

## Saliency of Inherited Wealth and the Support for Inheritance Taxation

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World Inequality Lab

# Salience of Inherited Wealth and the Support for Inheritance Taxation\*

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## Abstract

We study how attitudes to inheritance taxation are influenced by information about the role of inherited wealth in society. Using a randomized experiment in a register-linked Swedish survey, we find that informing individuals about the large aggregate importance of inherited wealth and its link to inequality of opportunity significantly increases the support for inheritance taxation. The effect is almost uniform across socio-economic groups and survives a battery of robustness tests. Changes in the perceived economic importance of inherited wealth and altered views on whether luck matters most for economic success appear to be the main driving factors behind the treatment effect. Our findings suggest that the low salience of inherited wealth could be one explanation behind the relatively marginalized role of inheritance taxation in developed economies.

**Keywords:** Capital taxation, Tax attitudes, Equality of opportunity, Randomized experiment

**JEL classification:** D31, H20, H31.

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# 1 Introduction

The taxation of inheritance and gifts has declined in many countries over the recent decades.<sup>1</sup> This decline occurs at a time when the economic significance of inherited wealth in society appears to have increased. Studies of France and Sweden show that aggregate bequest and gift flows have doubled in size over the last twenty years (Piketty 2011, Ohlsson, Roine and Waldenström 2019) and microdata evidence shows that heirs with the highest income and wealth receive the largest bequests.<sup>2</sup> Furthermore, a recent strand in the optimal taxation literature highlights that inheritance taxation can be a useful component of the tax system, especially if the government cares about equality of opportunity (Farhi and Werning 2013, Piketty and Saez 2013).<sup>3</sup>

The simultaneous decrease in the reliance on inheritance taxation and increase in the economic importance of inherited wealth may seem puzzling from a scholarly point of view. One potential explanation could be related to people's awareness of the recent trends in the role of inherited wealth in household portfolios. If people do not perceive that the societal importance of inheritance has changed, they are less likely to alter their political stance on its taxation. Policymakers take the public opinion into account when they balance the social and economic desirability of taxes against their political feasibility, and this balance appears to be particularly difficult to achieve in the case of many capital taxes (Mankiw, Weinzierl and Yagan 2009, Scheuer and Wolitzky 2016, Scheve and Stasavage 2016). Therefore, to understand the evolution of inheritance taxation in developed economies, it is necessary to study the factors determining the social acceptance of the inheritance tax. In particular, it may require an inquiry into what people know about inherited wealth in the economy and how such knowledge translates into political views of taxation.

This study analyzes attitudes towards inheritance taxation and how they depend on perceptions of the economic importance of inherited wealth in society. The analysis is based on new data from a recent household survey in Sweden that targeted a large, nationally representative, sample of register-linked respondents. A key part of the survey was a randomized information experiment in which randomly selected

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<sup>1</sup>According to Tax Foundation (2015), thirteen countries (of which eight are European) have repealed their inheritance or estate taxes since 2000. Finland and Denmark have recently witnessed parliamentary initiatives to abolish their inheritance taxes.

<sup>2</sup>Boserup, Kopczuk and Kreiner (2016) and Elinder, Erixson and Waldenström (2018) document, for Denmark and Sweden, respectively, a positive correlation between bequests and heirs' income and wealth. They also find that bequests are more important in relative terms lower down in the income and wealth distributions. Nikoei and Seim (2018) find similar evidence for Sweden but also highlight that poor and wealthy heirs have different consumption patterns which can imply different effects of inheritance on inequality in the short and long run. Adermon, Lindahl and Waldenström (2018) find that bequests account for a large, perhaps half, of intergenerational wealth correlations in postwar Sweden, and Boserup, Kreiner and Kopczuk (2018) find strong links between bequests and early childhood wealth status.

<sup>3</sup>See Bastani and Waldenström (2018) for a recent synthesis of the research literature.

individuals were exposed to different research-based facts about inherited wealth.<sup>4</sup> One of these facts was that approximately half of all household wealth in Sweden has been inherited. Furthermore, we informed about the fact that heirs with higher income receive larger bequests and that half of Sweden's billionaires have inherited their fortunes.

The estimated treatment effect shows that the popular support for an inheritance tax increases significantly in response to our information treatment; the support is 30 percent higher in the treatment group than in the control group. Since the treatment was randomly assigned, this effect has a causal interpretation. We find little evidence of heterogeneous treatment effects across income, wealth, age, marital status, family circumstances, educational attainment or political views, although several of these variables are correlated with the likelihood of supporting inheritance taxation.

To understand how the treatment effect operates, we first propose a simple theoretical model that highlights three key factors behind people's support for an inheritance tax: (i) their perceived share of total wealth in the economy that has been inherited, (ii) their preferences for redistribution, and (iii) their expected personal tax burden. The basic lesson is that support for inheritance taxation is likely to be low when people who are open to the idea of inheritance taxation, and who prefer to live in a society where the government intervenes to foster equality of opportunity, underestimate the importance of inherited wealth. The model also captures the idea that concerns over private economic circumstances can curtail desires to promote equality in society.

We empirically evaluate the role of perceptions by using a question asked early in the survey about the share of total household wealth that respondents think derives from past inheritance. Comparing the distributions of perceived shares in the treatment and control group, we find that untreated individuals systematically underestimate the fraction of inherited wealth in household portfolios, and that the distribution of perceived shares in the treatment group is substantially shifted to the right, in the direction of the actual fraction. We then link this perception-shift to the increase in support for inheritance taxation using three different exercises. First, we interpret the treatment effect on perceptions as a "first stage" and relate it to the baseline reduced-form effect.<sup>5</sup> Second, we exploit the variable capturing the perception-shift as a "mediating variable". Third, we condition the dependent variable on the outcome of the first stage. All these exercises suggest that the treatment effect on tax support is almost entirely driven by people who change their perception of the economic importance of inherited wealth.

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<sup>4</sup>In an unpublished companion paper, we make an in-depth descriptive analysis of the survey.

<sup>5</sup>The individuals who change perceptions of the wealth distribution in response to our treatment can be viewed as the "compliers" of our experiment. Hence, another interpretation of this re-scaled estimate is that it is an estimated treatment effect on the treated, even though the analogy is not perfect since we lack a true first stage.

The mechanisms underlying the treatment responses can be further examined by using some other questions in the survey. Perhaps, most importantly, we show that the treatment has a strong influence on whether or not people believe luck or unfairness is the most important determinant of economic success. The effect is strikingly similar in magnitude to the treatment effect on inheritance tax support, which is in line with the equality of opportunity-justification for inheritance taxation. This suggests that respondents associate high economic importance of inherited wealth with inequality of opportunity.<sup>6</sup> We also asked about people's support for differentially designed inheritance taxes. Our baseline inheritance tax question referred simply to a "tax on bequests" and it was preceded by a brief background about the Swedish inheritance tax that existed until 2004. This tax had an exceptionally low exemption threshold, approximately 7,000 EUR per heir, and most heirs were therefore exposed to this tax.<sup>7</sup> We then asked about a tax restricted to "large" bequests, allowing us to differentiate between *low exemption* inheritance taxes (like the Swedish one) and *high exemption* inheritance taxes (like those in other countries). By doing this, we are able to study to what extent self-interested motives play a role in determining individuals' support for inheritance taxation.<sup>8</sup> Our results show that the support for the high exemption inheritance tax is considerably larger than for the baseline low exemption inheritance tax. We also find that the treatment effect is smaller for the high exemption inheritance tax. Both these findings are consistent with our theoretical framework.

A number of sensitivity checks suggest that our results are robust across several dimensions. The treatment effect is consistent across different survey answer categories (reflecting different degrees of intensity of support) and types of tax design (such as proposing to make the inheritance tax revenue-neutral or exempting family firms from inheritance taxation). Moreover, we find that the effect of the inheritance tax treatment on other capital taxes is negligible, reinforcing the link between providing information about the importance of inherited wealth and an increased support for inheritance taxation. Finally, we also rule out the existence of experimental setting

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<sup>6</sup>Previous empirical work from different countries has shown that people attach considerable weight to how incomes have been obtained when forming their views about income redistribution (Alesina and La Ferrara 2005, Weinzierl 2017, 2018, Almås, Cappelen and Tungodden 2017) and wealth redistribution (Fisman, Gladstone, Kuziemko and Naidu 2017). Lergetporer, Werner and Wößmann (2018) use a survey experiment in a different context, showing that equality of opportunity-based arguments are important for motivating the support for certain education policies.

<sup>7</sup>Exemption thresholds vary between 20,000 and 500,000 EUR in other European countries and the exemption threshold is over 5 million USD, see Appendix A.1.

<sup>8</sup>Kuziemko, Norton, Saez and Stantcheva (2015) study how attitudes to the US estate tax are affected by an experimental treatment informing people that only a tiny fraction of US households are wealthy enough to be subject to the estate tax. They find that this drastically increases the support for the tax. Thus there seems to be a strong tendency for people to support inheritance taxes that they do not expect to pay. This also suggests that if one would to perform our experiment in the US context, taking the current US implementation of the estate tax as given, it would be difficult to separate between self-interested forces and other determinants of inheritance tax support as the former probably would overshadow the latter.

(Hawthorne) effects, psychological framing effects, and analyze the effects for individuals who responded to our survey with different time lags.

Our paper connects to a large previous literature on the relationship between perceived or actual levels of inequality and preferences for redistribution. Models by, for example, Piketty (1995) and Bénabou and Ok (2001) analyze how preferences for redistribution are shaped by individual experiences and perceptions of the income-generating process, and a vast empirical literature addresses these questions in different ways.<sup>9</sup> A recent strand in the literature uses information experiments and survey data to identify causal links between perceptions of inequality and the demand for taxation, and are therefore more directly related to our study (see, for example, Kuziemko et al. 2015, Ashok, Kuziemko and Washington 2015, Karadja, Möllerström and Seim 2017, Weinzierl 2017, 2018, Fisman et al. 2017, and Alesina, Stantcheva and Teso 2018). The papers that are most closely related to our study are those that specifically deal with issues relating to capital taxation. These are Kuziemko et al. (2015), Alesina et al. (2018), and Fisman et al. (2017).

Kuziemko et al. (2015) use survey responses among internet-based task-performers, so-called Amazon Mechanical Turks, to assess the disconnect between rising inequality and lack of support for redistribution, in particular, in terms of the taxation of estates of deceased individuals. While they mainly focus on income taxation, one of their strongest results is that when informing people that only a tiny fraction (less than a percent) of all decedents in the US are sufficiently wealthy to be subject to the estate tax, this increases the support for the estate tax substantially. Whether this effect reflects a self-serving interest (people support taxes that they do not expect to pay themselves) or equity concern (people infer from the treatment information that the distribution of estates is highly skewed) is not clear. Alesina et al. (2018) ask about attitudes to estate taxation in a cross-country survey context. Their experimental treatment is to expose people to facts about income mobility and this does not appear to influence people's support for estate taxation. Fisman et al. (2017) use an experimental design where they confront a survey population of Amazon Mechanical Turks with different hypothetical scenarios in which wealth and income have been generated in different ways. One of their main findings is that respondents become more supportive of wealth taxation when wealth is perceived to have been inherited rather than having been generated through lifecycle savings.

We complement these papers in several ways. First, we analyze the support for inheritance taxation, and how it responds to information about inherited wealth in the economy, rather than information about the structure of capital taxes or about intergenerational income mobility. Second, we study a nationally representative sample where individuals are drawn from administrative population registers which is

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<sup>9</sup>See Alesina, Giuliano, Bisin and Benhabib (2011) for an overview of the literature

especially valuable when one studies the factors behind the social acceptance of tax policies. Third, we present a simple theoretical framework to help us understand how shifts in people’s perceptions of inheritance can translate into changing political support for inheritance taxation.

The remainder of the paper is organized as follows. Section 2 describes the dataset and the experimental design. Section 3 presents the baseline results of how the treatment influences the support for inheritance taxation. Section 4 presents a theoretical framework for understanding how the treatment effect works via shifts in perceptions of inherited wealth and section 5 evaluates this relationship empirically. Section 6 presents extensions and sensitivity analyses, and section 7 concludes.

## 2 Experimental design, data and institutional setting

This section presents our survey and register data, describes the information experiment, as well as response patterns and randomization outcomes.

### 2.1 Survey of tax attitudes

We use data from a survey of tax attitudes that was designed by us and implemented by Statistics Sweden. The survey was distributed by postal mail to 12,000 individuals during May-June 2017. A sample population was randomly selected from the adult population (a total of approximately 8 million individuals) within 54 predefined strata constructed from four register variables: income (3 groups), housing wealth (3 groups), age (3 groups) and gender (2 groups). For each stratum, weights were created to enable the computation of results representative for the total population.

Responses were received from 5,776 persons, a response rate of 49 percent.<sup>10</sup> This is an unusually high response rate for a mail-based non-governmental survey, which may partly be explained by the fact that we did not need to ask people about their personal economic circumstances since these are observed in the registers.<sup>11</sup> Analyzing the balance of responses using the register information, we find that survey participation is positively associated with being married, middle-aged or elderly, born in Sweden, highly educated and being a high-income earner.<sup>12</sup> Therefore, we use calibration weights designed by Statistics Sweden from observed background characteristics in order to account for these response patterns. In the online appendix, we present

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<sup>10</sup>Out of 12,000 sampled individuals, 212 were deceased or had emigrated.

<sup>11</sup>Other similar research-based surveys in the Nordic countries have a response rate of around 30–35 percent (see the discussion in Karadja et al. 2017).

<sup>12</sup>A detailed examination of response patterns across survey questions shows no strong systematic patterns across groups of respondents.

descriptive statistics across samples showing that the populations are similar and that the calibration works as intended.<sup>13</sup>

A central objective when designing the survey was to keep it short and simple. Previous research suggests that complicated questions or long surveys deteriorate both response rates and the quality of answers.<sup>14</sup> In total, the survey posed 16 questions on a four-page questionnaire. The first two pages contained introductory questions about occupational status and housing (which complement the register information), general attitudes towards government spending on welfare services and military defense, views on inequality of opportunity (whether "luck and circumstance" or "hard work" matters most for economic success) and, finally, two questions about the aggregate economic importance of inherited wealth and housing wealth. As will be discussed later, one of these last questions will play a prominent role in the paper as it reflects people's perceptions of the importance of inherited wealth.

Our main interest in this study are two questions about inheritance taxation. The first question was phrased in the following way: "A tax on inheritance should be introduced". The second question was "A tax only on large inheritances should be introduced". In both questions, the response alternatives were "Agree fully", "Agree to a large extent", "Agree to some extent", "Do not agree", and, "No opinion".

The first inheritance tax question had a brief vignette informing respondents about what an inheritance (and gift) tax is, and how it was designed in 2004 when it was removed. Importantly, we inform about the (by international standards) low exemption amount of 7,000 euros. Hence, respondents are induced to think about an inheritance tax that not only affects very wealthy people, but also those who expect to inherit or bequeath relatively modest amounts. In contrast, the purpose of the second question was to induce individuals to think about an inheritance tax with a large exemption threshold, affecting only the wealthiest. Throughout the paper, we will use the notation  $\tau^{LE}$  to refer to the inheritance tax with a low exemption threshold and use  $\tau^{HE}$  to refer to the inheritance tax with a high exemption threshold.

The Swedish institutional setting actually provides an interesting laboratory to approach certain important questions. When we ask about an inheritance tax with a low exemption amount, we provide an anchoring to the historical implementation of the Swedish inheritance tax. This enables us to analyze how our information treatment increases the willingness of individuals to support an inheritance tax that not only promotes egalitarian objectives, but also entails personal economic sacrifices. Con-

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<sup>13</sup>We first test for differences between the calibrated sample of respondents and the design-weighted sample of respondents and non-respondents, and the results show that the variables in the calibrated sample are close to population averages but the variables pertaining to marriage, children at home and taxable income exhibit some discrepancies (see Appendix A). We then run weighted regressions using design weights instead of calibrated weights finding quite similar results (see Appendix B.5).

