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Is money where the fun ends? Material interests and individuals' preference for direct democracy[☆]



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ABSTRACT

Are people's attitudes towards referendums as a decision-making procedure predominantly driven by their material self-interest, or do individuals also value direct democracy as such, regardless of the material payoffs associated with anticipated policy outcomes? To answer this question, we use a survey data set that offers information on respondents' support for referendums as a procedure to decide on tax policy, their income levels, socio-economic characteristics, and, most importantly, their expectation about the majority's support for higher taxes. We find that the support of low-income individuals for referendums increases substantially if they expect a clear population majority in favor of more redistribution. Conversely, individuals with a high income who expect a majority in favor of higher taxes do not reject referendums more strongly than individuals with an average income who share these expectations.

1. Introduction

There is a well-established literature in political economics that analyzes the effect of institutions and constitutional rules on economic and social outcomes (see [Persson and Tabellini, 2003](#); [Acemoglu et al., 2005](#); and [Voigt, 2011](#) for surveys). More recently, however, researchers have started to *endogenize* the choice of these institutions, explaining the emergence of different “rules of the game” as the outcome of a struggle between different interests in a heterogeneous society. Diverse as they may be, these contributions share a common logic: individuals prefer those procedures which maximize the likelihood that the eventual political-economic equilibrium furthers their material interests.¹

While the logic underlying these contributions is consistent with economic reasoning, it does not go uncontested: for example, [Rodrik \(2014\)](#) deplores the rather negligent treatment of “ideas” in the political-economic analysis of policy innovations, arguing that “... much human behavior is driven by abstract ideals, sacred values, or conceptions of loyalty that cannot be reduced to economic ends” ([Rodrik, 2014:191](#)). In a similar spirit, political science, psychology and behavioral economics offer a wealth of alternative motives

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¹ Of course, this requires that individuals can clearly identify their interests at the “constitutional stage”, i.e. when decision procedures are determined. As we will further argue in Section 2, this distinguishes recent contributions on endogenous institutions from the rich literature on constitutional public choice pioneered by [Buchanan and Tullock \(1962\)](#).

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beyond pure material interest that contribute to understanding the choice of decision-making procedures. Given the potential relevance of *intrinsic* motives, which evaluate procedures with respect to their transparency, fairness, practicability etc., but not with respect to their consequences for individual payoffs, the importance of *instrumental* motives, emphasized by standard economic analysis, is ultimately an empirical question.

In this paper, we put the idea that material interests are important in shaping individuals' preferences over alternative decision-making procedures to a test: we use data from a self-designed survey among German residents that asks individuals whether they support the use of referendums as a procedure to decide on redistributive taxation. Along with the answer to this question, the survey provides us with information on respondents' income and other socio-economic characteristics. Most importantly, the survey asks participants whether they expect a *clear majority* of the population to be *in favor of* or *against* higher taxes. Unlike other empirical studies of endogenous constitutional choice, we thus do not have to rely on a mere *conjecture* that individuals are able to correctly anticipate the political-economic equilibrium emerging from different procedural alternatives. Instead, these expectations are explicitly addressed in the context of the survey, and we can test the simple hypothesis that individuals with a low (high) income are more (less) likely to support referendums if they expect a clear majority to be in favor of higher taxes. If the support (or rejection) of direct democracy was predominantly driven by intrinsic motives – say, the belief that referendums are an optimal procedure in terms of fairness, transparency and practicability – neither individuals' incomes nor their expectations about the majority's position on redistribution should play a role for their preferences over procedures.

Our empirical results offer a mixed picture: we find that respondents who report a monthly net household income below 1700 Euros – i.e. clearly below the population average in Germany – and who expect the majority of the population to be in favor of higher taxes are 23 percent *more* likely to support referendums as a procedure to decide on taxation than low-income respondents who do not share these expectations. However, we do not find that the expectation of a majority in favor of higher taxes makes respondents with a net household income above 4000 Euros *less* likely to support referendums than individuals with an average income who share these expectations. In fact, there are some respondents who support a referendum as a method to decide on redistributive taxation even if this would be very likely to lower their after-tax income. We cautiously interpret the latter finding as evidence that some individuals assign an intrinsic value to direct democracy, which complements – and sometimes even dominates – material interests.

The rest of the paper is structured as follows: Section 2 surveys the relevant literature, while Section 3 presents a simple model that motivates the subsequent empirical analysis. Section 4 introduces the structure of our survey data set. In Section 5, we provide some first descriptive evidence on the relationship between individuals' income, their expectations on the majority's position, and their choice of procedure. Section 6 then presents the results of multinomial logit regressions which analyze how a combination of household income and majority expectations affects respondents' procedural choices. Section 7 offers a summary and some conclusions.

2. Related literature

There is a long tradition in public choice that analyzes the implications of different constitutional frameworks. Starting with the seminal contribution by Buchanan and Tullock (1962), researchers have explored how the “rules of the game” determine the boundaries in which subsequent policy outcomes emerge, and they have assessed the relative merits of alternative constitutional choices. Based on the pioneering work by Buchanan and Tullock, there is a rich literature on appropriate majority rules, on the choice between plurality and majority systems, the merits of bicameralism etc.²

While the normative strand of constitutional political economy in the spirit of Buchanan and Tullock (1962) is concerned with identifying a desirable framework from the perspective of individuals whose distributional interests are hidden behind a veil of uncertainty, a more recent literature lifts that veil and explores the emergence of constitutional frameworks from a positive perspective.³ The notion that individuals' preferences over procedures reflect their material self-interest is at the heart of contributions that interpret the emergence of political institutions as the result of rational agents' anticipation of how alternative institutional choices will affect individual (or group-specific) benefits. In an influential study, Acemoglu and Robinson (2000) explain the extension of the franchise on the basis of a cost-benefit analysis of incumbent rulers who grant the right of political participation to the broad population in order to reduce the threat of upheaval and revolution.⁴ Aghion et al. (2004) describe the optimal distribution of power in a society as reflecting a trade-off between efficient decision-making and the control of a potentially self-serving ruler. In their analysis, they both derive the constitutional design that is desirable behind the veil of uncertainty, and the design that is likely to emerge once (wealth) heterogeneity and individuals' conflicting interests are explicitly taken into account. Ticchi and Vindigni (2010) relate the choice among alternative democratic constitutions (majoritarian vs. consensual) to the underlying economic inequality, while Robinson and Torvik (2016) describe the emergence of presidentialism as resulting from a struggle between groups that differ with respect to their political orientation, but also with respect to their preferences over the provision of public goods. Acemoglu et al. (2015) show how the evolution of coalitions between different groups in society gives rise to changing patterns of political liberalization and repression. Finally,

² Mueller (2003) offers a survey of the literature.

³ Mueller (1997:124) argues that “... given the heavy emphasis placed on the positive analysis of political behavior in public choice, it is perhaps surprising that most of the literature that has examined the selection of political institutions falls into the former category (i.e., it is implicitly, if not overtly normative).” In his survey on *constitutional public choice*, however, he also reviews early contributions that adopt a positive approach to constitutions, e.g. analyses of the US Constitutional Convention in the spirit of Beard (1913).

⁴ Aidt and Franck (2015) offer a recent empirical analysis that supports the „preemptive democratization” hypothesis of Acemoglu and Robinson (2000).

Mukand and Rodrik (2015) define liberal democracy as an institutional setting that combines the protection of property rights, electoral rights, and minority rights, and show that its emergence is rather an exception than the rule, relying on a specific constellation of group sizes as well as social and identity cleavages.

