugary soft drinks and restrictions on supermarket displays							
Capping the sugar content							
Charge on the purchase of sugary soft drinks amounting to an average of ...							
10 cents per liter							
50 cents per liter							

Question V7: Self-interest / impact on own household

If group Z1 or Z2:

Do you believe that your household would gain or lose financially from the respective measure?

	lose a lot	more likely to lose	neither win nor lose	more likely to win	win a lot	don't know	no answer
Driving bans based on license plates							
Largely car-free city centers							
City toll in the amount of...							
€2 per trip to the city center							
€10 per trip to the city center							

If group Z3 or Z4:

Do you believe that your household would gain or lose financially from the respective measure?

	lose a lot	more likely to lose	neither win nor lose	more likely to win	win a lot	don't know	no answer
Ban on advertising for sugary soft drinks and restrictions on supermarket displays							
Capping the sugar content							
Charge on the purchase of sugary soft drinks amounting to an average of ...							
10 cents per liter							
50 cents per liter							

Question V8: Fairness

If group Z1 or Z2:

To what extent do you agree with the statement that the respective measure is fair?

	do not agree at all	tend to disagree	neither	tend to agree	fully agree	don't know	no answer
Driving bans based on license plates							
Largely car-free city centers							
City toll in the amount of...							
€2 per trip to the city center							
€10 per trip to the city center							

If group Z3 or Z4:

To what extent do you agree with the statement that the respective measure is fair?

	do not agree at all	tend to disagree	neither	tend to agree	fully agree	don't know	no answer
Ban on advertising for sugary soft drinks and restrictions on supermarket displays							
Capping the sugar content							
Charge on the purchase of sugary soft drinks amounting to an average of ...							
10 cents per liter							
50 cents per liter							

Control variables

Question PK_Reac: Reactance (excerpt from Hong Psychological Reactance Scale)
How much do you agree with the following statements?

	strongly disagree	tend to disagree	neither	tend to agree	fully agree	don't know / no answer
It frustrates me when I can't make free and independent decisions.						
Regulations trigger a feeling of resistance in me.						
Advice and recommendations usually lead me to do exactly the opposite.						

Question PH.2: Oxford Utilitarianism Scale
The following is about your moral judgment. Please indicate to what extent you would agree with the following statements.

Scale:

	strongly dis-agree	tend to dis-agree	neither	tend to agree	fully agree	don't know / no answer

First subscale: Impartial beneficence (OUS-IB)
- If the only way to save another person's life in an emergency situation is to sacrifice one's own leg, then one is morally obligated to make that sacrifice.
- From a moral point of view, we should feel obligated to give one of our kidneys to a person with kidney failure, because we don't need two kidneys to survive, we really only need one to be healthy.
- From a moral point of view, people should be equally concerned about the welfare of all people on the planet; they should not prioritize the welfare of people who are particularly close to them physically or emotionally.
- It is just as wrong not to help someone as it is to actively harm them.
- It is morally wrong to keep money that you don't really need when you can donate it to causes that effectively help others.

Second subscale: Instrumental harm (OUS-IH)
- It is morally right to harm an innocent person if that harm is a necessary means to help several other innocent people.
- If the only way to ensure the general welfare and happiness of the people is to exercise political oppression for a short, limited period of time, then political oppression should be used.
- It is permissible to torture an innocent person if this is necessary to obtain information that will prevent a bomb from exploding that would kill hundreds of people.
- Sometimes it is morally necessary for innocent people to die as collateral damage - if it saves more people overall.

Debriefing

If group A2 (high effectiveness):
As part of the survey, we have provided you with some information on the effectiveness of political measures such as a congestion charge and a sugar tax. Please note that such estimates are always subject to uncertainty. Specifically, we have told you that a congestion charge of €2 per entry into the city center and a tax on sugary soft drinks of 10 cents per liter could lead to a 20% reduction in car traffic in city centers and a 20% reduction in sugar consumption respectively. However, given statistical uncertainties and country-specific differences, these effects can also be significantly higher or lower.

If group A2 (low effectiveness):

As part of the survey, we have provided you with some information on the effectiveness of political measures such as a congestion charge and a sugar tax. Please note that such estimates are always subject to uncertainty. Specifically, we have told you that a congestion charge of €2 per entry into the city center and a tax on sugary soft drinks of 10 cents per liter could lead to a 10% reduction in car traffic in city centers and a 10% reduction in sugar consumption respectively. However, given statistical uncertainties and country-specific differences, these effects can also be significantly higher or lower.

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