<sup>14</sup>Experimental evidence shows that the cognitive burden of survey questions affects both response time, dropout rates and the quality of answers (Lenzner, Kaczmirek and Lenzner 2009).



ducting a similar experiment in a different context, where the institutional anchoring is such that only a very small fraction of the population would expect to be burdened by inheritance taxation, would make it more difficult to assess whether the effect of our treatment on the support for inheritance taxation is due to individuals receiving information about the economic importance of inherited wealth, or whether the effect is due to informing individuals that they are unlikely to be burdened by the proposed inheritance tax.<sup>15</sup>

## 2.2 Register variables

A key advantage with our dataset is that the survey respondents (and their household members) are linked to administrative registers. This enables the selection of a nationally representative, stratified sample and provides access to precisely measured background characteristics. It also reduces the required length of the survey, as we do not need to ask about variables that we can observe in the registers.

The Swedish register databases are kept for population and tax-related purposes and contain information about age, gender, marital status and household composition, as well as tax-based records on income (wage, business income, pension income, interest payments, dividends and capital income, realized capital gains and losses, mutual fund returns), taxes paid and cash transfers received. Individual pretax taxable labor income (including self-employment income) is our main income variable and in our analysis we use dummy variables to separate between three income groups: the bottom half of the distribution (P0-50), the next 40 income percentiles (P50-90) and the top decile (P90-100).<sup>16</sup> Household wealth is calculated using register information on values of property (houses) and condominium (tenant-owned) apartments, and a combination of observed and capitalized financial assets and liabilities (see Appendix A.2 for details). We create four wealth fractiles in the same way as for income. Using a specification with relatively broad wealth categories mitigates the problem of measurement error in the wealth variable.

Educational information is reported in the education register, covering information about the years of education and field of the educational degree. We also use information about political party vote shares in the Swedish 2018 general elections for each of the 6,004 election districts using data from the election authority and then link them to each respondent at the election district level.

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<sup>15</sup>Kuziemko et al. (2015) find that approximately 50 percent of the population supports the estate tax when treated with information about the small fraction of the population that actually pays it. This is similar to the 41 percent baseline support we find in Sweden for the “large” inheritance tax.

<sup>16</sup>We try several alternative income definitions: individual vs household income, labor vs total income, one-year vs three-year averaged income, pretax vs disposable income. The results are qualitatively the same across these definitions as shown in Appendix B.2.

## 2.3 Experimental setup and treatments

We randomly divided the sampled population into three equally sized groups, each containing 4,000 individuals. The first group received research-based information about inherited wealth, the second group received information about housing wealth, and the third group received no special information at all. The purpose of treatments was to convey information about the aggregate importance and distribution of each wealth category. The treatments came in the form of highlighted facts boxes on the front page of the cover letter of the survey, but all other information in that letter was identical for all groups. All three groups also received identical questionnaires.<sup>17</sup> Our ambition was to make the treatment information as neutral and descriptive as possible, avoiding information that could be interpreted as biased or misleading.

The *inheritance treatment*, which is our main treatment of interest, consisted of three research-based facts about inherited wealth in Sweden, presented in bullet points: "Inherited wealth represents about half of all wealth in the population.", "Those with the highest incomes inherit the most." and "A majority of Swedish billionaires have inherited their fortunes." The first fact refers to estimates of aggregate inherited wealth in Sweden by Ohlsson et al. (2019) and Adermon et al. (2018). The second fact is based on population register data on inheritances in Sweden, in which estates and bequests of all decedents and their heirs are linked to income tax registers.<sup>18</sup> The third fact relates to journalistic evidence on the wealthiest billionaires in Sweden (published in the Swedish variant of the Forbes 400) reported in Bastani and Waldenström (2018).<sup>19</sup>

The key message of the inheritance treatment is thus that inheritances are quantitatively important and are associated with inequality of opportunity, that there is an income gradient in inheritances received, and that inheritance is important for the wealthiest in society. It is complex and difficult to inform the general public about the economic role of inherited wealth, and we are aware that the selection of research facts could influence how one conveys the distributional profile of bequests.<sup>20</sup> By providing a combined treatment with three different facts, we aimed to convey, in a neutral man-

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<sup>17</sup>On our websites, translated versions of all cover sheets and the questionnaire are available.

<sup>18</sup>The data come from the Swedish inheritance tax register analyzed by Elinder et al. (2018) (which focused on the pre-inheritance wealth distribution of heirs).

<sup>19</sup>Additional support for these statements are found in studies of Denmark (Boserup et al. 2016, Boserup et al. 2018), France (Piketty 2011), Sweden (Nikoei and Seim 2018) and the US (Wolff 2015).

<sup>20</sup>For example, some of the above-mentioned studies find that inheritances are relatively larger in relation to the pre-inheritance wealth of low-wealth heirs and may therefore decrease certain wealth inequality measures such as the Gini coefficient. While these patterns are found in several contexts, they are still somewhat uncertain due to data limitations. For example, there may be problems with under-reporting of intergenerational transfers due to tax avoidance and tax evasion (especially among the wealthiest). There is also limited information about funded pension wealth or durable consumer assets, which are relatively more important among less wealthy households. A different aspect is that inheritance can be seen as an undeserved advantage and therefore contributes to inequality of opportunity, independently of the effect of inheritance on the inequality of economic outcomes.

ner, that inheritance is economically important and that there is a positive relationship between inheritance and inequality of opportunity.

The *housing wealth* treatment contained facts structured in a similar way as the inheritance treatment: "Approximately 60 percent of households own their home.", "House prices have increased dramatically, by four times on average in twenty years." and "The wealth gap between owners and renters is widening." The first housing fact derives from Statistics Sweden reporting that 60 percent of households live in a detached house or a tenant-owned apartment. Housing is probably the most salient form of "popular wealth", widely held in the Swedish population and the largest single asset of most households.

We perform balancing checks of the randomization outcome across treatment and control groups in table 1. The main message is that there are no indications of any large systematic differences across the groups. Thus, we can rule out that the experiment has generated systematic effects on dropout rates within or across groups.

Table 1: Balancing test of the experiment

	(1)	(2)	(3)	(4)	(5)
	Inheritance treatment	Housing treatment	Control group	Diff. Inherit-Control	Diff. House-Control
Male	0.51	0.5	0.52	-0.01	-0.02
Age	48.91	48.62	49.83	-0.92	-1.21
Married	0.41	0.42	0.47	-0.07	-0.05
Children home	0.62	0.67	0.75	-0.14	-0.08
Foreign-born	0.17	0.21	0.22	-0.05	0
Taxable income, ind.	278	273	279	-1	-6
Taxable income, hh.	511	541	541	-29	1
House value, hh.	1,443	1,560	1,689	-247	-129
Net wealth, ind.	1,224	962	999	225	-37
Net wealth, hh.	2,030	1,861	1,942	88	-82
Primary school	0.19	0.24	0.2	-0.01	0.05
Secondary school	0.42	0.44	0.4	0.02	0.04
University	0.39	0.32	0.4	-0.01	-0.08*
Employee	0.5	0.49	0.48	0.02	0.01
Self-employed	0.06	0.07	0.08	-0.02	-0.01
House ownership	0.38	0.38	0.41	-0.03	-0.03
Apartment ownership	0.25	0.25	0.2	0.05	0.05
Observations	1,884	1,947	1,944		
Response rate (%)	48.0	49.6	49.5		

*Note:* All variables are stratification-weighted group averages. Units are [0,1]-dummies for all variables except Age (years) and household taxable income, house value and net household wealth, which are all measured in thousands of euros (using an exchange rate EUR/SEK equal to 10) for individuals ("ind.") and households ("hh."). \* denotes statistical significance at the 5%-level.

### 3 Effects on the support for inheritance taxation

In this section, we present the main empirical estimation of treatment effects on the individual support for inheritance taxation. We first run reduced form regressions and then examine effects for different response categories, and analyze potential heterogeneity in responses across socio-economic groups.

#### 3.1 Baseline treatment effects

Our main specification is a reduced-form regression that tests the relationship between individual  $i$ 's support for taxation,  $Support_i$ , an indicator of belonging to the treatment group,  $Treatment$ , individual controls  $X_i$  and a random error term  $u_i$ :

$$Support_i = \alpha + \gamma Treatment + \beta' X_i + u_i. \quad (1)$$

Table 2 and figure 1 present coefficient estimates of  $\gamma$ , the parameter of interest, using both the control group and the housing treatment group as reference control groups. In the case of a low exemption tax, we find a positive and statistically significant effect of the inheritance treatment. Average support in the control group is 24.5 percent and the treatment effect is about eight percentage points, which suggests that the treatment increases support by about 30 percent. Since the treatment was randomly assigned, this effect has a causal interpretation. Including individual controls does not affect the result, which reinforces the above finding of a successful randomization.

It is worth noting that several background characteristics are significantly correlated with supporting inheritance taxation. For example, university-educated respondents are significantly more positive to the tax. This is in line with the model of educational gradients in the political support for left or right-wing parties in Piketty (2018). High earnings and self-employment are negatively correlated with the support for inheritance taxation, even after controlling for personal wealth.<sup>21</sup>

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<sup>21</sup>The result that high income but not high wealth individuals are more negative to inheritance taxation may seem puzzling. However, the high wealth group is likely to be rather heterogeneous and potentially consists of individuals who obtained their wealth in different ways (some through their own hard work, and others by having wealthy parents).

Table 2: Treatment effect on the support for inheritance taxation

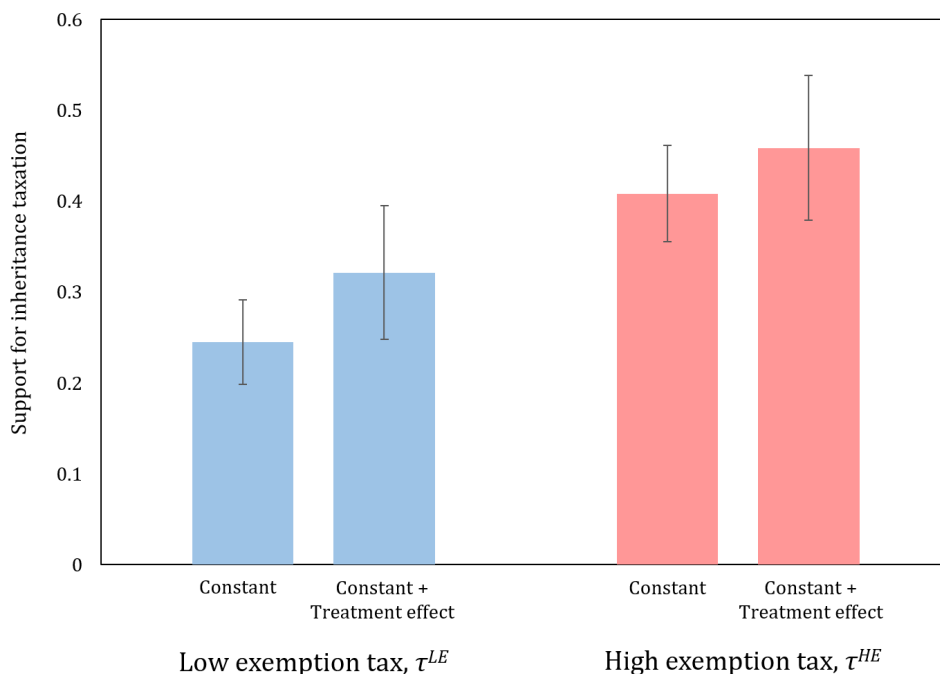
	Low exemption tax, $\tau^{LE}$		High exemption tax, $\tau^{HE}$	
	(1)	(2)	(3)	(4)
Treatment	0.080** (0.037)	0.082** (0.036)	0.043 (0.041)	0.057 (0.038)
Male		0.018 (0.030)		0.007 (0.033)
Married		0.047 (0.031)		0.002 (0.034)
Children		0.014 (0.036)		-0.022 (0.041)
Foreign-born		0.115** (0.049)		0.112** (0.051)
Primary-school		0.053 (0.042)		0.076 (0.047)
University		0.160*** (0.033)		0.110*** (0.037)
Self-Employed		-0.092** (0.042)		-0.100* (0.058)
House owner		-0.039 (0.037)		0.043 (0.041)
Apartment owner		0.018 (0.048)		0.123** (0.053)
Income P50-90		-0.032 (0.035)		-0.033 (0.038)
Income Top10%		-0.130*** (0.041)		-0.105** (0.048)
Wealth P50-90		0.024 (0.034)		-0.040 (0.038)
Wealth Top10%		-0.028 (0.041)		-0.132*** (0.046)
Constant	0.245*** (0.024)	0.134*** (0.050)	0.408*** (0.027)	0.260*** (0.065)
Observations	5,546	5,371	5,544	5,375
Controls	No	Yes	No	Yes
Control mean	0.237	0.245	0.410	0.408

*Note:* Dependent variable is support for low or high exemption inheritance taxation. The reference control group includes both control and housing treatment groups. Estimates for age dummies and housing treatment are suppressed. \*, \*\*, \*\*\* denotes statistical significance at 10%-, 5%-, and 1%-levels.

When asking about a high exemption inheritance tax (columns 3 and 4), this generates a much higher overall support: 40.8 percent against 24.5 percent support for a broad tax on inheritance. This higher support signals that self-serving, or “pocketbook”, motives could be at play; people tend to support taxes they do not have to pay. This is consistent with the positive treatment effect on the support for the US estate tax reported by Kuziemko et al. (2015). These authors informed people that only a tiny fraction of the population (the richest elite) would pay the tax, and this made people significantly more supportive of the tax. In our setting, when we inform people about the economic importance of inherited wealth, we find only a small additional effect on people’s tax support. The estimated treatment coefficient with controls is

5.7 percent, though statistically not different from zero. While this could indicate a one-tenth increase in overall support, it is imprecisely estimated and smaller than the treatment effect on the support for a broad inheritance tax.

Figure 1: Main treatment effects



Note: Coefficients from table 2 with 95% confidence intervals.

Notice that the estimates in Table 2 represent average treatment responses in the treatment group, sometimes referred to as intention-to-treat (ITT) effects. These effects approximate the impact of information campaigns in "real world"-settings where information reaches individuals through broadly distributed channels, such as television commercials. Some individuals can be reached through such communication and can therefore be said to have "received" the treatment. Others pay no attention, do not understand or do not accept the information. Thus, some individuals are untreated even if they belong to the treatment group. The ITT effect captures the average treatment effect across all potential recipients, both those who receive the treatment and those who do not, and hence does not consider the fact that only a fraction of the treated population complies with the treatment. In section 5, we discuss average treatment effects on the treated.

### 3.2 Heterogeneous effects

Some previous experimental studies examining preferences for redistribution have found that individuals with different political ideologies respond differently to information treatments (for example, Alesina et al. 2018). We now examine this possibility,

first graphically by plotting smoothed local regressions and then running regressions where we interact the treatment dummy with group characteristics.

Figure 2 shows how the support for a low and high exemption inheritance tax varies in the treatment and control groups over the distribution of taxable income, net wealth, years of education and the political support for left-green parties in the respondent's election district. There are many interesting patterns in these graphs, but a common feature is that they seem to reject any strong degree of heterogeneity in treatment effects along these four dimensions, measured as the gap between treated and control groups. Having said this, there is a tendency of treatment effects being larger among the most highly educated and effects being negative among high-wealth respondents. There is also a tendency for individuals residing in left-green dominated districts to be more responsive to the treatment.