What unites the contributions mentioned above is the premise that individuals (or groups) never value specific constitutional choices *per se*, but that they favor those procedures which are most likely to further their own – usually material – interests. From a political science perspective, this logic seems surprisingly poor. For example, preferences for “democratic innovations”, i.e. non-representative forms of decision-making such as direct democracy or deliberative citizen forums are explained as the result of the more general value shift towards post-materialism (see Inglehart, 1990), referring to the idea that, in times of affluence, non-material values, including political participation, become more important than wealth. According to this view, citizens demand ever more opportunities to have a direct say in policy-making, they become “critical citizens” (Norris, 1999). A number of contributions that study citizens’ attitudes towards specific democratic decision-making procedures point out the importance of differing normative conceptions of representation and democracy for procedural preferences (Wenzel et al., 2000; Bengtsson and Wass, 2010; Landwehr and Steiner, 2017). In these studies, support for specific procedures or reforms of them is regarded as derived from a more comprehensive understanding of democracy in which values such as equality, autonomy, the protection of liberties as well as institutional capacity and effectiveness are weighed and combined.

The idea that individuals’ assessment of alternative decision-making procedures does not just depend on their material interests is also underlying those contributions that emphasize the gains in individual well-being associated with the possibility of participating in the political process (Stutzer and Frey, 2005, 2006; Pacheco and Lange, 2010) as well as theoretical and empirical analyses of procedural fairness (Tyler and Lind, 2000; Bolton et al., 2005). Moreover, it is reflected in the concept of “expressive voting”, which “... captures the idea that voting may be motivated by concerns other than a concern for the eventual outcome of the election – concerns that are more directly and immediately linked to the act of voting, or of voting for a particular candidate or option, itself” (Hamlin and Jennings, 2011: 645).⁵

Finally, our analysis explores the role of material interests in determining individuals’ support for *referendums* as a particular procedure to decide on redistributive taxation. It is thus also related to the voluminous literature on the determinants and effects of direct democracy, as surveyed, e.g., by Matsusaka (2008), and to contributions that analyze how the use of referendums as a decision-making procedure affects fiscal outcomes like government spending, public debt, and taxation (Feld and Kirchgässner, 2001; Funk and Gathmann, 2011; Asatryan et al. 2017a, 2017b). Even closer to our analysis are those studies that use survey or voting data to identify the determinants of people’s support for direct democracy (Donovan and Karp, 2006; Bowler et al., 2007; Dyck et al., 2009; Collingwood, 2012; Arnold et al., 2016). None of these contributions, however, shares our focus on a specific policy issue – i.e. redistributive taxation – and none of them explicitly elicits individuals’ expectations on the majority opinion.

The paper closest to the present study is Harms and Landwehr (2019). In this paper, we draw on results of a survey experiment we fielded via the German GESIS panel. The experiment split the panel into four subgroups who reported their opinion and their expectation on the majority position, as well as their preferred decision procedure, on the following policy issues: assisted suicide, immigration, taxation, and energy policy. The empirical results in Harms and Landwehr (2019) indicate that respondents are more likely to select a referendum as a procedure if they see their own opinion aligned with the majority’s position. However, the relevance of instrumental motives differs across policy issues, with the effect of aligned positions on individuals’ support for referendums being significant for assisted suicide and immigration, but not for taxation and energy policy. Moreover, while the results of that paper highlight the importance of *instrumental* motives behind individuals’ procedural preferences, they do not indicate that individuals’ decisions are necessarily driven by *material* considerations – i.e. the maximization of expected income, consumption etc. The relevance of material motives is what we explore in this paper, shifting the focus to individuals’ choice of a procedure to decide on taxation.

3. Distributional interests, expectations, and individuals’ support for referendums: a simple model

In what follows, we will distinguish between various motives to support or reject a procedure: *instrumental* motives assess the attractiveness of a given procedure based on whether the expected policy outcomes are likely to further an individual’s interest – with *material* motives narrowing down this interest to (expected) income (or consumption) maximization. By contrast, *intrinsic* motives assign a value as such to a procedure, regardless of the expected (material) payoff, and possibly based on notions of justice, transparency, practicability etc.

To illustrate how individuals’ material interests, their general attitude towards redistribution, and their expectation about the majority’s position affect their preferences over procedures, we use the following simple model: we consider an economy that is inhabited by a large number of risk-neutral individuals who are indexed by i and receive an exogenous income y_i . The cross-sectional distribution of incomes is characterized by an average income \bar{y} and a median income \tilde{y} , and it is common knowledge that the distribution of incomes is skewed to the right, i.e. $\bar{y} > \tilde{y}$. The government levies a linear income tax and uniformly redistributes tax

⁵ While the contributions just mentioned explore the intrinsic value of *procedures*, there is an important theoretical and empirical literature on people’s normative conceptions and the intrinsic value of alternative *policy choices*. In fact, there is a growing body of papers who document that individuals judge the merits of taxation and redistribution not just on the basis of the impact on their expected net income, but attach a value to the redistributive properties of alternative tax systems *per se* (see Weinzierl, 2014, 2017; Charité et al., 2015; Saez and Stantcheva, 2016; Tarrow, 2017).

revenues among all citizens. For simplicity, we assume that redistribution is restricted to being either complete ($\tau = 1$) or totally absent ($\tau = 0$).⁶ The decision on the tax rate τ is either taken through a referendum (*ref*) or by using an alternative procedure (*alt*) which will be further specified below. Individual i assigns an intrinsic value π_i^j to procedure j , where $j \in \{ref, alt\}$. Moreover, an individual's general aversion towards redistributive taxation is reflected by the parameter θ_i , which may be greater or smaller than zero. In the former case ($\theta_i > 0$), a higher tax rate reduces individual i 's utility, regardless of its impact on her net income. In the latter case ($\theta_i < 0$), a higher tax rate raises utility. Finally, the weight of material interests – i.e. of expected net income – in individual i 's utility function is given by a non-negative parameter φ_i .

Given this setup, it is easy to show that individual i supports a referendum as a procedure to decide on redistributive taxation if the following condition is satisfied:

$$\pi_i^{ref} - \pi_i^{alt} \geq \varphi_i [\mathbf{E}_i(\tau | ref) - \mathbf{E}_i(\tau | alt)] (\theta_i + y_i - \bar{y}) \equiv \Delta\pi_i^{ref.crit} \tag{1}$$

The right-hand side of this equation depends on individual i 's income relative to the population average, adjusted for her general aversion towards taxation. Moreover, it depends on her expectation on the tax rate that will emerge under alternative decision-making procedures. Finally, it hinges on the importance of material (as opposed to intrinsic) motives in determining the individual's preferences over procedures.