Figure 2: Heterogeneous effects

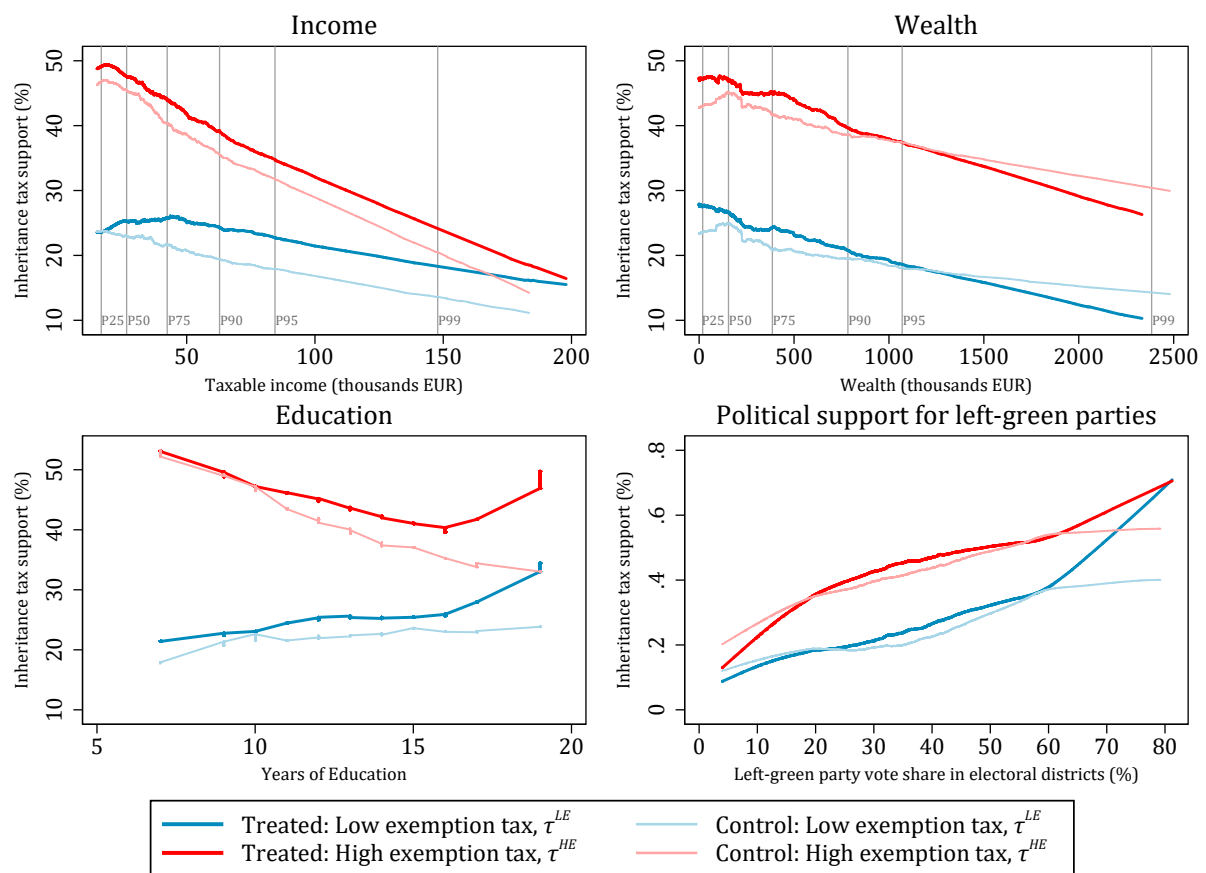


Table 3 shows the estimated interaction effects for the treatment and ten indicative background variables. The general message is the same as above: we find no strong indications of heterogeneity in the treatment effects. Many of the main effects are statistically significant and have the expected signs, but the interaction terms are statistically insignificant and, in many cases, close to zero. The exceptions are university-educated individuals, who become more positive and high-wealth individuals, who appear to reduce their support for inheritance taxation relatively more in response to the treatment.

Table 3: Heterogeneous treatment effects

	Low exemption tax, $\tau^{LE}$	High exemption tax, $\tau^{HE}$
	(1)	(2)
Treatment	0.023 (0.070)	-0.046 (0.075)
University	0.135*** (0.038)	0.046 (0.042)
Treat $\times$ University	0.055 (0.073)	0.144* (0.074)
Top income decile	-0.129*** (0.043)	-0.107* (0.055)
Treat $\times$ Top income decile	-0.001 (0.071)	0.033 (0.084)
Top wealth decile	-0.003 (0.047)	-0.061 (0.053)
Treat $\times$ Top wealth decile	-0.067 (0.075)	-0.201*** (0.078)
Cut taxes/spending	-0.118*** (0.034)	-0.096** (0.038)
Treat $\times$ Cut taxes/spending	0.058 (0.066)	0.063 (0.070)
More spending on defense	-0.120*** (0.031)	-0.207*** (0.041)
Treat $\times$ Defense	0.024 (0.079)	0.141 (0.088)
Left-green district	0.063* (0.033)	0.071* (0.037)
Treat $\times$ Left-green district	-0.003 (0.064)	-0.025 (0.068)
Observations	5,152	5,151
Controls	Yes	Yes
Control mean	0.245	0.408

Note: Dependent variable is support for low or high exemption inheritance taxation. \*, \*\*, \*\*\* denote statistical significance at the 10%-, 5%-, and 1%-level.



## 4 A simple model of support and perceptions

### 4.1 Baseline model

This section outlines a simple model framework to aid us in understanding how informing individuals about the economic importance of inherited wealth may influence the support for inheritance taxation. In very broad terms, there are two main channels through which informing people about the importance of inherited wealth could influence their support for inheritance taxation. First, conveying that inheritances are quantitatively important may suggest that there is substantial scope for inheritance taxation to increase the level of redistribution in society and combat inequality in outcomes.<sup>22</sup> Second, the importance of inherited wealth in society is directly linked to social mobility, which might influence the support for inheritance taxation as the inheritance tax is usually perceived to be an effective instrument to combat inequality of opportunity. In this section, the exact reason why individuals support inheritance on redistributive grounds is not essential, and we defer a further discussion of this question to section 6 below.

For the purpose of illustrating mechanisms, we proceed as follows. Suppose that individuals differ in their perceptions of how important or skewly distributed inherited wealth is in society, and that this perception is represented by the fraction of total wealth that has been inherited,  $p \in [0, 1]$ . Our interpretation here is that a higher share of inherited wealth implies a higher general degree of inequality in society. We also assume that people differ in their preferences, captured by a vector of preference parameters  $\theta$ . The individual support for inheritance taxation, denoted  $s(p, \theta)$ , is assumed to be determined by these two quantities: the perceived importance of inherited wealth and policy preferences.

The effect of our information treatment is to transform  $s$  into a *post-treatment* support for inheritance taxation  $\hat{s} = s(q, \theta)$  where  $q = q(p, a)$  is the transformed post-treatment perception of the importance of inherited wealth. The post-treatment perception  $q$  depends on the pre-treatment perception  $p$  and the factual statement contained in our information treatment, denoted by  $a$ .<sup>23</sup> We assume that the treatment shifts  $p$  in the direction of the treatment fact,  $|q - a| < |p - a|$ .

Denoting by  $f(p, \theta)$  the joint probability distribution of  $p$  and  $\theta$ , and by  $\hat{f}$  the joint

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<sup>22</sup>For example, simple tax reforms, such as implementing positive inheritance taxation together with a redistribution of the tax proceeds in a uniform lump-sum manner would unambiguously make the distribution of disposable income more egalitarian.

<sup>23</sup>We assume that the preference parameter  $\theta$  is unaffected by our treatment, which can be motivated by the fact that in our setting the treatment was designed to be neutral and conveying information rather than political messages.

probability distribution of  $q$  and  $\theta$ , the treatment effect, denoted by  $\Delta$ , is given by:

$$\Delta = \int s(q, \theta) \hat{f}(q, \theta) dp d\theta - \int s(p, \theta) f(p, \theta) dp d\theta. \quad (2)$$

The formulation  $s(p, \theta)$  for the support for inheritance taxation is stylized, yet it allows to capture an important feature of how the support for taxing a specific tax base is determined, namely, *jointly* by preferences for redistribution and information. For example, if groups of the population who have preferences for an egalitarian wealth distribution underestimate the extent of wealth inequality, this will result in less support for redistributive policies as compared to a world with perfect information.

To make additional progress, we postulate a simple decision-rule determining the support for inheritance taxation where  $s$  takes the form

$$s(p, \theta) = \mathbf{1}[p > \theta], \quad (3)$$

where  $\theta$  is assumed to have statistical support on  $[0, 1)$  and  $\mathbf{1}[\cdot]$  is an indicator function taking the value of 1 if the expression in brackets is logically true (and otherwise is equal to zero). This special case implies that an individual supports inheritance taxation if the perceived importance of total wealth that is inherited exceeds the personal preference threshold  $\theta$ . If  $p$ ,  $q$  and  $\theta$  are independent and distributed according to the marginal probability density functions  $f(p)$ ,  $g(q)$  and  $h(\theta)$  (with corresponding CDFs  $F$ ,  $G$ , and  $H$ ), respectively, we have that:

$$\begin{aligned} \Delta = E_{\hat{f}}[s] - E_f[s] &= \int_0^1 \int_0^1 \hat{f}(q, \theta) dq d\theta - \int_0^1 \int_0^1 f(p, \theta) dp d\theta = \\ &= \int_0^1 [F(\theta) - G(\theta)] h(\theta) d\theta. \end{aligned} \quad (4)$$

To interpret this expression, note that if all individuals underestimate the importance of inherited wealth and the effect of the treatment is to make individuals believe that the importance of inherited wealth is greater than their pre-treatment perceptions, we have that  $G$  first order stochastically dominates  $F$ , namely,  $G(\theta) \leq F(\theta)$ , which implies that  $\Delta > 0$ . From (4) we can also see that the treatment effect will be substantial if the effect on perceptions  $F(\theta) - G(\theta)$  is large for preference thresholds  $\theta$  shared by many individuals (that is,  $h(\theta)$  is large). For example, the treatment effect will be substantial if a large fraction of the population consider a just society to be one where inherited wealth does not exceed  $\theta = 1/3$ , but where for many individuals the pre-treatment perception satisfies  $p < 1/3$  whereas the post-treatment perception satisfies  $q > 1/3$ .

## 4.2 The role of ideological convictions and self-interested motives

The model above describes how shifting perceptions of inherited wealth can lead to an increased support for inheritance taxation. It applies to individuals who would be willing to support inheritance taxation, provided that the perceived economic importance of inherited wealth is sufficiently large.

In reality, there are individuals who never support inheritance taxation and individuals who always support inheritance taxation *independently* of how they perceive the importance of inherited wealth. For example, some people might appreciate inheritance taxation even if the economic importance of inherited wealth is very small (for example, if they consider every dollar of inheritance as an undeserved advantage that should be taxed). At the same time, there are people who think that inheritance taxation is a violation of property rights, and that inheritance should not be taxed even in situations where almost all the wealth in the economy has been inherited.

Self-interested motives can also be important. Some people expect to inherit or bequeath large fortunes whereas others expect to inherit or bequeath modest amounts, or nothing at all. This is likely to create heterogeneity in inheritance tax support, since attitudes to taxes also depend on how they affect people's own economic situation. Thus, a person might support inheritance taxation, not because he or she considers this to be important from an equality perspective, but because the person does not think that he or she will be burdened by it.<sup>24</sup>

The presence of self-interested motives can be analyzed formally by extending the model above envisioning that individuals, in addition to differing in terms of perceptions and preferences for equality, differ in terms of their wealth  $z$ . The wealth level  $z$  could be interpreted as the wealth associated with two linked generations, reflecting either the wealth that the parent generation is planning to bequeath to their children, or the wealth that the child generation is expecting to inherit. In line with how actual inheritance taxes differ across countries, and to obtain sharp results, we focus on inheritance taxes that differ in terms of an *exemption threshold*, denoted by  $m$  and assume that the expected inheritance tax payment is zero if  $z < m$ .<sup>25</sup>

Suppose, for the purpose of illustration, that individuals who do not expect to pay the inheritance tax ( $z < m$ ) *always* support inheritance taxation, and that individuals who face a positive expected inheritance tax payment ( $z > m$ ) *may* be in favor of inheritance taxation. Building on the simple formulation of the support function in equation (3), and letting  $\vee$  denote the logical "OR" sign, we let the support for an

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<sup>24</sup>In our empirical analysis, we find that there is a higher general support for an inheritance tax with a large exemption (41 percent) compared to a tax with a low exemption (25 percent).

<sup>25</sup>Recall that in the empirical parts of the paper, we focus on two discrete values of  $m$ , corresponding to the survey questions asking about taxes with a low exemption threshold  $\tau^{LE}$  and with a high exemption threshold  $\tau^{HE}$ .

inheritance tax be given by:

$$\tilde{s}(p, \theta, z, d) = \mathbf{1}[p > \theta \vee z < m]. \quad (5)$$

Assuming that individuals' expected inheritances are unrelated to their perceptions and preferences, and letting  $R(z)$  denote the CDF of the inherited wealth distribution over some interval  $[0, \bar{z}]$ , the expected support in the total population can be written:

$$E_f[\tilde{s}] = \Pr\{p > \theta\} + \Pr\{z < m\} - \Pr\{p > \theta \cap z < m\} \quad (6)$$

$$= E_f[s] \cdot [1 - R(m)] + R(m). \quad (7)$$

We then see that

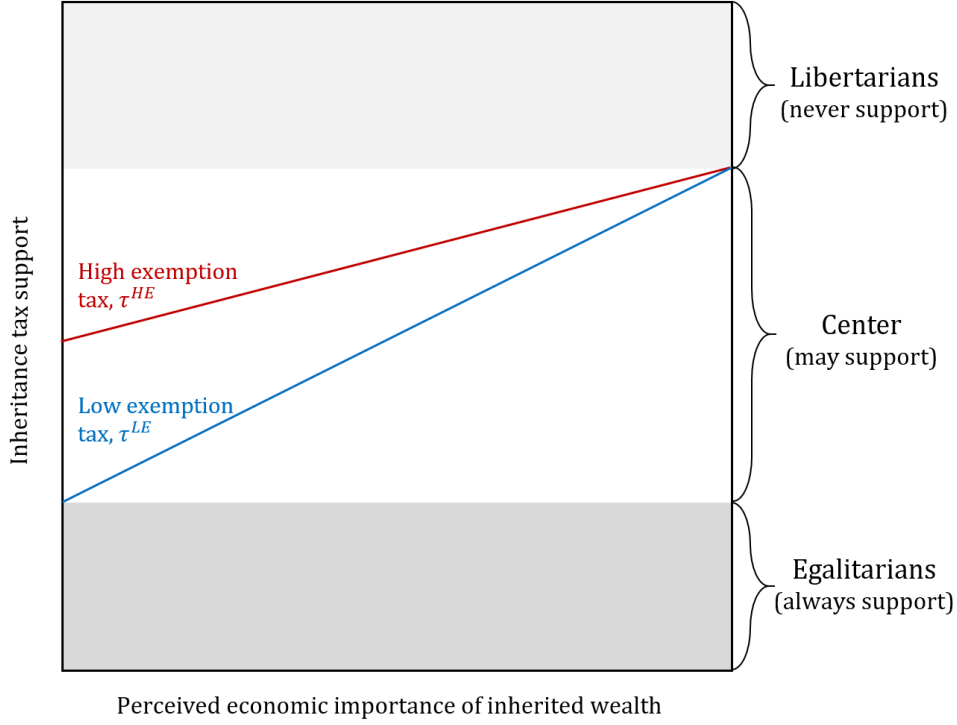
$$\frac{dE_f[\tilde{s}]}{dm} = R'(m)(1 - E_f[s]), \quad (8)$$

which is strictly positive whenever  $R'(m) > 0$  and  $E_f[s] < 1$  implying that a tax with a greater exemption threshold always has a higher average support in the population. Furthermore,  $\frac{dE_f[\tilde{s}]}{dm}$  is decreasing in the number of people who would support an inheritance tax in the absence of any personal wealth concerns  $E_f[s]$ , which is given by the statistical relationship between  $p$  and  $\theta$  (recall that  $E_f[s] = \int_0^1 \int_\theta^1 f(p, \theta) dp d\theta$ ). What this means is that if the perceived inequality is high, equity motives dominate self-interested motives, and the support for inheritance taxation is not very sensitive to the level of the exemption threshold.

Figure 3 shows an attempt to graphically illustrate the above discussion. The bottom panel of the figure shows a group of individuals, we may call them "Egalitarians", who support inheritance taxation independently of how they perceive the economic importance of inherited wealth. The top panel shows a group of people, we may call them "Libertarians", who always oppose inheritance taxation. Our formal discussion above pertains to the group of individuals in the middle panel, who we refer to as "Center" individuals, whose attitudes to inheritance taxation are elastic and can be affected by the treatment. For these "centrist" individuals, the support for a high exemption tax is higher than the support for a low exemption tax, following condition (8). The large gap in support for low values of the inheritance share can be explained by the fact that even when the perceived inheritance share is very small, there are individuals who support the inheritance tax for selfish reasons. For higher values of the perceived inheritance share, the difference in support between the two taxes is smaller (an increase in  $E_f[s]$  lowers the derivative in equation 8). We will show the empirical counterpart of figure 3 in figure 4 in the next section.

The effect of an information treatment that increases the average perceived share of

Figure 3: Graphical illustration



inherited wealth can be thought of as a movement along the lines in figure 3. Formally, the treatment effect on the support for an inheritance tax with an exemption threshold of  $m$ , can be written as:

$$\begin{aligned} \Delta_m &= E_{\hat{f}}[\tilde{s}] - E_f[\tilde{s}] = E_{\hat{f}}[s] \cdot [1 - R(m)] + R(m) - \left( E_f[s] \cdot [1 - R(m)] + R(m) \right) \\ &= \Delta \cdot [1 - R(m)]. \end{aligned} \quad (9)$$

This result illustrates that the predicted treatment effect is a decreasing function of the exemption threshold  $m$  of the inheritance tax. The greater is the number of individuals who support an inheritance tax because they do not expect to pay it, the fewer are the individuals who can be induced to support it through exposure to information about the importance of inherited wealth. This feature of inheritance tax support is reflected in the smaller slope of the upper line in figure 3.

Notice that if the exemption threshold is very high, such that  $R(m) \approx 1$ , we get  $\Delta_m \approx 0$ . In other words, the effect of information about distributional outcomes is likely to be very small in economies where the vast majority of individuals understand that they are very unlikely to pay the inheritance tax. This aspect is consistent with Kuziemko et al. (2015) who document a dramatic increase in the support for estate taxation when informing respondents that only a tiny fraction of US households actually are exposed to it. If that study had in addition informed respondents about the importance of inherited wealth in the economy, the effect of this additional in-

formation would likely have been small. In the Swedish context, in contrast, given the anchoring of individuals to the broad-based Swedish inheritance tax, most people would expect to potentially be exposed to the inheritance tax proposed in our baseline inheritance tax question. This makes Sweden a good laboratory to study the effect of information about the importance of inherited wealth on the support for inheritance taxation, as self-interested motives that make individuals mechanically support inheritance taxation are likely to be smaller than in other contexts.

In table 4, we summarize the findings in this section with a list of theoretical predictions about how the treatment will affect the support for the low and high exemption inheritance taxes depending on people's pre-treatment support for inheritance taxes, their wealth status and their ideology. For exposition purposes, we focus on a binary representation of perceptions, using the terminology "Flat" if the perceived inheritance share is low, and "Skewed" if the inheritance share is perceived to be high. For simplicity, we focus on the "compliers" of our experiment, namely those who update their perception to "Skewed" if their pre-treatment perception was "Flat". We divide the population into three wealth groups where the "Poor" group can be thought of those who do not expect to inherit or bequeath anything, the "Middle" group represents those who expect to be burdened by the low exemption inheritance tax but not the high exemption inheritance tax, and finally, the "Wealthy" group that is expected to be burdened by both types of inheritance taxes.

The table shows how libertarians never support and egalitarians always support inheritance taxes, regardless of their knowledge about the distribution of inherited wealth. In the center group, the baseline (pre-treatment) support is higher for the high exemption tax than for the low exemption tax. However, the reverse is true for the treatment effect: it is higher for the low exemption tax and lower for the high exemption tax. These patterns are broadly in line with our empirical findings.

Table 4: Theoretical predictions

Ideology	Wealth status	Pre-treatment support				Post-treatment support			
		Perceive	No tax	$\tau^{LE}$	$\tau^{HE}$	Perceive	No tax	$\tau^{LE}$	$\tau^{HE}$
Libertarian	Poor	Flat	x			Skewed	x		
		Skewed	x			Skewed	x		
	Middle	Flat	x			Skewed	x		
		Skewed	x			Skewed	x		
	Wealthy	Flat	x			Skewed	x		
		Skewed	x			Skewed	x		
Center	Poor	Flat		x	x	Skewed		x	x
		Skewed		x	x	Skewed		x	x
	Middle	Flat			x	Skewed		x	x
		Skewed			x	Skewed		x	x
	Wealthy	Flat	x			Skewed		x	x
		Skewed	x			Skewed		x	x
Egalitarian	Poor	Flat		x	x	Skewed		x	x
		Skewed		x	x	Skewed		x	x
	Middle	Flat		x	x	Skewed		x	x
		Skewed		x	x	Skewed		x	x
	Wealthy	Flat		x	x	Skewed		x	x
		Skewed		x	x	Skewed		x	x

## 5 Perceptions of inherited wealth

What is the empirical relationship between the perceived economic importance of inherited wealth and the support for inheritance taxation? In this section, we begin by documenting that this relationship is positive, possibly reflecting that people who have a high preference for economic equality and support policies such as inheritance taxation, also perceive inherited wealth to be economically important. We then proceed to analyze the causal question of interest, namely, whether *shifting* perceptions about the economic importance of inherited wealth is associated with an increased support for inheritance taxation, as suggested by the theoretical model in section 4.

We measure an individual's perceived economic importance of inherited wealth using a question asked early in the survey: "How large share of the wealth of Swedish households is represented by past inheritance?". This question corresponds directly to the inheritance treatment fact "Inherited wealth represents about half of all wealth in the population." Notice that the share of total wealth that has been inherited is tightly connected to wealth inequality since inherited wealth tends to be, and is likely to be perceived as being, unequally distributed as well as closely related to inequality

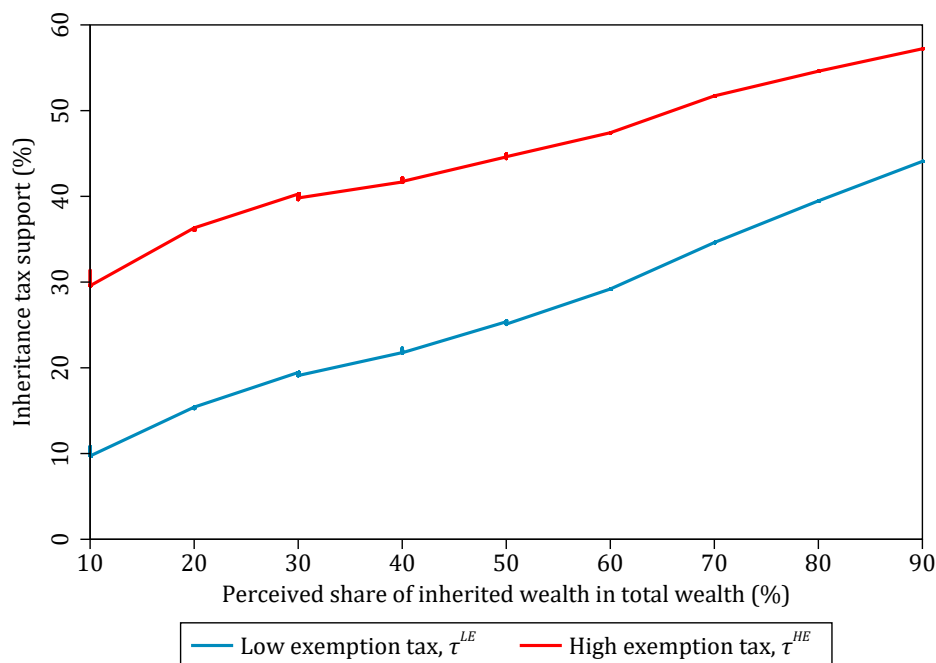
of opportunity. From the answers to this question, we also get an indication to which extent individuals actually have been treated, that is, to which extent they have read and understood the information and therefore “complied” with our experiment.

Below, we present graphical evidence of how the treatment changes individuals’ perceptions of inherited wealth. Thereafter, we use these changes in several econometric exercises with the purpose of relating the change in perceptions to the change in the support for inheritance taxation.

## 5.1 A graphical analysis

The first link to examine is that between the perceived economic importance of inherited wealth and the support for inheritance taxation in the control group. This relationship is depicted in figure 4 which is the empirical counterpart to figure 3. Two key patterns emerge: the support is increasing in the perceived economic importance of inherited wealth, and the support is higher for the high exemption tax on only large bequests. Both these patterns are consistent with the theoretical model in section 4.

Figure 4: Perceived inherited wealth share and support for inheritance taxation

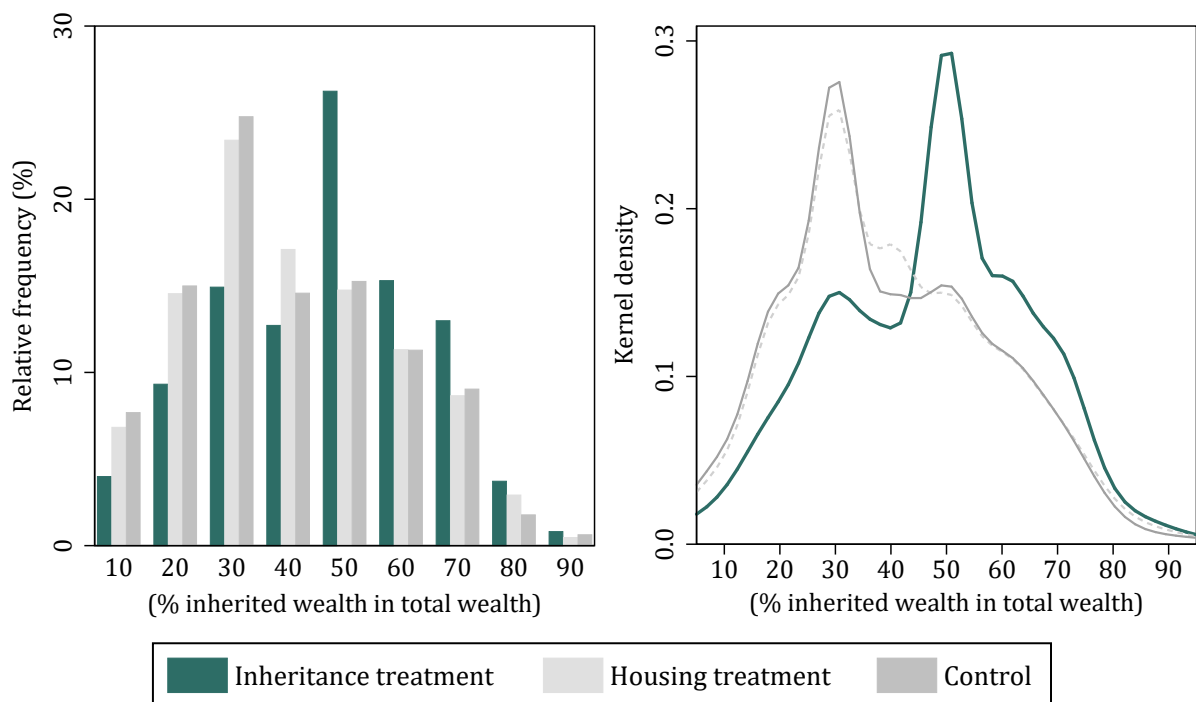


The next link to examine is that between the information treatment and people’s perceptions of the economic importance of inherited wealth. Figure 5 shows the distribution of perceived inheritance shares in the inheritance treatment and reference control groups (also including the housing treatment group), and we see immediately that untreated individuals systematically underestimate the extent of inherited wealth in the population. A majority in the control group believes that at most 40 percent of



household wealth derives from past inheritance, and the density peaks at 30 percent. For treated individuals, on the other hand, the distribution of perceptions is shifted to the right and peaks at a 50 percent inheritance share. The peak directly corresponds to the information treatment that "about half" of household wealth has been inherited. We therefore regard 50 percent as the "correct" answer. Notice that responses at 60, 70 and 80 percent inheritance shares are also substantially higher in the treatment group (90 percent is the largest alternative respondents can choose). This could in part be explained by the fact that we never stated that the inheritance share was exactly 50 percent but "about half". However, it could also reflect a signal that "inheritance matters" stemming from the other treatment facts, for example, that heirs with the highest income inherit more. For this reason, we interpret answers in the range 50 to 90 percent as reflecting a general perception among respondents that the inherited wealth is economically important.

Figure 5: Distribution of responses to question about inherited share



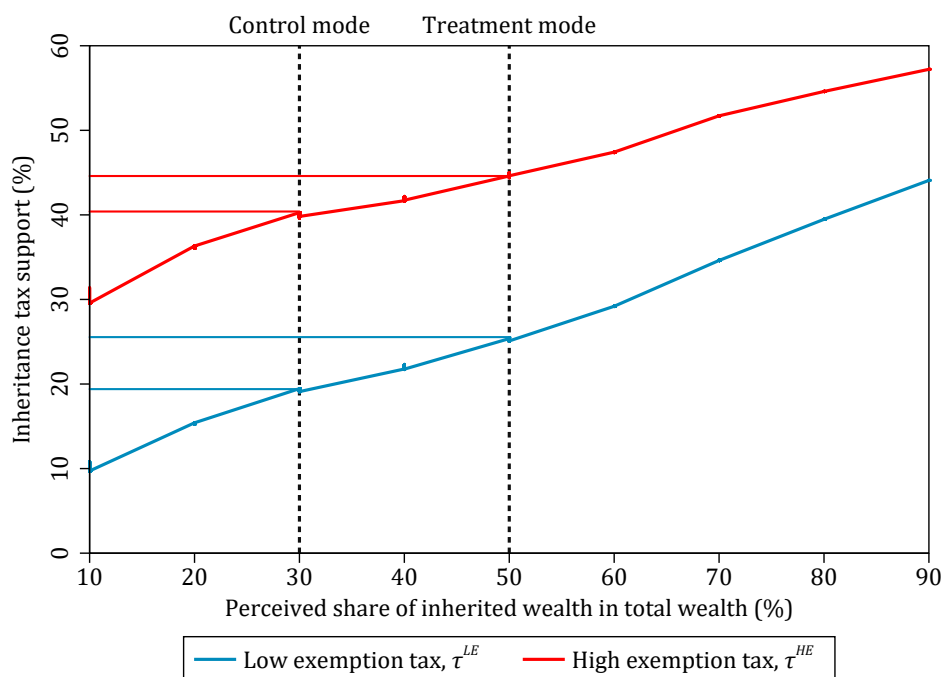
*Note:* Responses to survey question "How large share of household wealth do you think derives from past inheritance?". Gaussian kernel densities are used.

One may wonder why not everyone in the treatment group answered correctly to the question. It is possible that some respondents never looked at the information provided on the cover sheet and instead jumped directly to the questionnaire. The concept "share of inherited wealth" might be too complex for many individuals, or respondents might reject the stated fact if they are reluctant to accept research results in general or if the information provided is too far from their own prior expectations. It is also worth noticing that the housing treatment has no impact on the perceived

economic importance of inherited wealth, providing evidence that it is not the act of providing distributional information *per se* that is causing the shift in perceptions, but instead an effect of providing information about inherited wealth in particular.