Fig. 1 depicts the critical (relative) intrinsic value of a referendum $\Delta\pi_i^{ref.crit}$ for the case of $\varphi_i > 0$. The shaded area depicts the value of $\Delta\pi_i^{ref.crit}$ that induces an individual to choose a referendum over the alternative procedure for given expectations and a given value of $\theta_i + y_i - \bar{y}$. Note that, if $\varphi_i = 0$, instrumental motives would be completely irrelevant, the dashed lines in Fig. 1 would be horizontal, and an individual would choose the preferred procedure regardless of the sign or size of the expression on the right-hand side. By contrast, if $\varphi_i > 0$ an individual whose income (adjusted for her general aversion towards redistribution) is greater than the average ($\theta_i + y_i - \bar{y} > 0$) and who expects the tax rate under a referendum to be higher than under the alternative procedure ($\mathbf{E}_i(\tau | ref) - \mathbf{E}_i(\tau | alt) > 0$) has to assign a positive intrinsic value to a referendum in order to prefer this procedure vis-à-vis the alternative. The same holds for an individual whose income (adjusted for her general aversion towards redistribution) is lower than the average ($\theta_i + y_i - \bar{y} < 0$) and who expects the tax rate implemented under a referendum to be lower than under an alternative procedure. Conversely,

if $\theta_i + y_i - \bar{y} < 0$ and $\mathbf{E}_i(\tau | ref) - \mathbf{E}_i(\tau | alt) > 0$, an individual may select a referendum even if $\pi_i^{ref} - \pi_i^{alt}$ is negative.

In Appendix 1, we show that $\mathbf{E}_i(\tau | ref)$ can be easily pinned down if one knows whether individual i expects a clear majority of the population to be in favor or against higher taxation.⁷ Conversely, the mapping of majority expectations into an expected tax rate is less straightforward for alternative procedures like parliamentary discussions, expert decisions etc. For this reason, we argue that $\mathbf{E}_i(\tau | ref) - \mathbf{E}_i(\tau | alt) > 0$ if individual i expects a majority *in favor of* higher taxes and $\mathbf{E}_i(\tau | ref) - \mathbf{E}_i(\tau | alt) < 0$ if she expects a majority *against* higher taxes.

4. Data

To identify the importance of material interests in shaping individuals' attitudes towards the use of referenda, we designed a survey experiment that was fielded via the GESIS panel in 2016 (GESIS, 2017). The GESIS panel is a mixed-mode access panel started in 2013, representative of the German-speaking population between 18 and 70 in Germany (Bosnjak et al., 2017). Since 2013, panelists have been participating in bi-monthly waves of surveys.⁸ The GESIS data include, besides specific survey items, a wide range of socio-demographic questions as well as standard attitudinal constructs. The waves we draw on are wave 10 ("ce", October–December 2015) and 15 ("dd", August–October 2016).⁹

The main dependent variable in our survey is the discrete choice of the procedure "referendum" over alternative procedures for a decision about redistributive taxation. More specifically, participants were asked the following question:

"Currently, there is a lot of discussion about fair taxation and tax policy. How do you think a decision about this should be taken?"

- a) After a public debate, a referendum should be held.
- b) The Bundestag [German parliament] should decide on the basis of discussions within the political parties.
- c) An independent expert commission should develop a recommendation which is then implemented.
- d) Representatives of all affected groups should come together at a table and jointly find a solution."

⁶ This is, of course, a strong simplification, which we make in order to focus on the decision-making procedure instead of the tax schedule itself. In a recent contribution, Bierbrauer and Boyer (2018) analyze non-linear tax systems and characterize the set of tax reforms that are politically feasible, i.e. supported by the majority of the population.

⁷ As we demonstrate in Appendix 1, expectations about the majority's position may vary across individuals despite the fact that the skewness of the income distribution is common knowledge. This is because individuals may differ in their aversion towards redistribution, which is private knowledge.

⁸ Due to the experimental design of our survey, only panelists in the online-access mode could participate.

⁹ Variable definitions and summary statistics are reported in Appendix 2.

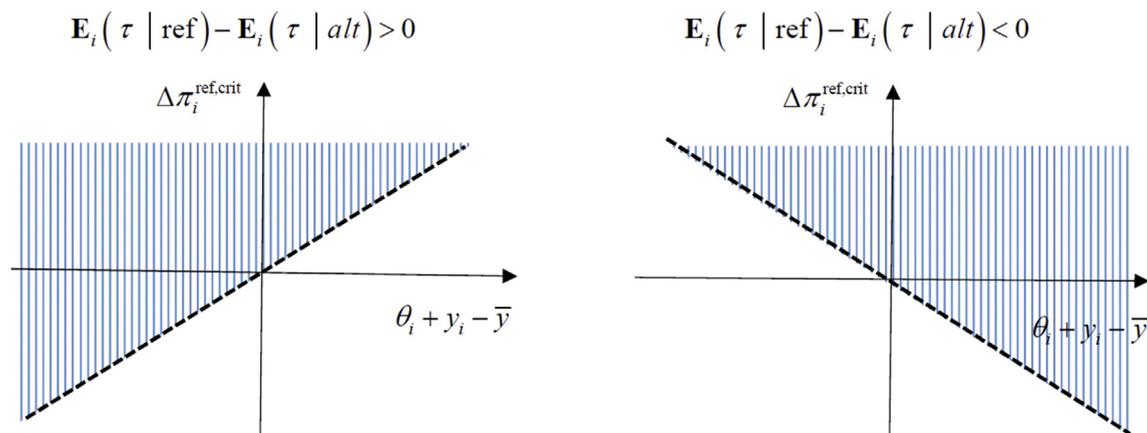


Fig. 1. The critical (relative) intrinsic value of a referendum ($\Delta\pi_i^{\text{ref,crit}}$) as a function of (adjusted) relative income ($\theta_i + y_i - \bar{y}$) for $E_i(\tau | \text{ref}) - E_i(\tau | \text{alt}) > 0$ (left) and $E_i(\tau | \text{ref}) - E_i(\tau | \text{alt}) < 0$ (right).

In what follows, we will label these options as *Referendum* (a), *Parliament* (b), *Experts* (c) and *Deliberation* (d).¹⁰

On the subsequent screen, we asked participants about their own substantial attitudes on the matter: “Are you in favor of or against implementing a higher tax on high incomes?” Respondents reacted by choosing an answer on a five-point scale ranging from “absolutely in favor” (1) to “absolutely against” (5).

On a third and final screen, we asked participants about their assessment of the *majority* opinion: “Do you think that, in Germany, there is a majority in favor of or against higher taxes on high incomes?” Again, respondents could choose their answer on a five-point scale, ranging from “clear majority in favor of higher taxes” (1) to “clear majority against higher taxes” (5). The answer to this question allows identifying individuals’ expectations about the outcome of a referendum: if a respondent expects a *clear majority* to be in favor of higher taxes on the rich, she expects higher taxes to materialize if tax policy is decided by means of a referendum. Hence, the answer to this question gives us an idea about the expression $E_i(\tau | \text{ref})$ introduced in Section 3.