We finally combine the two previous figures to graphically show how the treatment-induced shift in perceptions of the importance of inherited wealth is associated with a change in the degree of support for inheritance taxation. Figure 6 illustrates this by highlighting the change in the modes (the peaks of the distributions) of the perception distributions in the treatment and control group. As the treatment shifts perceptions to the right, people become more supportive. Note that the effect is found for inheritance taxes with both low and high exemption thresholds. The treatment effect on support is relatively smaller on the tax on large bequests, which is in line with the regression results in figure 1 and the notion that the treatment effect is smaller for a tax that already has a high number of supporters.

Figure 6: Treatment effects on perceived inheritance share and inheritance tax support



## 5.2 Econometric tests

As a complement to the graphical analysis, we run parametric tests to assess the relationship between treatment-induced changes in perceptions of the economic importance of inherited wealth and inheritance tax support. Three alternative approaches are proposed. The first interprets the treatment effect on perceptions as a “first stage” in an instrumental variable-type of analysis.<sup>26</sup> The second approach treats the shift in

<sup>26</sup>Note that this will not be a standard IV as the instrument has an independent effect on the dependent variable. We will elaborate upon this below.

perception as a *mediating* variable, reflecting an intermediate outcome between the initial cause and the final outcome. Finally, the third approach conditions the dependent variable on the perceived economic importance of inherited wealth.

### 5.2.1 An “IV” approach

The treatment effect in table 2 is an intent-to-treat (ITT) effect, reflecting an average effect across all individuals in the treatment group irrespectively of whether their perceptions of the economic importance of inherited wealth were affected by the treatment or not. Indeed, figure 5 clearly showed that many individuals in the treatment group perceived a lower inherited wealth share than the treatment information stipulated. Scaling the reduced-form ITT effect by the share of individuals taking up the treatment thus generates an instrumental variable-type of average treatment effect of the treated.

For this purpose, we define a variable aimed to capture the individual’s perceived economic importance of inherited wealth, *PerceiveHigh*, equaling one for individuals who perceive that 50 percent or more of household wealth has been inherited. We then run the following “first stage” regression:<sup>27</sup>

$$PerceiveHigh_i = \beta_0 + \beta_1 Treatment + \delta' X_i + e_i. \quad (10)$$

The results are presented in table 5 and confirm that the treatment affects the perceived economic importance of inherited wealth. The likelihood that a person believes that inheritance represents a majority of household wealth increases by almost 17 percent as a result of the treatment, an increase by more than one-third of the control group average of 40 percent.

Table 5: Treatment effect on perceptions of inherited wealth

	“Inheritance share is 50 percent or higher”	
	(1)	(2)
Inheritance treatment	0.170*** (0.040)	0.166*** (0.040)
Observations	5,690	5,512
Controls	No	Yes
Control mean	0.389	0.397

Note: \*\*\* denotes statistical significance at the 1%-level.

We would like to emphasize that this result is not the true first stage in a two-

<sup>27</sup>We have also defined a variable called *Perceived50*, which equals one for individuals answering exactly 50 percent on the inheritance-share question. All the main perception findings remain even when we use this alternative perception indicator, see Appendix B.3.

stage analysis of how information shapes preferences for inheritance taxation. To begin with, we do not observe if respondents actually read and understand the treatment information. Another reason is that the inheritance share question does not cover the entire set of treatment facts, hence *PerceiveHigh* may also reflect the other two facts (that high-income heirs inherit more and that half of all billionaires have inherited their wealth). Most importantly, however, the treatment is not a valid instrument as it is likely to influence the main outcome variable, the support for inheritance taxation, and thus violates the exclusion restriction.

Despite these problems, we still find it informative to see what the average treatment effect on the treated would be assuming the "pseudo" first stage would be a valid first stage. Dividing the reduced-form by the "first-stage" effect, we obtain a ratio of  $0.082/0.166 \approx 0.49$ . This can be interpreted to imply that 49 percent of the individuals who change their perceptions in response to the treatment become favorable of an inheritance tax. This is a remarkably high share, suggesting that attitudes to inheritance taxation can be strongly influenced in contexts where respondents receive and understand the treatment information.

### 5.2.2 Mediating variable regression

The second approach to analyze the effect of changed perceptions of the economic importance of inherited wealth on tax support is mediating variable regressions. This is a common method to assess the importance of a variable that potentially links a cause with an outcome. If the main treatment effect ceases to be significant when including the mediating variable as a control, the treatment effect is regarded to be fully mediated through that variable, otherwise partial mediation occurs. We use the approach here to try to extract the part of the treatment effect on the support for inheritance taxation that is operating through changing perceptions of the wealth distribution. Since we cannot rule out the presence of other (omitted) mediating variables, we pragmatically interpret this regression as a form of descriptive decomposition analysis.

Table 6 shows that the mediating variable has a significant effect on the support for inheritance taxation (columns 1-4), around five-six percent, and it reduces the treatment effect somewhat. When interacting the treatment and mediating variables, both main effects disappear while the interaction term is large and positive at almost 17 percent. Moving on to the tax on "large" bequests (columns 5-8), we see similar insignificant effects as above, but when we interact the treatment and perception variable, the coefficient is 14 percent and statistically significant.

Table 6: Perception of inherited wealth as mediating variable

	Low exemption tax, $\tau^{LE}$				High exemption tax, $\tau^{HE}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.084** (0.035)		0.075** (0.035)	-0.009 (0.046)	0.058 (0.038)		0.053 (0.039)	-0.019 (0.053)
<i>PerceiveHigh</i>		0.061** (0.028)	0.053* (0.028)	-0.006 (0.032)		0.038 (0.032)	0.032 (0.032)	-0.017 (0.039)
Treat $\times$ <i>PerceiveHigh</i>				0.166*** (0.062)				0.141** (0.068)
Observations	5,313	5,313	5,313	5,313	5,319	5,319	5,319	5,319
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.245	0.408	0.408	0.408	0.408

Note: Dependent variable is support for low or high exemption inheritance taxation. \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

### 5.2.3 Conditioning the dependent variable on perceptions

As noted above, a concern with the previous parametric approaches is that the treatment may influence tax support both through perceptions and through other factors. Therefore, we propose a third approach where we decompose the dependent variable cross values of *PerceiveHigh*.<sup>28</sup> Formally, we estimate the following three equations:

$$\begin{aligned}
 \text{Support}_i &= \alpha + \gamma_0 \text{Treat} + \beta' X_i + u_i \\
 \text{Support}_i |_{\text{PerceiveHigh}=1} &= \alpha + \gamma_1 \text{Treat} + \beta' X_i + u_i \\
 \text{Support}_i |_{\text{PerceiveHigh}=0} &= \alpha + \gamma_2 \text{Treat} + \beta' X_i + u_i
 \end{aligned} \tag{11}$$

where the estimate  $\hat{\gamma}_0$  is the baseline treatment effect on tax support for the total population,  $\hat{\gamma}_1$  is the treatment effect on tax support among respondents who perceive a high inheritance share (at least 50 percent) and  $\hat{\gamma}_2$  is the treatment effect on respondents who perceive a low share (less than 50 percent). Table 7 presents estimation results that are similar to the preceding analyses, namely that perceptions appear to play a key role in explaining the treatment effect on inheritance tax support. While the unconditional effect is 8.2 percent (this is our baseline effect in section 3), the treatment effect increases to 11.6 percent when limiting the sample to individuals perceiving a high inheritance share. For the subsample of individuals who support the tax but who do not perceive the share to be high, the treatment information has *no effect at all*. This provides strong evidence that it is indeed changes in the perceived economic importance of inherited wealth that is the key mechanism underlying the effect of our information treatment on the support for inheritance taxation.

<sup>28</sup>The advantage of this approach over the first two is that it does not use a non-excludable instrument to decompose the role of perceptions. We thank Lars Kirkebøen for suggesting the method.

Table 7: Conditioning support on perceiving a high inheritance share

	Low exemption tax, $\tau^{LE}$			High exemption tax, $\tau^{HE}$		
	(1)	(2)	(3)	(4)	(5)	(6)
	Support	Support, <i>PerceiveHigh</i> = 1	Support, <i>PerceiveHigh</i> = 0	Support	Support, <i>PerceiveHigh</i> = 1	Support, <i>PerceiveHigh</i> = 0
Treatment	0.082** (0.035)	0.116*** (0.028)	-0.032 (0.025)	0.057 (0.038)	0.126*** (0.030)	-0.070** (0.032)
Observations	5,371	5,374	5,374	5,375	5,375	5,375
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.408	0.408	0.408

Note: Dependent variable is support for inheritance taxation as expressed in column headings. \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

We also examine the conditional treatment effect on the support for a tax on “large” inheritances, and find the same pattern. There is a large and statistically significant treatment effect on respondents who perceive inherited wealth to be economically important, and no such effect (not even a negative effect) on respondents who do not.

## 6 Extensions and sensitivity analysis

### 6.1 Equality of opportunity and inheritance taxation

There could, in principle, be several reasons why individuals increase their support for inheritance taxation when they change their perceptions about the economic importance of inherited wealth. One possibility could be that individuals consider the inheritance tax to be efficient, and therefore become more supportive of inheritance taxation, once they acknowledge that the inheritance tax base is large. While this certainly could be the case for some individuals, we do not think efficiency considerations are likely to be first-order explanations behind the support for inheritance taxation in the general population.<sup>29</sup> Here we test the very common equality of opportunity justification for inheritance taxation by examining if our information treatment, in addition to increasing the support for inheritance taxation, also makes people believe luck and circumstances to be important for economic success. In table 8, we present the re-

<sup>29</sup>For example, Almås et al. (2017) find that fairness considerations are much more fundamental for inequality acceptance than efficiency considerations in their study of the US and Norway. Fisman et al. (2017) study how people motivate their preferences for taxing income and wealth, and find suggestive evidence that equity considerations tend to dominate efficiency considerations. See also Lergetporer et al. (2018) for a similar argument in the case of education spending. In the case of inheritance taxation, the efficiency effects also appear to be somewhat ambiguous. While inheritances imply a negative income effect on heir’s labor supply (see Kindermann, Mayr and Sachs 2018), the possibility to bequeath can be an important motivation for parents to work. Moreover, positive inheritance taxation in optimal tax models is typically discussed on the basis of equity considerations, and not efficiency considerations (see Piketty and Saez 2013 and Farhi and Werning 2013).

sults from treatment regressions, similar to those above in equation (11), where the dependent variable is a dummy equal to one if an individual answered that "luck or unfairness" is most important for economic success.

The analysis shows that the treatment makes individuals significantly more inclined to respond that luck and unfairness is the most important factor behind success. The share of respondents who believe that luck matters the most increases by almost ten percent (a coefficient estimate of 0.09) in the treatment group relative to the control group. In relation to the number of individuals who already considered luck to be most important for economic success, this corresponds to an increase of about 20 percent. The estimated coefficients are strikingly similar to those in tables 2 and 7 for the support for inheritance taxation, suggesting that considerations relating to equality of opportunity play an important role in explaining the treatment effect.

Table 8: Treatment effect on views of luck and unfairness

	"Luck and unfairness most important behind economic success"		
	All respondents (1)	Respondents with <i>PerceiveHigh</i> = 1 (2)	Respondents with <i>PerceiveHigh</i> = 0 (3)
Inheritance treatment	0.092** (0.040)	0.150*** (0.033)	-0.058* (0.034)
Observations	5,307	5,307	5,307
Controls	Yes	Yes	Yes
Control mean	0.436	0.436	0.436

*Note:* Dependent variable is dummy variable equal to one if individual believes that "luck and unfairness" is more important than "hard work" to be economically successful. \*, \*\*, \*\*\* denotes statistical significance at the 10%, 5%, and 1% level.

## 6.2 Treatment effects on different support categories

Our main analyses used a coding of the outcome variable reflecting "any support" for inheritance taxation, but our survey allowed respondents to express three different levels of support as well as opposition. In table 8 we examine whether these nuances in response matter for our treatment effect and its interpretation. In column 1 we first have our our baseline estimate of 8.2 percent. In column 2 we display the effect on "full" support, which is equal to 4.2 percent and only slightly statistically significant. The difference between the estimates in column 1 and column 2 suggests that the treatment also increased levels of less intense support in the categories "support to a large extent" and "support to some extent". Column 3 shows that opposition ("do not support") decreased significantly by 8.1 percent, a decrease offsetting the increase in total support. This implies that the baseline treatment is mainly driven by individuals

who would otherwise have been against the tax becoming positive, rather than indecisive individuals becoming positive. Finally, column 4 shows a specification where the dependent variable is a multilevel variable where the response alternatives are considered cardinal, with a coding from 0 to 3 (with 0 indicating opposition, and the three positive support categories coded 1 to 3). The size of the coefficient estimate is not crucial and the key result is instead that there is a positive and statistically significant treatment effect even when considering the joint effect on all different response categories. The overall message of this section is that our main results are robust to the specific coding of the dependent variable.

Table 9: Treatment effects on different support categories

	Degree of support for inheritance taxation			
	Any support (1)	Full support (2)	Opposing (3)	All responses (multi-level) (4)
Treatment	0.082** (0.035)	0.042* (0.023)	-0.081** (0.037)	0.163** (0.079)
Observations	5,371	5,374	5,374	5,088
Controls	Yes	Yes	Yes	Yes
Control mean	0.245	0.055	0.678	0.678

Note: Dependent variable is support or opposition to a low exemption inheritance tax. \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

### 6.3 Tax policy issues: Revenue neutrality and family firms

There are two important additional aspects of inheritance tax design that we have not yet discussed but that was asked about in the survey. The first one is the possibility of a *revenue neutral* inheritance tax. In the survey we ask about the support for an inheritance tax that is described as being offset by reductions in other taxes. This question is relevant in a high-tax country like Sweden where the overall tax burden could overshadow the support for any new taxes. The second aspect is tax treatment of *family firms successions*, which has attracted much attention in policy debates about inheritance taxation in most countries, including Sweden.<sup>30</sup> Our survey contains questions that refer explicitly to both of these aspects of inheritance taxation.

Table 10 shows treatment effects, based on equation (11) for both revenue neutral and family-firm exempting inheritance taxes. The results suggest smaller effects than in our baseline regressions, which indicates that the increased support for inheritance taxation documented in our main analysis is by no means conditional on lowering

<sup>30</sup>Issues relating to the succession of family-firms were common objections to the Swedish inheritance tax. See Henrekson and Waldenström (2016) for an in-depth historical analysis of the Swedish inheritance tax debate 1885-2004.



other taxes or exempting family firm successions.<sup>31</sup> The effects among respondents who perceive a high economic importance of inherited wealth, are larger and statistically significant. For this subgroup, the treatment effects are only slightly smaller than for the baseline inheritance tax (see table 7).

Table 10: Support for revenue-neutral and family-firm exempting inheritance taxation

	Revenue-neutral inheritance tax			Inheritance tax exempting family-firm successions		
	Support (1)	Support, <i>PerceiveHigh</i> = 1 (2)	Support, <i>PerceiveHigh</i> = 0 (3)	Support (4)	Support, <i>PerceiveHigh</i> = 1 (5)	Support, <i>PerceiveHigh</i> = 0 (6)
Treatment	0.033 (0.038)	0.085*** (0.030)	-0.032 (0.025)	0.047 (0.033)	0.103*** (0.025)	-0.057** (0.023)
Observations	5,371	5,374	5,374	5,375	5,375	5,375
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.294	0.289	0.301	0.254	0.217	0.281

*Note:* The dependent variable is the support for an inheritance that is either revenue neutral (survey question referring to a "tax on bequests, and lower other taxes") or exempts family firms (survey question referring to a "tax on bequests, but not on family firms"). The notation \*, \*\*, \*\*\* refers to statistical significance at the 10%-, 5%-, 1%-level, respectively.

## 6.4 Attitudes to other taxes

Our survey contained questions about the support for other taxes. If the treatment effect indeed is driven by individuals' changing perceptions of the economic importance of inherited wealth, we would expect the treatment effect on the support for other capital taxes to be smaller as compared to the effect on the support for inheritance taxation. The reason for this is that inheritance taxation appears to be a more direct way to tax inherited wealth in comparison to other capital taxes that not only target inheritance but also other forms of capital, such as life-cycle savings. This distinction between the inheritance tax and other capital taxes is particularly important given the link between inheritance tax support and equality of opportunity (see section 6.1).

Table 11 shows the effects of our inheritance treatment on the support for other capital taxes (columns 1-7) and non-capital taxes (columns 8-12). A wealth tax (column 1) has not existed in Sweden since 2007, but it is still discussed in the contemporary political discourse (Piketty 2014, Atkinson 2015).<sup>32</sup> The estimated effect is small and insignificant, but the overall support for introducing a wealth tax is still high with

<sup>31</sup>Here it should be noted that "family-firms" is a very heterogeneous concept as it includes not only small business owners but also multi-million dollar firms.

<sup>32</sup>While great advances have been made in understanding the distributional importance of wealth, there are few empirical studies analyzing the efficiency costs of wealth taxation. Recent evidence from Denmark in Jakobsen, Jakobsen, Kleven, and Zucman (2018) suggests that the efficiency effects are notable only in the very top of the distribution.

almost half the population in the control group expressing some support.<sup>33</sup> We ask about several different taxes on capital income, and find no effect on the taxation of realized capital gains on house sales (column 3), stock market transactions (column 4), bank interest income (column 5), dividend income (column 6) or corporate income (column 7). While there is a relatively high overall support for these taxes, with a control group support between 27 and 49 percent, there are no clear treatment effects. This lack of effects is consistent with the idea that our inheritance treatment primarily increases support for inheritance taxation and “equality of opportunity”-type of policies (one could argue that receiving capital income to a greater extent is associated with the exertion of personal effort in comparison to receiving an inheritance). Property taxation is another important capital tax, which has been reduced in Sweden in recent years. About one third of the population supports the idea of taxing property (column 2), but the inheritance treatment does not shift its support.<sup>34</sup>

Table 11: Treatment effects on other capital taxes

	Support for <i>capital taxes</i> :						
	Wealth (1)	Property (2)	Capital gains: Houses (3)	Stocks (4)	Bank interest (5)	Dividend income (6)	Corporate profit (7)
Treatment	0.028 (0.039)	0.035 (0.037)	0.018 (0.038)	0.038 (0.038)	0.038 (0.037)	-0.012 (0.038)	0.020 (0.038)
Observations	5,538	5,256	5,582	5,582	5,582	5,582	5,582
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.490	0.301	0.381	0.482	0.270	0.448	0.424
	Support for <i>non-capital taxes</i> :						
	Labor earnings (8)	Top labor earnings (9)	Vehicles (10)	CO2 (gasoline) (11)	Alcohol (12)		
Treatment	-0.048 (0.039)	-0.033 (0.039)	0.052 (0.038)	0.014 (0.035)	0.037 (0.038)		
Observations	5,413	5,390	5,410	5,423	5,431		
Controls	Yes	Yes	Yes	Yes	Yes		
Control mean	0.577	0.578	0.500	0.570	0.689		

*Note:* The dependent variable is the support for the taxes listed in the column headings.

The support for non-capital taxes is also unaffected by the inheritance treatment. Treatments effects are insignificant and close to zero for the support for taxing earnings through the municipal income tax (column 1), high earnings (approximately the top 15 percent of wage earners) through the central government income tax (column 2), per-

<sup>33</sup>However, “full support” for introducing a wealth tax increases from 0.13 to 0.18 (*t*-stat 1.7), a 40-percent increase.

<sup>34</sup>The housing treatment has no statistically significant impact on the support for any of these capital taxes, including the property tax. See section 6.5.

sonal vehicles (column 3), personal vehicle carbon-dioxide emissions (column 4) and alcohol (column 5). Once again, these results suggest that our inheritance treatment is not capturing broader aspects of redistribution and taxation, but rather particular aspects of inherited wealth and inheritance taxation.

## 6.5 Housing wealth treatment effects

We also analyze the influence of our second treatment, the housing treatment. The results are presented in Table 12. Column 1 shows that the housing treatment has a strong "first stage" in terms of affecting the answer to the question early in the survey asking about the share of households that own their home. The correct answer to this question, 60 percent, was provided in the treatment information, and the estimate shows that individuals exposed to the housing treatment were much more likely to respond correctly to this question as compared to those exposed to the inheritance treatment or the control treatment. Columns 4-6 show that the housing treatment had very little effect on the support for property taxation (recall also from table 13 that it had no effect on the support for inheritance taxation).

The relatively small effects of the housing treatment on the support for property taxation can probably be explained by two factors: (i) the large media focus on issues relating to the housing market implying that most people probably knew that house prices have increased in recent years, and, (ii) home ownership is rather evenly distributed in the population (the incidence of home ownership is largest in rural areas where incomes are low) implying that informing individuals about the sizable number of people who own their home, is not expected to trigger an increased support for property taxation on equity grounds.

Finally, it is worth noticing that the housing treatment had no effect at all on the perceived economic importance of inherited wealth (column 2). The effect of the housing treatment on the question about luck being most important for economic success, is also smaller than for the inheritance treatment and not statistically significant.

Table 12: Housing wealth treatment effects

	"First stage"		"Luck most important"	Tax on property:		
	Houseown. share (1)	Inherit. share (2)		Baseline (4)	Only high-valued (5)	Cut other taxes (6)
Housing treatment	0.292*** (0.032)	0.017 (0.039)	0.059 (0.039)	0.041 (0.036)	0.006 (0.039)	0.036 (0.037)
Observations	5,528	5,512	5,307	5,256	5,256	5,415
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.436	0.139	0.397	0.301	0.459	0.459

Note: Dependent variables listed in column headings. \*, \*\*, \*\*\* rejection of tests at 10%-, 5%-, 1%-levels.

## 6.6 Hawthorne effects

A common concern in experimental studies is that the experimental setting might have an independent effect on treated respondents, irrespective of the actual content of the treatment. Such influences are sometimes labeled *Hawthorne effects*, or salience effects.<sup>35</sup> While there was no specific information in our survey indicating to respondents that they were being part of an experiment, one concern could be that the information boxes placed in the opening letter possibly could convey that there is something special with the survey.<sup>36</sup>

To examine the influence of a potential Hawthorne effect contaminating our estimated treatment effect, we use our second treatment, the housing wealth treatment, in two different tests: first as a placebo treatment and then as a control group in our main inheritance treatment regression. Table 13 presents the results from these two tests and the main finding is that neither of these two tests indicates any important Hawthorne effects in our experiment. Using the housing treatment as placebo treatment (columns 1-4) generates no large or statistically significant effects on the support for inheritance taxation. Using the housing treatment group as control group (columns 5-8) results in positive and statistically significant effects, reassuringly similar in size and statistical significance as our baseline estimates.

Table 13: Hawthorne effects

	Support for low exemption inheritance tax ( $\tau^{LE}$ )							
	House treatment (placebo)				Inheritance treatment (House treatment as control)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.016 (0.032)		0.016 (0.032)	0.036 (0.043)	0.066* (0.036)		0.059 (0.036)	-0.033 (0.053)
<i>PerceiveHigh</i>		-0.005 (0.032)	-0.005 (0.032)	0.021 (0.045)		0.078** (0.035)	0.069** (0.035)	-0.028 (0.047)
Treat $\times$ <i>PerceiveHigh</i>				-0.050 (0.064)				0.191*** (0.072)
Observations	3,620	3,582	3,582	3,582	3,554	3,515	3,515	3,515
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.245	0.245	0.245	0.245	0.245

Note: \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

<sup>35</sup>The term "Hawthorne effect" refers to a firm in which workers appeared to become more productive after a reorganization of the work process, but where subsequent research argued that the effect was due to the associated monitoring of the workers rather than the organizational changes. See Levitt and List (2011) for a discussion of the Hawthorne effect in experimental design.

<sup>36</sup>In any experimental context of this kind, there is an important trade-off between increasing the take-up of the experiment (increasing the fraction of compliers) and the risk of introducing salience effects by providing a too eye-catching information treatment.

## 6.7 Psychological framing

The analysis so far has shown that the act of providing information *per se* is unlikely to affect the support for inheritance taxation. It is still possible, however, that providing information about *inheritance* increases attention to issues relating to inheritance, such as providing support for inheritance taxation or becoming more aware about the importance of inherited wealth, irrespective of the actual content provided in our information treatment. Such reactions could reflect *psychological framing* (Tversky and Kahneman 1974, Ariely et al. 2003) or so-called *experimenter demand effects* which might arise if respondents adjust their answers according to what they believe to be the wishes of the survey designer (Zizzo 2010, de Quidt et al. 2018). We think that such framing effects are unlikely in the current context for several reasons.

First, the act of providing information *per se* does not seem to increase the support for inheritance taxation as shown by the Hawthorne tests (section 6.6). Second, providing information about the role of inherited wealth makes people believe that luck is more important for economic success, which is a common justification for taxing bequests, whereas no such effect is evident for the housing treatment or the control treatment. Third, the effect of the housing treatment on the support for property taxes is an order of magnitude smaller than the effect of inheritance treatment on inheritance tax support (see section 6.4), which also speaks against there being mechanical psychological linkages between the treatment facts and the support for tax policy.

## 6.8 Time to response

Whether treatment effects persist over time is an issue that receives increasing attention in the experimental literature. For example, Kuziemko et al. (2015) run a follow-up survey four weeks after their initial survey and find that the estimated positive effect on the support for estate taxation seems to have lasted in contrast to most other of their results. Alesina et al. (2018) found that their treatment effect of an increased support for income redistribution persisted in a follow-up survey one week later.

Our experiment does not contain a proper follow-up survey, but we have information about the time it took (in number of days) for each respondent to respond to the survey. Furthermore, as part of Statistics Sweden's normal survey procedure, a post-card reminder was sent out to respondents who had not submitted their survey after two weeks, and a second survey was sent out to those who had not responded four weeks after the original survey was sent out. A delayed response could provide some evidence on the persistence of the treatment effect, for example, if the respondent read the original survey first and then waited to respond for some time. Of course, the delay could also be due to other factors, such as forgetting about the survey for some time or choosing not to read and answer the original survey.

Table 14 shows the results for our analysis of treatment effects across different variants of responses (any support, full support, opposing, multi-level response variable) and across different degrees of response delays. Looking first at our main support variable (column 1), we can see that our baseline treatment effect is largest and most precisely estimated for individuals who responded immediately, with a 10 percentage point increase (as compared to the 8.6 percent increase which is the baseline estimate for the total population). The treatment effect for the group responding 2–4 weeks after the survey was sent is 7 percent, though with a wide confidence interval, and the treatment effect for the group responding after 4 to 8 weeks is 5 percent, also with a large standard error. While there seems to be a decline in treatment effect, the decline is not statistically significant. The point estimates for those who respond with delay are still economically significant in relation to the control group support. Column 2 shows a spike in treatment effect for the group responding after 2 to 4 weeks, while the effect is smaller for the other groups. Column 3 shows that there is a negative treatment effect on opposition to the tax in all three delay groups that is relatively similar in the first two groups but much smaller in the third group. Finally, column 4 shows the results for the case where the dependent variable reflects a cardinal coding of the response categories (as described in section 6.2). The effects appear to be consistently positive across the three delay categories.<sup>37</sup>

In sum, given the lack of follow-up, we are not able to draw any concrete conclusions about the persistence of the treatment effect. However, comparing the estimates between respondents who answered with different time lags after the original survey was sent out, we do not find evidence of rapidly declining treatment effects. Results from previous studies analyzing related questions suggest that effects are stable, at least for a few weeks after the initial experiment. What happens in the longer run is still an open question. An important topic for future research is to analyze the persistence of the effects from information experiments over long time horizons.

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<sup>37</sup>In Appendix B.4, we analyze the observable characteristics of individuals who respond to the survey with different time lags. We find that older and more educated individuals respond earlier while foreign-born and self-employed respond later. However, when interacting the background characteristics with either a treatment status indicator or a dummy for supporting the inheritance tax, we find no systematic selection.

Table 14: Time to response and treatment effects

	Attitude to inheritance taxation ( $\tau^{LE}$ )			
	Any support (1)	Full support (2)	Opposing (3)	All responses (multi-level) (4)
	a) Direct response, <2 weeks			
Treatment	0.100** (0.042)	0.028 (0.031)	-0.097** (0.044)	0.153 (0.101)
Obs.	3,476	3,478	3,478	3,321
Control mean	0.227	0.069	0.684	
	b) Response after 2-4 weeks (postcard)			
Treatment	0.070 (0.079)	0.089** (0.041)	-0.102 (0.083)	0.262* (0.141)
Obs.	901	901	901	836
Control mean	0.313	0.028	0.666	
	c) Response after 4-8 weeks (new survey)			
Treatment	0.050 (0.070)	0.045 (0.039)	-0.021 (0.081)	0.135 (0.160)
Obs.	994	995	995	931
Control mean	0.237	0.043	0.674	
Observations	5,371	5,374	5,374	5,088
Control mean	0.245	0.055	0.684	

*Note:* The table shows estimated treatment effects using our baseline model. The dependent variable is support for, or opposition to, a low exemption inheritance tax, where "multi-level" support represents a four-level categorical variable of support that ranges from 0 ("Opposition") to 3 ("Full support"). The markers \* and \*\* denote statistical significance at the 10% and 5% level, respectively.

## 7 Conclusions

Using a randomized survey experiment on a register-linked Swedish sample, we found that exposing individuals to research-based facts about inherited wealth, increases the support for inheritance taxation significantly. The effect appears to be driven by individuals' changing perceptions about inherited wealth and altered views on whether luck and circumstance is considered to matter most for economic success. Overall, we find strong evidence that the common equality of opportunity justification for inheritance taxation plays a key role in understanding the determinants of the support for inheritance taxation.

A possible implication of our findings is that the low salience of inherited wealth, which our study has documented, could be one explanation behind the relatively marginalized role of capital taxation in developed economies. If people feel that inequality in general has increased, but without perceiving specifically a growing impor-

tance of wealth and wealth inequality, this could trigger increased support for income taxation but not necessarily for wealth taxation. We hypothesize that this could be one explanation behind the current decline of inheritance taxation in rich countries during a time when the economic importance of inherited wealth appears to have increased.

Our findings have been obtained in a Scandinavian context with low levels of pre-tax inequality and high political support for redistribution. It is often argued that the difference in support for redistribution between the US and the Scandinavian countries reflects a difference in social perceptions regarding the fairness of market outcomes and the underlying sources of income inequality (Alesina and Angeletos 2005, Almås et al. 2017). Our paper suggests that this reasoning might need to be modified since people in different countries do not only differ in terms of preferences for redistribution and thoughts on fairness, but also in terms of their knowledge about the wealth distribution. Thus, the support for tax policy is likely to not only be related to education (Piketty 2018), but also to the narratives adopted in the public debate. Our results suggest that a greater availability and exposure to research findings about the wealth distribution can have real effects on the political support for taxation.



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## A Data appendix

### A.1 Institutional setting

Sweden is a high tax country with an ambitious welfare state and relatively low levels of economic inequality. The tax-to-GDP ratio is around 45 percent, which is among the highest in the world. At the same time, capital taxation in Sweden does not deviate much from other developed countries. Total capital tax revenue is around five percent of GDP, which lies at the OECD average. Sweden's capital tax revenue derives primarily from the corporate tax (about half) while the rest derives from property taxation and personal capital income taxes. There is a broad-based proportional tax rate on capital income of 30 percent.<sup>38</sup>

Since the 2000s, Sweden has experienced a gradual reduction in its reliance on wealth-based capital taxes. The Swedish inheritance and gift tax was abolished in 2004. At the time of its removal, the inheritance tax was levied on a large share of all bequests, with a basic exemption threshold of only 7000 EUR. Tax rates started at 10 percent and reached a top rate of 30 percent for bequests exceeding 60,000 EUR. The exemption level was exceptionally low by international standards, and has been discussed as a factor contributing to the relatively low popularity of the inheritance tax among Swedish households.<sup>39</sup> The wealth tax was abolished in 2007 and the property tax was sharply reduced in 2008.