While we cannot use our survey data to elicit $E_i(\tau | \text{alt})$ for the *alternative procedures* listed above, we argue that the relationship between the expected position of the majority and the eventual tax rate is less straightforward for representative democracies, expert decisions, or deliberative processes than for referendums: while Downs (1957) suggests that parties’ platforms converge to the median voter’s preferred position and thus reflect the majority’s interests, subsequent literature has stressed the fact that, with party platforms referring to multiple issues, the level of redistribution emerging in equilibrium does not necessarily reflect the majority’s position on that issue. Moreover, if we drop the Downsian notion that parties can commit to the announced policy, actual policies are rather determined by the efforts of interest groups than by the median voter’s preferences.¹¹ The idea that citizens are aware of this discrepancy is supported by an item filed in a 2014 wave of the GESIS panel: confronted with the statement “Politicians follow the interests of the citizens in their decisions”, 72 percent of respondents rejected this notion. Among those respondents who expected a clear majority in favor or against higher taxes in the later survey wave, the share of individuals trusting representative democracy was even lower. These results suggest that the majority’s position is considered less relevant under parliamentary democracy than under a referendum. As for expert decisions, the link between the majority’s position and the eventual policy outcome is even less obvious, with experts benefiting from greater expertise than the broad population, but also being exposed to interest group pressure and possibly tempted to pursue their own agenda. Finally, the results of deliberative procedures may or may not reflect majority opinions of the entire electorate, depending on the selection of participants and evolving argumentative dynamics. Based on these considerations, we argue that $E_i(\tau | \text{ref}) - E_i(\tau | \text{alt}) > 0$ for all the alternative procedures mentioned above if a respondent expects the majority to be in favor of higher taxes. Conversely, $E_i(\tau | \text{ref}) - E_i(\tau | \text{alt}) < 0$ if the respondent expects a majority to oppose higher taxes.¹²

Individuals’ incomes are, of course, of central relevance to our research question. In what follows, we will focus on respondents’ *net household income* as reported in the GESIS panel.¹³ Net household income may fall into one of nine brackets, with the lowest bracket (1) comprising all incomes below 900 Euros per month, and the highest bracket (9) comprising all incomes of 6000 Euros per month and above. In the subsequent analysis, we divide respondents into three groups: those with a monthly household net income below 1700

¹⁰ By “deliberation” we mean a form of decision-making that is based on the exchange of arguments and the search for a consensual solution. Respective decision-making procedures are advocated by proponents of deliberative theories of democracy, which stress that processes of will- and opinion-formation are more central to democracy than the mere aggregation of votes. A seminal collection of contributions on deliberation is provided by Bohman and Rehg (1997), and a discussion of deliberative democratic innovations by Smith (2009).

¹¹ Mueller (2003) as well as Hillman (2009) offer excellent surveys on the role of majorities and interest groups in representative democracy.

¹² Note that for a respondent’s procedural preference it is irrelevant whether her expectation about the majority’s position is correct or not.

¹³ Of course, information about households’ gross income would allow for an even clearer characterization of their preferences towards redistribution. However, since net income is closely related to gross income, we consider the former an appropriate measure of individuals’ relative income position.

Euros (*Household income lower than 1700*), those with a net income above 4000 Euros (*Household income lower than 4000*), and those in between. These boundaries are defined to roughly capture the bottom and top quartiles of the income distribution in the GESIS panel. In our survey, 18 percent of all respondents fall into the low-income category, while 31 percent fall into the high-income category – percentages that roughly coincide with the shares in the German population.¹⁴

Of course, the model presented in Section 3 suggested that an individual's support for referendums depends on the tax rate she expects under alternative procedures and her income relative to the *population average* – which would suggest splitting the sample into respondents for which household income is below or above the *mean*. However, we doubt that respondents whose income is close to the mean are able to accurately locate themselves in the income distribution. Hence, focusing on the lower and upper quartile of the in-sample income distribution allows singling out those respondents who are likely to be aware of their relative prosperity levels.

5. Household income, majority expectations, and the support for referendums: a first look at the data

A first impression on how individuals' income and majority expectations shape their support for different procedures is provided by Fig. 2. To produce this figure, we grouped responses, based on individuals' reported net household incomes and their expectations about the majority position. We then computed the share of respondents in each group who chose a given procedure to decide on redistributive taxation.¹⁵

There are various noteworthy observations to take away from an inspection of Fig. 2: first, respondents with a household income below 1700 Euros are much more likely to select a referendum if they expect a clear majority in favor of higher taxes (50 percent) than if they have no clear expectation on the majority's position (20 percent) or expect the majority to be *against* higher taxes (18 percent). Conversely, the share of respondents with a household income above 4000 Euros is much higher if an individual expects a majority against higher taxation (33 percent) than if she expects a majority in favor of higher taxation (13 percent). These shares support the notion that material interests matter in shaping individuals' preferences over procedures – i.e. individuals are more (less) likely to support a referendum if they expect it to raise (reduce) their net income.

A joint consideration of all procedures reveals that respondents who report a high income would rather avoid both referendums and deliberation if they expect a clear majority in favor of higher taxes. This pattern is still present (but not as pronounced) for high-income individuals who have no clear majority expectations. Conversely, if they expect a clear majority *against* higher taxes, high-income individuals favor referendums and deliberation over parliamentary and expert decisions.

As for those respondents who report a low income, *Referendum* and *Deliberation* are the most popular options if some clear majority (against or in favor of higher taxes) is expected. However, the ranking of the two procedures depends on specific majority expectations, with *Deliberation* being preferred by low-income individuals if the majority is expected to be *against* higher taxation, and *Referendum* if the majority is expected to be *in favor* of higher taxation.

While these observations are in line with the choices suggested by the model of Section 3, there still is a non-negligible percentage of respondents who support a referendum, although such a procedure seems to contradict their material interest: 18 (13) percent of respondents with a household income below 1700 Euros (above 4000 Euros) who expect a clear majority to be against (in favor of) higher taxes nevertheless support a referendum. While it could be argued that the absolute number of respondents who seem to act against their material interest amounts to less than one percent of the total sample (6 out of 618), the above results have to be considered jointly: neither does the strong expectation that a referendum on taxation will result in a favorable outcome elicit unanimous support by the respective group, nor does the opposite expectation induce all individuals to reject referendums. We cautiously interpret this as evidence that, for some respondents, the intrinsic value of a referendum may be different from zero.

6. Household income and individuals' support for referendums on taxation: multinomial logit estimates

While the descriptive evidence presented in the preceding section suggested that material motives are relevant in shaping individuals' preferences over procedures, we have to be aware that the percentages in Fig. 2 may be driven by other factors, which happen to be correlated with respondents' income and/or majority expectations. For example, individuals' incomes may be correlated with their educational attainment, and it may be the latter (rather than the former) that determines whether an individual supports or rejects a given procedure.

To meet this concern, we estimate a set of multinomial regressions that allow relating individuals' choice between several (non-ordered) alternatives to potential determinants. While we are predominantly interested in the role of income and majority expectations of respondents' support for (or rejection of) referendums, the multinomial logit approach puts all procedures on an equal footing, instead of just pitching one alternative against all others. More specifically, we estimate an equation that relates the relative probability ("log odds") of choosing one procedure over a benchmark alternative to the individual's characteristics. Based on the log-odds, we then compute average marginal effects. The marginal effect associated with a dummy variable describes how the probability of choosing a

¹⁴ According to Destatis (2015), the average German net household income in 2015 amounted to 3218 Euros per month. 15 percent of all households in Germany reported to receive a net income below 1700 Euros per month, 48 percent reported to receive an income above 3600 Euros, and 27 percent reported an income above 5000 Euros. Since the distribution within the 3600–5000 Euros bracket is likely to be skewed to the right, we believe that the share of households in Germany that received a net income above 4000 Euros is not much higher than the 31 percent of the GESIS panel.

¹⁵ In Appendix 3, we offer information on the absolute number of responses underlying the percentages presented in Fig. 2.