Table A1: Comparison of the level of inheritance taxation across countries

	Basic deduction (thousand euros)	Marginal inheritance tax rate (%)	
		Lowest	Highest
Denmark	37	15	15
Finland	20	7	19
France	100	5	45
Germany	500	7	30
Netherlands	20	10	20
Sweden	7	10	30
United Kingdom	270	40	40
USA	4,675	18	40

*Note:* All numbers refer to children-heirs, which typically correspond to the lowest tax rates and largest exemption thresholds. Sweden refers to 2004 when the inheritance tax was removed. The UK and US refer to estate taxes while the other countries refer to inheritance taxes (paid by the heirs). Basic deduction amounts are converted into euros using 2017 average exchange rates.

The macroeconomic importance of personal wealth and inherited wealth has in-

<sup>38</sup>For an in-depth discussion of capital taxation in Sweden, see Bastani and Waldenström (2018).

<sup>39</sup>See Henrekson and Waldenström (2016) for a historical study of the rise and fall of Swedish inheritance taxation and Hammar, Jagers and Nordblom (2006) for survey evidence on the popularity of Swedish taxes.

creased notably in Sweden since the 1980s according to estimates in Waldenström (2016, 2017) and Ohlsson et al. (forthcoming). The ratio of national wealth to national income increased from around 200 percent in the 1980s to 500 percent in the 2010, with the entire increase being driven by the accumulation of wealth in the private sector. Inherited wealth has also become more important. The total annual inheritance flow, including both bequests and gifts, has doubled in size relative to national income since the 1990s. The aggregate share of inherited wealth in total private wealth has been relatively stable around 50 percent in Sweden in the 2010s, increasing only slightly over the past decades. This level is approximately the same as in other Western countries, as estimated by Piketty (2011) and Piketty and Zucman (2015).

The distributional impact of inheritance in Sweden has recently been studied in several studies. and Adermon et al. (2018). Elinder et al. (2018) find that the distribution of bequests tends to be highly skewed, with a Gini coefficient at around 0.70-0.80. Bequest size increases in the pre-inheritance income and wealth of heirs, which means that heirs with higher income receive larger bequests. Nikoei and Seim (2018) have found similar evidence for Sweden, and they have also studied how differential consumption behavior among relatively poor and rich heirs differs so that the long-run consequences of inheritance may differ. At the same time, estimates show that the relative importance of bequests, expressed as the bequest share of heir's pre-inheritance income and wealth, is larger in the lower parts of the distribution. This pattern has also been found in the US (Wolff 2015). Finally, these studies have also found that bequests are an important determinant of the persistence of wealth across generations, and may account for approximately half of the intergenerational mobility of wealth. Similar patterns have been found for Denmark (Boserup et al. 2018).

## **A.2 Constructing net wealth measures at the individual level**

We define individual and household wealth as the sum of the value of non-financial and financial assets minus debt (see table A2 for descriptive statistics). Our wealth measures are calculated using register information on property and apartment values, together with a combination of observed and capitalized financial assets and liabilities. Lundberg and Waldenström (2018) contains a detailed discussion of capitalization approaches to individual wealth estimation in Sweden.

*Non-financial assets* are essentially owner-occupied housing (houses and apartments) and other assets (land, forest property etc.) The property tax register provides information regarding the tax-assessed values of all properties (houses, holiday homes, apartment buildings, agricultural land), which we have transformed to market values using municipality-level sales-price ratios. The apartment register provides information about apartments (rental vs. owner-occupied apartments, number of square me-

ters, household members etc.). We approximated the market value of owner-occupied apartments by multiplying their size in square meters by the average sales price per square meter using a special data set containing district-level sales prices divided into different apartment-size classes. We used the data from 2017 that we purchased from Svensk Mäklarstatistik, a company specializing in developing statistics for the Swedish housing market.

*Financial assets* derive from a variety of register sources. Market values of mutual funds (such as the special investment vehicle known as "Kapitalförsäkring", as well as unit-linked and non-unit-linked mutual funds) and some listed stocks can be calculated based on the taxable imputed rate of return, which is equal to the fund value multiplied by a statutory, flat, imputation rate. Other financial assets are more difficult to assess properly. For these assets, we followed a simple capitalization approach by dividing the observed interest and dividend income by average rates of returns from national aggregate income statistics and stocks as reported in the financial accounts. This procedure implies that we capture business equity; listed and non-listed, only to the extent that it generates dividend income. Pension assets in collectively held occupational pension funds are not included, but private pension savings in mutual funds are observed through the imputed taxed capital income.

*Financial liabilities* are the sum of capitalized bank debt (mainly mortgage debt) and student loans (register-based). Bank debt is estimated using tax return-reported interest payments and the average interest rate in the financial accounts.

Table A2: Descriptive and distributional statistics

	Mean	SD	Min	P25	P50	P90	P99	Max
Male	0.511	0.5	0	0	1	1	1	1
Married	0.432	0.495	0	0	0	1	1	1
Children	0.679	0.996	0	0	0	2	4	5
Foreign-born	0.2	0.4	0	0	0	1	1	1
Primary school	0.209	0.407	0	0	0	1	1	1
Secondary school	0.423	0.494	0	0	0	1	1	1
University	0.368	0.482	0	0	0	1	1	1
Years of education	11.9	2.7	7	10	12	16	17	19
Self-employed	0.0732	0.26	0	0	0	0	1	1
House-owner	0.389	0.487	0	0	0	1	1	1
Apartment-owner	0.236	0.425	0	0	0	1	1	1
Taxable inc., ind	27.6	25.9	0	13.9	25.7	48.4	101	1,295
Total inc., ind	31.5	84	0	14.6	26.7	53.1	135	14,320
Disposable inc., ind	24.9	59.1	-16.2	13.7	21.5	40.4	86.8	11,740
Net wealth, ind	106	613	-4,447	0	25.5	300	935	40,087
Taxable inc., hh	53.1	43	0	27.9	47	96	183	1,295
Total inc., hh	59.6	99.1	0	28.6	48.3	107	239	14,320
Disposable inc., hh	47.1	69.1	-16	24.8	39.8	80.8	157	11,740
Net wealth, hh	194	917	-3,669	0	69.7	500	1,772	104,001

Note: Most characteristics as dummy variables. Income and wealth in thousands of euros.

### A.3 Survey response patterns and calibration

The sample population of 12,000 individuals was drawn randomly from the Swedish administrative register databases so as to be representative for the entire Swedish population. In total, 5,776 individuals responded to our survey, yielding a response rate of 49 percent (after subtracting 209 deceased or migrated individuals).

The sample was stratified according to 54 different strata based on four variables: housing assets, gross total income, age and sex. The housing asset strata were the following: group 1: 0–1 million SEK, group 2: 1–5 million SEK, group 3: above 5 million SEK. We define gross total income as taxable earnings including capital income and realized capital gains and used the following strata: group 1: 0–460,000 SEK, group 2: 460,000–1.1 million SEK, group 3: above 1.1 million SEK. For the age variable, we used the following categorization: group 1: 18–39 years, group 2: 40–64 years, group 3: 65 years and above. Finally, sex corresponded to two groups.

For each individual, a weight is calculated so that the resulting weighted population is representative for the whole Swedish (adult) population. The original *design weights* were based on register variables and the 54 strata. As is the case in most surveys, response was not entirely random in the sampled population and higher response rates were observed for older and higher-earning individuals. Therefore, a regression-based calibration was conducted by Statistics Sweden, resulting in a set of *calibration weights* according to a standardized procedure. These calibration weights are then used in our analysis to render it nationally representative. Table A3 compares means across the population sample and the sample of respondents, using either design weights or calibration weights. After calibration, there are few differences across these populations. The main exception is taxable income, which is somewhat lower on average among the respondents. There are also some deviations in terms of the incidence of marriage and having children at home. Note that all of these characteristics are included in the vector of control variables used in the regressions. In section B.5 below, we rerun the main analysis using design weights, and find reassuringly that the results are almost the same as when using calibrated weights.

Table A3: Balancing test of the experiment

	General population	Respondents		t-statistics	
	(design weights) (1)	(design weights) (2)	(calibration weights) (3)	(2)-(1) (4)	(3)-(1) (5)
Male	0.497 (0.008)	0.505 (0.012)	0.511 (0.017)	0.43	0.75
Age	49.4 (0.3)	55.8 (0.4)	49.1 (0.6)	9.29	-0.44
Married	0.483 (0.008)	0.571 (0.012)	0.432 (0.016)	4.93	-2.86
Children at home	0.439 (0.008)	0.357 (0.012)	0.391 (0.016)	-4.44	-2.60
Foreign-born	0.179 (0.006)	0.121 (0.008)	0.200 (0.016)	-3.29	1.19
Primary school	0.189 (0.006)	0.143 (0.007)	0.209 (0.014)	-2.97	1.29
Secondary school	0.439 (0.008)	0.398 (0.012)	0.423 (0.016)	-2.22	-0.87
University/College	0.372 (0.008)	0.459 (0.012)	0.368 (0.016)	4.90	-0.23
Taxable income, ind	30,166 (334)	34,496 (542)	27,643 (639)	6.00	-3.50
Taxable income, hh	61,269 (518)	67,230 (774)	53,099 (1,120)	4.83	-6.62
Wealth, ind	106,218 (5,027)	153,454 (9,477)	106,339 (8,512)	4.78	0.01
Wealth, hh	193,103 (8,779)	297,005 (13,295)	194,535 (11,213)	7.30	0.10
House value, ind	62,779 (1,382)	80,002 (2,274)	57,989 (2,253)	6.52	-1.81
House value, hh	156,014 (3,444)	216,064 (6,227)	156,193 (6,039)	8.64	0.03

*Note:* All variables are stratification-weighted group averages. Units are [0,1]-dummies for all variables except Age (years) and household taxable income, house value and net household wealth, which are all in thousand Euros (using exchange rate 10 to the Swedish krona). The notation "\*" denotes statistical significance at the 5%- level.

## B Sensitivity analyses

### B.1 Further analysis of heterogeneous treatment effects

In our main analysis, we examined the heterogeneity of treatment effects. The results did not reveal much heterogeneity across any particular socio-economic dimensions. In this appendix section, we expand upon this analysis by analyzing some further partitions of the respondents. We focus on heterogeneous treatment effects on two variables: *the support for inheritance taxation* and *the perception of inherited wealth*.

Figure A1 depicts wealth gradients of inheritance tax support in the population, partitioned into two age groups: 18–44 years and 45+ years. As in our main analysis, the local tax support is estimated using a local smoothed regression. It should be



noted that these point estimates lack confidence intervals and should thus be viewed as part of a descriptive analysis. One important difference between these groups is that younger people face a larger uncertainty regarding their own current (and future) wealth status. For this reason, it is likely that they respond differently to a wealth-related tax than the older group which knows more about their wealth position.

Figure A1: Treatment effect across wealth and age



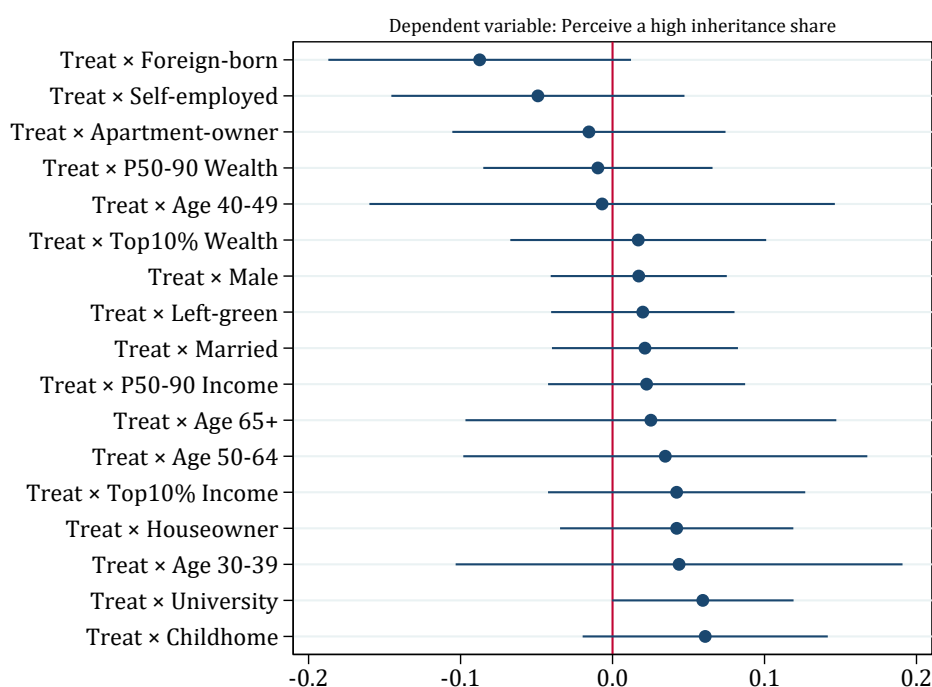
Note: The figure shows coefficients from smoothed local regressions for treatment and control groups and the support for low and high exemption inheritance taxes, respectively.

Comparing the two panels, we can broadly confirm the existence of an age gradient in the treatment response. Notably, treatment effects appear to be more positive among younger people, regardless of their wealth status. At the same time, tax support is more clearly downward-sloping among older individuals, and becomes negative for high-wealth older individuals. This is consistent with the idea that the young face greater uncertainty (or know less about) their own wealth status than older individuals. For the young, a greater uncertainty about future wealth status, and thereby their expected inheritance tax receipts, could mute self-interested motives (and the response to the information treatment).

We have also analyzed heterogeneous treatment effects on the likelihood to perceive inheritance to be economically important. Figure A2 presents coefficient estimates with 95-percent confidence intervals, and they indicate no strong heterogeneity in how inherited wealth is perceived across a number of dimensions.

Further analyzing the heterogeneity of treatment effects on perceptions, figure A3 shows the treatment effect across different *education levels* (as reported in the Swedish

Figure A2: Treatment interaction effects on perception



Note: The graph shows coefficients (with 95% confidence intervals) from our inheritance tax support-regression (equation 1 in the main paper), specifically for interaction terms between the inheritance treatment dummy "Treat" and different individual background characteristics.

administrative education register). There are small differences in treatment effects overall, but the small group of respondents with postgraduate education, particularly with a Ph.D., the treatment seems to have been particularly influential on the respondents' perceived importance of inherited wealth.<sup>40</sup>

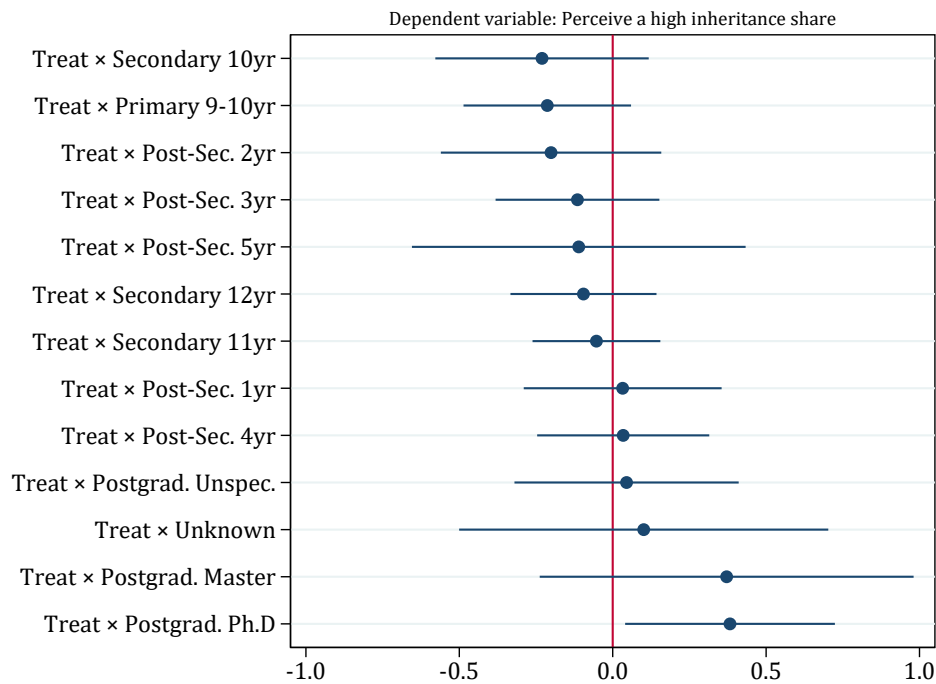
## B.2 Income measures: Sensitivity checks

The main analysis of the inheritance treatment effect in section 3 uses annual observations of individual taxable labor income. Below, we present an examination of the robustness of those results with respect to the measurement of income. Specifically, we use variants of one- vs three-year income averages (to account for the transitory nature of income), a division between labor and total income (to account for potentially different treatment effects for individuals with different configurations of labor and capital income), pre-tax vs post tax/transfers (to account for how tax preferences possibly differ depending on actual taxes paid or transfers received) and, finally, we examine whether it makes a difference if we measure income at the individual or household level (to account for how tax preferences might be affected by spousal income).