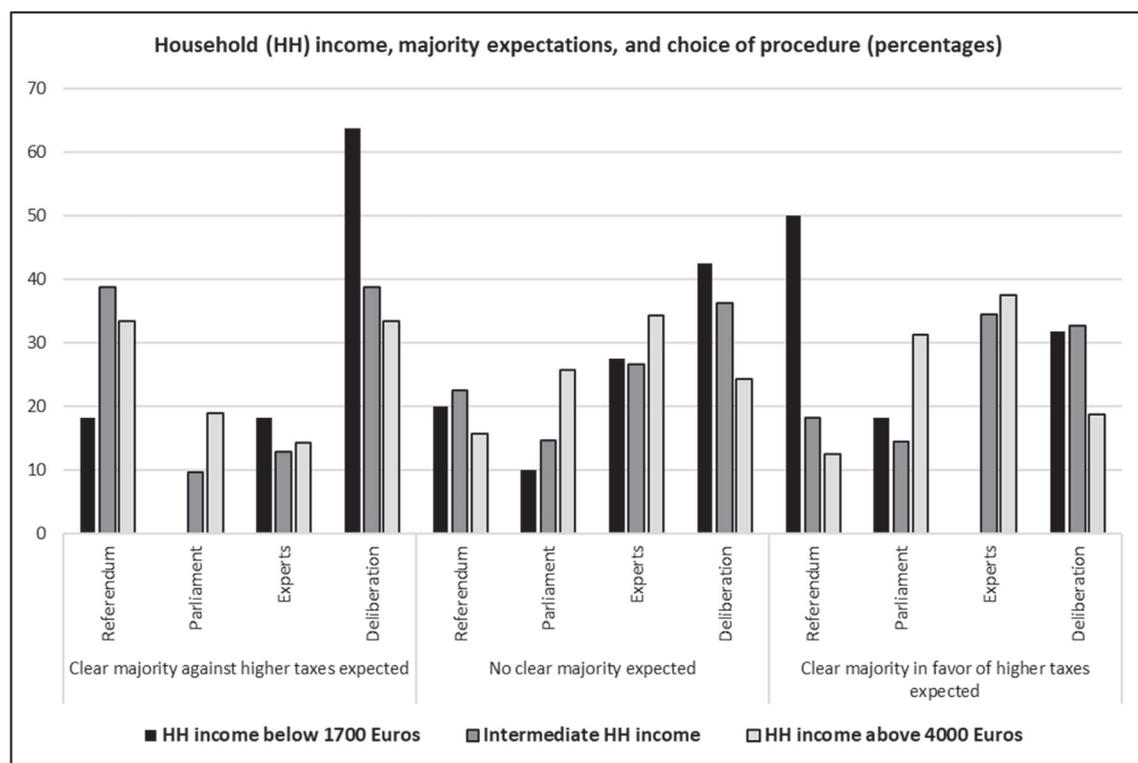


Fig. 2. Percentages of respondents reporting a given household net income and expectations about the majority's position on taxation who chose a certain procedure. Source: GESIS panel and own computations.

given alternative is altered if the variable takes a value of one. Since the estimator is nonlinear, marginal effects depend on the points where they are measured. Average marginal effects represent a mean over all observations.¹⁶

We start with a specification that relates respondents' choice of procedure (*Referendum*, *Parliament*, *Experts*, or *Deliberation*) to a dummy variable that is one if reported household income is below 1700 Euros (*Househ. income lower than 1700*), and a dummy variable that is one if reported household income is above 4000 Euros (*Househ. income larger than 4000*). Moreover, we include a dummy variable that equals one if the respondent expects a majority *in favor of* higher taxes (*Majority pro tax*), and a dummy variable that equals one if the respondent expects a majority *against* higher taxes (*Majority contra tax*). Finally, and most importantly, we interact both income dummy variables with the dummy variables that reflect majority expectations. For the time being, we do not include any control variables.

The numbers presented in Table 1 suggest that the expectation of a majority in favor of higher taxes *per se* does not affect individuals' support for any procedure. By contrast, the expectation that the majority opposes higher taxes raises the likelihood of selecting *Referendum* and reduces the likelihood of selecting *Experts*. Turning to the role of household income, we find that receiving an income below 1700 Euros does not affect respondents' procedural choice, while receiving an income above 4000 Euros significantly raises the likelihood of supporting *Experts* and reduces the likelihood of supporting *Deliberation*. Finally, the interaction terms are not significant for high-income individuals – i.e. their support for or rejection of a given procedure does not depend on their expectation about the majority's position. By contrast, a low-income individual who expects a majority in favor of higher taxes is 30 percent more likely to select *Referendum* than a low-income individual that does not articulate any expectations on the majority's position, and 29 percent less likely to select *Experts*. While the latter findings are in line with the notion that low-income individuals favor the procedure that maximizes their expected after-tax income, it comes as a surprise that a low-income individual who expects the majority to oppose higher taxes is 17 percent less likely to choose *Parliament* than a low-income individual without this expectation.

The results displayed in Table 1 suggest that individuals' income levels, combined with their expectations on the majority's position, matter for their preference over procedures. However, the effect is predominantly visible for low-income individuals, while we do not find the expected relationship for respondents with a high income. As argued above, both findings may be due to the influence of other characteristics, which are correlated with the regressors included so far. To meet this concern, we augment our specification by controlling for respondents' age (*Age*) and by using dummy variables that reflect respondents' gender (*Female*), their educational attainment

¹⁶ See Wooldridge (2002) for an extensive treatment of multinomial logit models. Of course, this approach does not overcome all problems in identifying causal relationships, but controlling for other variables at least reduces the likelihood of omitted variable bias.

Table 1
Multinomial logit regressions: benchmark specification (average marginal effects).

	(1)	(2)	(3)	(4)
	Referendum	Parliament	Experts	Deliberation
Majority pro tax	-0.041 (-0.724)	-0.002 (-0.040)	0.075 (1.103)	-0.032 (-0.479)
Majority contra tax	0.154 (1.756)*	-0.051 (-0.726)	-0.139 (-1.864)*	0.035 (0.392)
Househ. inc. lower than 1700	-0.019 (-0.379)	-0.051 (-1.086)	0.018 (0.312)	0.053 (0.873)
Househ. inc. lower 1700#Majority pro tax	0.305 (1.874)*	0.086 (0.595)	-0.288 (-15.38)***	-0.102 (-0.901)
Househ. inc. lower 1700#Majority contra tax	-0.098 (-0.977)	-0.173 (-11.45)***	0.111 (0.499)	0.160 (0.759)
Househ. inc. larger than 4000	-0.067 (-1.572)	0.107 (2.479)**	0.076 (1.584)	-0.115 (-2.379)**
Househ. inc. larger 4000#Majority pro tax	0.010 (0.087)	0.048 (0.486)	-0.030 (-0.310)	-0.030 (-0.233)
Househ. inc. larger 4000#Majority contra tax	0.019 (0.163)	0.000 (0.001)	-0.064 (-0.454)	0.045 (0.302)
Observations	617	617	617	617

z-statistics in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1.

The coefficients give **average marginal effects**, i.e. the impact of a regressor on the probability that an individual chooses a given procedure, averaged over all observations.

(*University entrance degree*), as well as their citizenship (*German citizen*).¹⁷

Moreover, we have to be aware that the coefficients and significance levels of the interactive terms in Table 1 do not necessarily prove the importance of *material* motives in defining individuals' preferences over alternative procedures. Respondents may support a referendum if they expect a clear majority in favor of higher taxation, but not necessarily with the goal of maximizing their expected after-tax income: they may just have stronger views on the economy-wide effects of redistribution and therefore welcome the anticipated policy outcome. If such a position, as reflected by a negative value of θ_i in our model, is correlated with the respondent's income, this may result in an erroneous interpretation of whatever effect we estimate. To solve this problem and to account for *instrumental*, but not necessarily *material* motives to support or reject referendums, we introduce two additional dummy variables: the dummy variable *Attitudes aligned* assumes a value of one if respondents are in favor (or strongly in favor) of higher taxes *and* expect a clear majority of the population to share this view, or if they are against (or strongly against) higher taxes *and* expect a clear majority of the population to oppose higher taxes as well. Otherwise, the dummy variable takes a value of zero – either if respondents do not utter an opinion on taxation, or if they do not expect a clear majority in either direction. Conversely, the dummy variable *Attitudes contrasting* is one if a respondent sees herself or himself in opposition to the expected majority, and zero otherwise. While both dummy variables possibly reflect an *instrumental* motive behind agents' support or rejection of referendums, this instrumental motive does not necessarily reflect *material* self-interest, since it is computed regardless of respondents' income. Including *Attitudes aligned* and *Attitudes contrasting* as control variables thus further contributes to isolating the purely material considerations behind individuals' attitude towards referendums.

In column (1) of Table 2, the coefficient of *Attitudes aligned* has the expected positive sign, but narrowly misses the mark for a 10-percent significance level. By contrast, *Attitudes contrasting* is not significantly different from zero. Concerning the other regressors, the signs and magnitudes of the coefficients are largely unchanged. However, the significance level of *Majority contra tax* has slipped below acceptable benchmarks. Most importantly, however, the interaction term of the low-income dummy and the *Majority pro tax* dummy has preserved its significantly positive effect.

While the specifications used so far controlled for a number of individual characteristics, they did not account for the possibility that respondents' support for referendums as a procedure to decide on taxation may just be driven by their *general* attitude towards direct democracy and/or their general view on redistribution.¹⁸ To control for these factors, we introduce two additional regressors: we use a variable from the October-December-2015 wave of the GESIS panel, which reflects respondents' *general* view on referendums. Specifically, this item confronted respondents with the following statement: "There should be more referendums in Germany." Participants could choose on a seven-point scale, reaching from "fully disagree" (1) to "fully agree" (7). Including this variable (*Referendum*

¹⁷ Definitions of these variables are given in the Appendix. Since the GESIS panel uses the value of 1943 (1995) for all respondents that were born in 1943 or earlier (1995 or later), we originally used the dummy variables *Old (Young)* for all individuals born in 1943 or earlier (1995 or later) in addition to *Age*. However, these variables were never significant, such that we eventually dropped them. We also abstained from using both the level and the *squared value* of *Age* since it turned out that the latter was not significant in any specification.

¹⁸ For example, low-income individuals who expect a majority in favor of taxation may welcome the anticipated outcome not for selfish reasons, but because the anticipated outcome meets their notion of distributional justice. Moreover, they may just value referendums as such, without considering the procedure's impact on their expected net income.

Table 2
Multinomial logit regressions, including control variables (average marginal effects).

	(1)	(2)	(3)	(4)
	Referendum	Parliament	Experts	Deliberation
Majority pro tax	-0.079 (-1.492)	0.032 (0.449)	0.077 (0.959)	-0.030 (-0.384)
Majority contra tax	0.105 (1.107)	-0.009 (-0.100)	-0.132 (-1.627)	0.037 (0.377)
Househ. inc. lower than 1700	-0.040 (-0.840)	-0.050 (-1.100)	0.021 (0.369)	0.069 (1.153)
Househ. inc. lower 1700#Majority pro tax	0.305 (1.987)**	0.049 (0.407)	-0.291 (-15.61)***	-0.063 (-0.513)
Househ. inc. lower 1700#Majority contra tax	-0.066 (-0.503)	-0.173 (-11.63)***	0.206 (0.893)	0.033 (0.173)
Househ. inc. larger than 4000	-0.025 (-0.562)	0.072 (1.670)*	0.038 (0.783)	-0.084 (-1.693)*
Househ. inc. larger 4000#Majority pro tax	0.018 (0.155)	0.021 (0.230)	-0.040 (-0.436)	0.000 (0.006)
Househ. inc. larger 4000#Majority contra tax	0.030 (0.250)	-0.037 (-0.344)	-0.070 (-0.509)	0.076 (0.491)
Attitudes aligned	0.136 (1.607)	-0.035 (-0.624)	0.000 (0.004)	-0.102 (-1.367)
Attitudes contrasting	0.044 (0.349)	-0.105 (-1.290)	0.061 (0.475)	-0.000 (-0.000)
Female	-0.059 (-1.781)*	-0.078 (-2.655)***	0.000 (0.000)	0.137 (3.612)***
Age	-0.005 (-4.278)***	0.001 (0.842)	0.001 (0.417)	0.004 (2.554)**
German citizen	-0.018 (-0.153)	-0.013 (-0.150)	-0.033 (-0.337)	0.065 (0.694)
Univ. entrance degree	-0.191 (-5.164)***	0.124 (3.727)***	0.131 (3.303)***	-0.064 (-1.557)
Observations	610	610	610	610

z-statistics in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1.

The coefficients give **average marginal effects**, i.e. the impact of a regressor on the probability that an individual chooses a given procedure, averaged over all observations.

preference) in our regression controls for all motives – instrumental and intrinsic – that may determine an agent’s general view on direct democracy. To capture respondents’ *general* attitude towards redistribution, we add another variable from the October–December 2015 wave of the GESIS panel, which reflects respondents’ reaction to the following statement: “The government should enforce the reduction of differences between the poor and the rich.” Answers could be given on a seven-point scale from 1 (fully agree) to 7 (fully disagree). Based on this information, we constructed the variable *No redistribution*, which takes a value of 1 if respondents chose 6 or 7, i.e. uttered a strongly negative attitude towards redistribution.

The results displayed in Table 3 indicate that the average marginal effect of *Referendum preference* has the expected sign and is highly significant for all procedures – except for the *Deliberation* option. By contrast, *No redistribution* does not seem to have a direct effect on the likelihood of selecting any procedure. Most importantly, the interaction term of the low-income dummy *Household income lower than 1700#Majority pro tax* keeps being positive and highly significant, while high incomes *per se* only seem to matter for individuals’ rejection of deliberative procedures.

The positive effect of the first interactive term, however, has to be read in combination with the negative direct effect of the *Majority pro tax* dummy on the support for referendums. The latter finding suggests that, regardless of their income and other characteristics, individuals tend to reject referendums to decide on taxation if they expect the majority to favor higher taxes. However, for individuals with a household net income below 1700 Euros, the positive effect of expecting a majority in favor of higher taxes clearly dominates: while the expectation of a majority in favor of higher taxes generally lowers the probability that an individual supports referendums by 9 percent, it raises the probability by 23 percent if an individual earns a net household income below 1700 Euros. Conversely, the probability of supporting a referendum is not *lowered* further if a respondent who expects a majority in favor of higher taxation receives a high income.

7. Summary and conclusions

While few economists would contest the idea that individuals’ attitudes towards specific policy issues – e.g. redistributive taxation – reflect their material self-interest, it is far less obvious that such considerations should also play a role at the constitutional stage, i.e. when the rules of the political process are defined. It could be argued that values such as democratic autonomy, procedural fairness, citizen participation and transparency are far more important than material self-interest in determining agents’ preferences over decision-making procedures.

Focusing on individuals' support for referendums as a procedure to decide on taxation, our analysis has tried to shed light on this issue. Using a survey that we designed within the German GESIS panel, we were able to elicit agents' expectations about the majority's position instead of just *assuming* their ability to anticipate the political-economic equilibrium under a referendum. Given this information, we demonstrated that the support for direct democracy substantially increases for low-income individuals if they expect a clear majority in favor of taxation – a result that is perfectly in line with the idea that material motives are crucial for individuals' preferences over procedures. Interestingly, however, no such effect could be discovered for high-income individuals: while expecting a majority in favor of higher taxes generally lowers support for referendums, this effect is not stronger for individuals with an income above the average, and a small, but non-negligible percentage of this group supports referendums as a procedure to decide on taxation even if they expect a majority of the population to advocate more redistribution. Moreover, if we control for other potential determinants of procedural preferences, the expectation of a majority *against* taxation does not reduce low-income individuals' support for direct democracy, although a referendum is unlikely to further their material interests. We cautiously interpret this as evidence that at least some of the respondents in our sample attach an *intrinsic value* to direct democracy.

Our results are thus sobering both for those who argue that material interests completely dominate individuals' preferences over alternative procedures, and for those who argue that such motives are completely irrelevant. We believe that being aware of this ambivalence is important: In political science, those who advocate democratic innovations – and referendums in particular – on the basis of their intrinsic merits are likely to blind out their outcome effects and distributive consequences and might therefore fail to detect profane and strategic motives behind calls for direct democratic participation. In economics, by contrast, researchers focusing on instrumental motives and material interests alone are likely to miss the intrinsic and symbolic significance of participatory institutions and the normative motives that are central not only in their creation, but also for their proper functioning and maintenance.

Appendix 1. Individual majority expectations and expected tax rates under a referendum

We assume that individuals' preferences over decision-making procedures have an *intrinsic* component, which assesses different procedures according to their inherent fairness, transparency, feasibility etc., and an *instrumental* component, which reflects the utility an individual derives from the outcome she expects as resulting from a given procedure.¹⁹ We thus write individual i 's total utility as

$$V_i = \pi_i + \varphi_i U_i(\tau) \quad (\text{A.1})$$

In (A.1), π_i reflects the additional utility that individual i derives from the use of a specific procedure, regardless of her view on taxation. We assume that $\pi_i = \pi_i^{\text{ref}}$ for a referendum and $\pi_i = \pi_i^{\text{alt}}$ if an alternative procedure is used. Note that $\pi_i^{\text{ref}} - \pi_i^{\text{alt}}$ is individual-specific, and that we do not impose any restrictions on its sign or absolute size. The term $U_i(\tau)$ is the utility derived from a specific tax rate τ , and also depends on individual characteristics. Finally, $\varphi_i \geq 0$ is the relative weight given to *instrumental* (as opposed to *intrinsic*) motives. If instrumental considerations are completely irrelevant in shaping the individual's attitudes towards referendums, we have $\varphi_i = 0$. Conversely, if φ_i becomes infinitely large, procedural preferences entirely reflect instrumental motives.

We assume that the utility derived from a specific tax rate $U_i(\tau)$ is a linear function of an individual's after-tax income and of a term that reflects her *general* attitude towards taxation:

$$U_i(\tau) = (1 - \tau) y_i + \tau \bar{y} - \theta_i \tau \quad (\text{A.2})$$

If θ_i is positive, individual i has a generally critical attitude towards taxation, regardless of her own income position. This may be because she emphasizes the potentially detrimental incentive effects associated with higher taxes. Conversely, a negative value of θ_i reflects a generally positive attitude towards taxation – due, e.g., to inequity aversion (Fehr and Schmidt, 1999) that induces an individual to prefer a more even income distribution.

We assume that, while the skewness of the income distribution is common knowledge, the distribution of the parameter θ_i is not observable, and that individuals assign *subjective probabilities* to all potential realizations of θ_i in the population. This results in a *subjective expected value* $\bar{\theta}_i$, which potentially differs across individuals, i.e. individuals may have different expectations on citizens' average support or rejection of redistributive taxation. For the sake of simplicity, we assume that all individuals agree on the fact that θ_i is not correlated with y_i . Moreover, individual i 's own general attitude towards redistribution, as reflected by θ_i , may, but need not coincide with $\bar{\theta}_i$.

Given the choice between complete redistribution ($\tau = 1$) and no redistribution at all ($\tau = 0$), the utility function in (A.2) obviously implies that individual i prefers a tax rate of 100 percent if $\bar{y} > y_i + \theta_i$. This expression has a straightforward interpretation: a higher general aversion against taxation ($\theta_i > 0$) has the same effect as a higher income, possibly inducing an individual to reject taxation even if her income is below the mean. Conversely, if an individual is generally positive about redistribution ($\theta_i < 0$), she may support a 100-percent tax although her income is above the mean. For a given distribution of θ_i , however, individuals with a higher income are more likely to reject redistributive taxation.

If a referendum is used to decide on redistributive taxation, the outcome depends on the distribution of incomes and the distribution of θ_i . From the perspective of individual i , the expected outcome of the referendum is

¹⁹ As we will argue below, this part of total utility does not only depend on an individual's material payoff.

Table 3

Multinomial logit regressions, including control variables and respondents' general attitude towards referendums and redistribution (average marginal effects).

	(1)	(2)	(3)	(4)
	Referendum	Parliament	Experts	Deliberation
Referendum preference	0.087 (6.485)***	-0.052 (-7.089)***	-0.030 (-3.072)***	-0.005 (-0.425)
No redistribution	0.001 (0.0447)	0.006 (0.612)	0.003 (0.223)	-0.009 (-0.631)
Majority pro tax	-0.091 (-1.969)**	0.043 (0.630)	0.109 (1.316)	-0.061 (-0.837)
Majority contra tax	0.077 (1.059)	0.020 (0.208)	-0.121 (-1.463)	0.024 (0.252)
Househ. inc. lower than 1700	-0.041 (-0.865)	-0.033 (-0.688)	0.025 (0.409)	0.049 (0.802)
Househ. inc. lower 1700#Majority pro tax	0.322 (2.223)**	-0.002 (-0.023)	-0.286 (-15.10)***	-0.034 (-0.264)
Househ. inc. lower 1700#Majority contra tax	-0.086 (-0.645)	-0.176 (-11.93)***	0.057 (0.243)	0.205 (0.883)
Househ. inc. larger than 4000	0.012 (0.261)	0.035 (0.832)	0.040 (0.801)	-0.086 (-1.696)*
Househ. inc. larger 4000#Majority pro tax	0.011 (0.102)	0.003 (-0.043)	-0.067 (-0.781)	0.052 (0.388)
Househ. inc. larger 4000#Majority contra tax	0.051 (0.462)	-0.061 (-0.633)	-0.080 (-0.632)	0.090 (0.594)
Attitudes aligned	0.117 (1.502)	-0.007 (-0.123)	0.006 (0.082)	-0.116 (-1.608)
Attitudes contrasting	0.027 (0.226)	-0.091 (-1.062)	0.082 (0.595)	-0.017 (-0.147)
Female	-0.043 (-1.336)	-0.081 (-2.732)***	-0.013 (-0.354)	0.136 (3.529)***
Age	-0.006 (-4.761)***	0.001 (1.252)	0.001 (0.448)	0.004 (2.821)***
German citizen	-0.016 (-0.137)	-0.030 (-0.324)	-0.034 (-0.340)	0.082 (0.799)
Univ. entrance degree	-0.148 (-4.205)***	0.107 (3.137)***	0.010 (2.381)**	-0.060 (-1.374)
Observations	575	575	575	575

z-statistics in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1.

The coefficients give **average marginal effects**, i.e. the impact of a regressor on the probability that an individual chooses a given procedure, averaged over all observations.

$$E_i(\tau \mid \text{ref}) = \begin{cases} 0 & \text{if } \bar{y} - \bar{y} \leq \bar{\theta}_i \\ 1 & \text{if } \bar{y} - \bar{y} > \bar{\theta}_i \end{cases} \quad (\text{A.3})$$

Note that, since $\bar{\theta}_i$ is based on individual i 's personal beliefs, the expected outcome of the referendum is subjective, too. The expression in (A.3) is a slightly modified version of the [Meltzer and Richard \(1981\)](#) result: if individual i believes that the general attitude towards taxation is hostile on average ($\bar{\theta}_i > 0$), she expects the referendum to result in complete redistribution only if the difference between average and median income is large enough. Conversely, complete redistribution is perceived as a sure thing if individual i believes that the skewness of the income distribution is augmented by a positive view on redistribution prevailing, on average, among the population ($\bar{\theta}_i < 0$).

Appendix 2. Data definitions, sources and summary statistics

VARIABLES	Definition	Source
Referendum preference	Answer to question: To what extent do you agree with the following statements? There should be more referenda in Germany. 1: fully disagree/.../7: fully agree	GESIS panel, wave ce, Variable ceaz116a
No redistribution	Dummy variable: 1: Respondent reacts to statement "The government should enforce the reduction of differences	GESIS panel, wave ce, Variable ceaz128a

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VARIABLES	Definition	Source
	between the poor and the rich" by choosing 6 or 7 (with 1: fully agree, ..., 7: fully disagree) 0: otherwise	
Referendum, Parliament, Experts, Deliberation	Respondent is confronted with the following question: "Currently, there is a lot of discussion about fair taxation and tax policy. The following is about your opinion on taxes. How do you think this should be decided?" <i>Referendum</i> if respondent chooses "After a public debate, a referendum should be held." <i>Parliament</i> if respondent chooses "The Bundestag [German parliament] should decide on the basis of discussions within the political parties." <i>Experts</i> if respondent chooses "An independent expert commission should develop a recommendation which is then implemented." <i>Deliberation</i> if respondent chooses "Representatives of all affected groups should come together at a table and jointly find a solution."	GESIS panel, wave dd Variable ddaz149a
Majority pro tax	Dummy variable: 1: Respondents' reaction to question "Do you think that, in Germany, there is a majority in favor of or against higher taxes on high incomes?" is "Clear majority in favor of higher taxation" 0: otherwise	GESIS panel, wave dd, Variable ddaz151a
Majority contra tax	Dummy variable: 1: Respondents' reaction to question "Do you think that, in Germany, there is a majority in favor of or against higher taxes on high incomes?" is "Clear majority against higher taxation" 0: otherwise	GESIS panel, wave dd, Variable ddaz151a
Attitudes aligned	Dummy variable: 1: respondent is in favor or strongly in favor of higher taxes on high incomes and expects a clear majority in favor of higher taxes. 1: respondent is against or strongly against higher taxes on high incomes and expects a clear majority against higher taxes. 0: otherwise	GESIS panel, wave dd Variables ddaz150a, ddaz151a
Attitudes contrasting	Dummy variable: 1: respondent is in favor or strongly in favor of higher taxes on high incomes and expects a clear majority against higher taxes. 1: respondent is against or strongly against higher taxes on high incomes and expects a clear majority in favor of higher taxes. 0: otherwise	GESIS panel, wave dd Variables ddaz150a, ddaz151a
Female	Dummy variable: 1: female/0: male	GESIS panel, wave df, Variable dfzh037a
Age	2016 minus the answer to the question: "Please provide the year of your birth." 73 for all respondents born in or before 1943; 21 for all respondents born in or after 1995	GESIS panel, wave df, Variable dfzh038c
German citizen	Dummy variable: 1: German citizen/0: otherwise	GESIS panel, wave df, Variable dfzh039a
University entrance degree	Dummy variable: 1: Respondent reports to have advanced technical college certificate („Fachhochschulreife") or general qualification for university entrance („Abitur, allgemeine oder fachgebundene Hochschulreife") 0: otherwise	GESIS panel, wave df, Variable dfzh044a
Household income lower than 1700	Dummy variable 1: Answer to question "How high is the average net income of your household, meaning the sum of all net incomes and social security/welfare benefits of people living inside your household? (Net income is the sum of your earnings, including social security/welfare benefits after taxation. If you do not know your personal income please provide an estimate.)" is either 1 (Below 900 €), 2 (900–1300 €), or 3 (1300–1700 €) 0: otherwise	GESIS panel, wave df, Variable dfzh056c
Household income larger than 4000	Dummy variable 1: Answer to question "How high is the average net income of your household, meaning the sum of all net incomes and social security/welfare benefits of people living inside your household? (Net income is the sum of your earnings, including social security/welfare benefits after taxation. If you do not know your personal income please provide an estimate.)" is either 7 (4000–5000 €), 8 (5000–6000 €), or 9 (Above 6000 €) 0: otherwise	GESIS panel, wave df, Variable dfzh056c

Note: Negative entries (e.g. –99 for item nonresponse) are treated as non-observables.

Summary Statistics

Variable	Obs ^a	Mean	Std. Dev.	Min	Max
Female	729	0.50	0.50	0	1
Age	725	49.76	14.21	21	73
German citizen	726	0.96	0.19	0	1

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Variable	Obs ^a	Mean	Std. Dev.	Min	Max
Univ. entrance degree	724	0.52	0.50	0	1
Househ. inc. lower than 1700	618	0.18	0.39	0	1
Househ. inc. larger than 4000	618	0.31	0.46	0	1
No Redistribution	749	0.05	0.21	0	1
Referendum Preference	737	5.20	1.73	1	7
Referendum	787	0.24	0.43	0	1
Parliament	787	0.18	0.38	0	1
Experts	787	0.25	0.43	0	1
Deliberation	787	0.33	0.47	0	1
Majority pro tax	787	0.17	0.38	0	1
Majority contra tax	787	0.10	0.30	0	1
Attitudes aligned	787	0.10	0.29	0	1
Attitudes contrasting	787	0.02	0.15	0	1

^a Number of observations refers to the subset of respondents selected for the experiment on redistributive taxation.

Appendix 3. Distribution of responses on income levels, majority expectations, and procedural choices

	Clear majority against higher taxes expected	No clear majority expected	Clear majority in favor of higher taxes expected	
HH income below 1700 Euros (1–3)	11	80	22	113
Intermediate HH income (4–6)	31	226	55	312
HH income above 4000 Euros (7–9)	21	140	32	193
Sum	63	446	109	618
Referendum				
HH income below 1700 Euros (1–3)	2	16	11	29
Intermediate HH income (4–6)	12	51	10	73
HH income above 4000 Euros (7–9)	7	22	4	33
Parliament				
HH income below 1700 Euros (1–3)	0	8	4	12
Intermediate HH income (4–6)	3	33	8	44
HH income above 4000 Euros (7–9)	4	36	10	50
Experts				
HH income below 1700 Euros (1–3)	2	22	0	24
Intermediate HH income (4–6)	4	60	19	83
HH income above 4000 Euros (7–9)	3	48	12	63
Deliberation				
HH income below 1700 Euros (1–3)	7	34	7	48
Intermediate HH income (4–6)	12	82	18	112
HH income above 4000 Euros (7–9)	7	34	6	47

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