Table A4 shows that the inheritance treatment effect appears to be insensitive to

<sup>40</sup>We also examined if treatment effect on perceptions differ across individuals with different *education specializations*, but the differences were small and insignificant.

Figure A3: Treatment effects on perceptions for different education levels



Note: The graph shows coefficients from our baseline inheritance tax support-regression (equation 1 in the main paper) of interaction terms between is the inheritance treatment dummy "Treat" and different levels of education.

these variations in measurements. The estimated coefficients are statistically significant and relatively stable across different specifications.

### B.3 Perceiving the inherited wealth share to be exactly 50%

This section presents a sensitivity check of the analysis of the perceived economic importance of inherited wealth presented in section 5.2 of the main paper. In that section, we ran parametric tests to assess the role of perceptions in the link between our treatment and the increased support for inheritance taxation. In our analysis, we used a dummy variable *PerceiveHigh* that was equal to one if the share of inherited wealth was perceived to be 50% or higher. Here, we consider an alternative specification where we let *PerceiveHigh* be equal to one only of individuals perceive the inherited wealth share to be *exactly* 50 percent, which corresponds to the "correct" share of inherited wealth in total wealth.

We run the same three tests as in section 5.2, namely, (i) the "IV" approach, where the "first stage" now instead corresponds to perceiving the inheritance share to be exactly 50 percent, (ii) using a response of 50% as a mediating variable, and, (iii) conditioning the dependent variable (inheritance tax support) on answering 50 percent. The results are shown in Table A5. We can see that the information treatment clearly

Table A4: Robustness of treatment effects with respect to income measurement

	(1) Pretax labor income		(3) Pretax total income		(5) Disposable income	
	1-year	3-year	1-year	3-year	1-year	3-year
Individual income						
Treatment	0.078** (0.034)	0.074** (0.034)	0.081** (0.034)	0.076** (0.034)	0.079** (0.035)	0.076** (0.034)
Household income						
Treatment	0.073** (0.034)	0.071** (0.034)	0.075** (0.034)	0.071** (0.034)	0.078** (0.034)	0.075** (0.034)
Observations	3,568	3,568	3,568	3,568	3,568	3,568
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.245	0.245	0.245

Note: "Taxable income" is earnings and self-employment income, "total income" is the sum of earnings and taxable capital income, and "disposable income" is total income net of taxes and untaxed transfers. \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

affected this modified perception measure. Among the treated, 23.7 percent answered "50 percent" to the question about the inheritance share, which is an almost 50-percent increase from the control-group level of 16.5 percent. As we discuss in section 5.2, the "IV" approach is imperfect since we do not know if respondents have read and understood the treatment information and the instrument does not satisfy the exclusion restriction. Nonetheless, if we calculate the "IV"-estimate by dividing the reduced-form with the "first-stage" effect, we obtain a ratio of  $0.082/0.072 = 1.14$ . This can be interpreted to imply that more than 100 percent of individuals who change their perceptions in response to the treatment (in the narrower sense of the modified *PerceiveHigh* variable) become favorable to an inheritance tax. The fact that the share exceeds 100 percent most likely reflects that the treatment affects individuals in ways not fully captured by our perception measure.

Table A5: Treatment effect on perceptions of inherited wealth

	"Inheritance share is <i>exactly</i> 50 percent"	
	(1)	(2)
Inheritance treatment	0.072** (0.035)	0.072** (0.035)
Observations	5,512	5,512
Controls	No	Yes
Control mean	0.165	0.165

Note: The table shows  $\hat{\beta}_1$  from the regression  $Perceive50\%_i = \beta_0 + \beta_1 Treatment + \delta' X_i + e_i$ , where  $Perceive50\%_i$  is a dummy variable equal to one if the respondent selects an inheritance share in household wealth of "50%". \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

Table A6 shows mediating variable regressions for the low and high exemption inheritance taxes, and the message is, once again, similar to our main analysis. Including the perception shift as a separate variable has a significant effect on support (col. 2) at almost seven percent. It reduces the treatment effect somewhat (although by less than in the main analysis), and when interacted with the treatment it produces a large and strongly statistically significant coefficient. The main effects are weaker for the high exemption tax, in similarity to the main analysis.

Table A6: Perceiving 50% inheritance share as mediating variable

	Low exemption tax ( $\tau^{LE}$ )				High exemption tax ( $\tau^{HE}$ )			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.084** (0.035)		0.079** (0.035)	0.034 (0.036)	0.058 (0.038)		0.055 (0.039)	0.015 (0.041)
$Perceive50\%$		0.068* (0.041)	0.061 (0.040)	-0.037 (0.042)		0.048 (0.043)	0.044 (0.043)	-0.038 (0.051)
$Treat \times Perceive50\%$				0.226*** (0.078)				0.193** (0.085)
Observations	5,313	5,313	5,313	5,313	5,319	5,319	5,319	5,319
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.245	0.408	0.408	0.408	0.408

Note: \*, \*\*, \*\*\* denotes statistical significance at the 10%-, 5%-, and 1%-level.

Finally, the third test of the role of the perception channel in explaining the treatment effect on tax support is to condition the dependent depending on the value of the  $PerceiveHigh$  variable. Table A7 shows that the patterns are very similar to our main results. The main treatment effect appears to highly associated with respondents perceiving a relatively large role of inheritance, with the baseline coefficient of 8.2 percent only decreasing slightly to 7.6 percent when conditioning on answering exactly 50 percent. The pattern is the same for both low and high exemption taxes, in similarity to the main analysis.

Table A7: Conditioning support on perceiving a high inheritance share

	Low exemption tax ( $\tau^{LE}$ )			High exemption tax ( $\tau^{LE}$ )		
	Support (1)	Support, <i>Perceive</i> 50% = 1 (2)	Support, <i>Perceive</i> 50% = 0 (3)	Support (4)	Support, <i>Perceive</i> 50% = 1 (5)	Support, <i>Perceive</i> 50% = 0 (6)
Treatment	0.082** (0.035)	0.076*** (0.023)	0.007 (0.030)	0.057 (0.038)	0.076*** (0.024)	-0.019 (0.035)
Observations	5,371	5,374	5,374	5,375	5,375	5,375
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Control mean	0.245	0.245	0.245	0.408	0.408	0.408

Note: \*, \*\*, \*\*\* rejection of tests at 10%-, 5%-, 1%-levels.

In sum, modifying our measure of perception shifts to a narrower indicator (answering exactly 50 percent, corresponding to one of our treatment facts, rather than 50% or more, as in the main analysis) has no important bearing on our findings. The sensitivity checks therefore confirm our conclusion that it is the information we provide about the economic importance of inherited wealth that is affecting people’s attitudes to inheritance taxation.

## B.4 Determinants of delayed response

In this section, we compare the observable characteristics of individuals who submit their survey early with those who submit their survey with a delay. We also check if there are differences in response delay between treated and untreated individuals or between those who support and those who do not support inheritance taxation. The tests are based on the following linear regression:

$$LateResponse_i = \alpha + \gamma_1 Treatment + \gamma_2 Treatment \times X_i + \beta' X_i + u_i \quad (12)$$

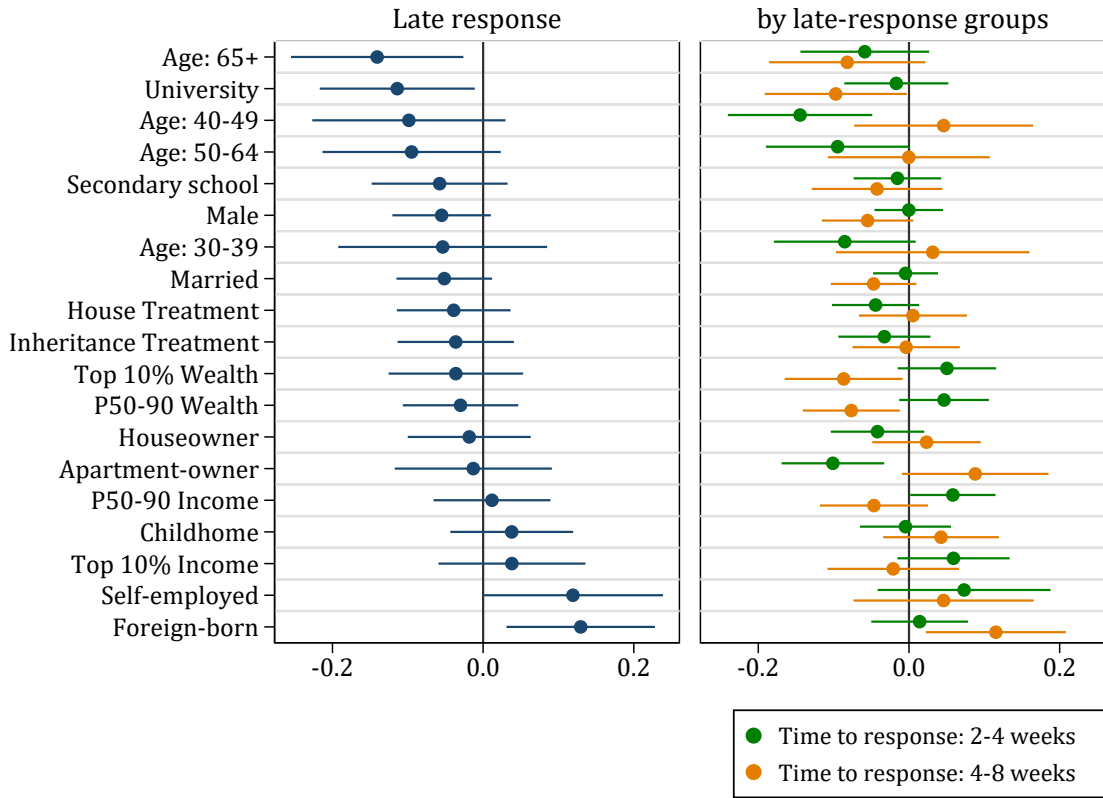
where  $LateResponse_i$  is a dummy equal to one if an individual responds with a delay (defined either as 2–4 weeks or 4–8 weeks).

The results are presented in Figure A4.<sup>41</sup> The left panel of figure A4 indicates some heterogeneity, with older and more highly educated individuals responding relatively early while foreign-born and self-employed individuals responding later. When breaking up the late response into two late-response groups (the right panel of figure A4, there appear to be no statistically significant differences.

Next, figure A5 shows the effect on responding late when interacting some of the background characteristics with either belonging to the treatment group or supporting inheritance taxation. There does not appear to be a systematic relationship between the independent variables and the likelihood of responding late. Almost none of the

<sup>41</sup>Regression tables are available upon request.

Figure A4: Determinants of delayed response by time to response



*Note:* The graph shows coefficients from regressing a late response on explanatory variables.

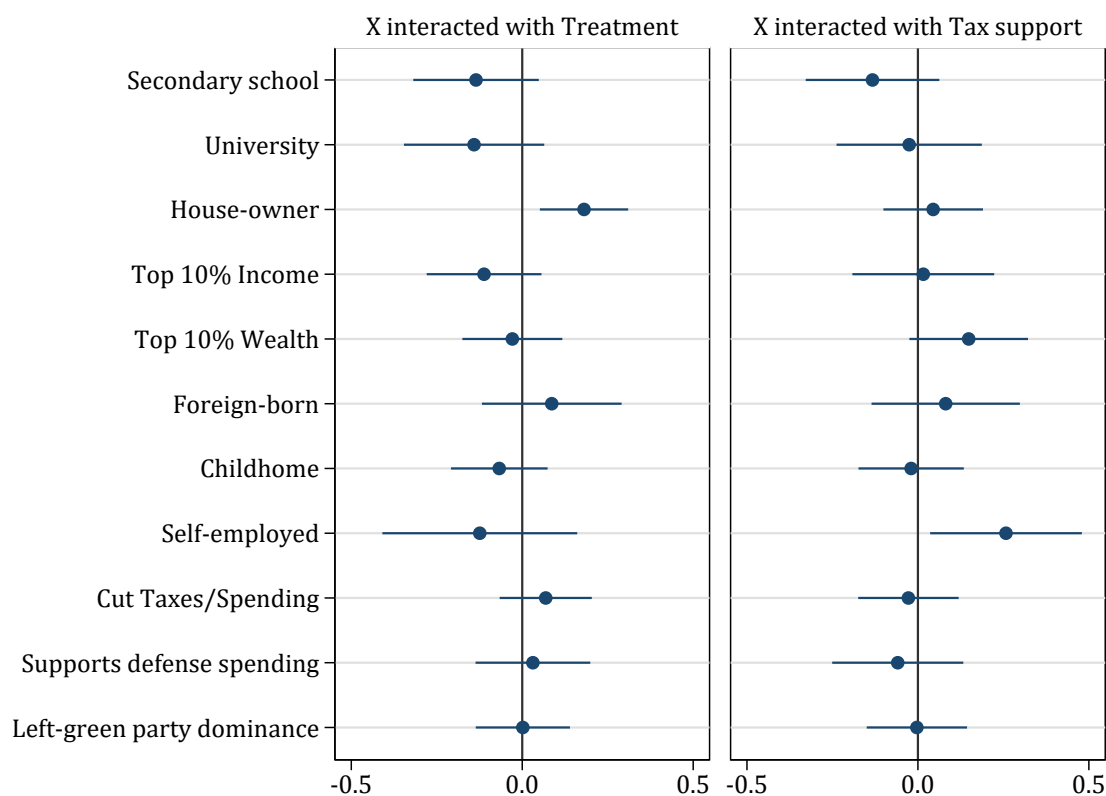
interaction terms are statistically significantly different from zero, with the exception of a slightly larger incidence of responding late for treated house-owners and self-employed individuals who support inheritance taxation.

Altogether, this analysis indicates that there are no large, systematic role for why an individual responds late to the survey from his or hers background status, treatment-group status or views of inheritance taxation. In the light of the finding in the main paper, which was that the treatment effect on support did not seem to die out among respondents who answered later, which thus potentially reflected a persistence of the treatment effect, these additional analysis do not stand in conflict with that.

## B.5 Using non-calibrated weights to estimated treatment effects

Our main analysis uses response-calibrated weights when estimating inheritance treatment effects on the support for inheritance taxation. The calibration was determined based on the correlation between observable characteristics (age, sex, household composition, income, wealth, education etc.) and response rates in the original sample population. However, an individual’s response behavior may also be correlated with unobserved characteristics, for example, attitudes to inheritance taxation, which could

Figure A5: Determinants of delayed response: interacting with treatment and support



Note: The graph shows coefficients from regressing a late response on explanatory variables.

lead to biased results. In this appendix section, we therefore as a robustness check instead use the original *design weights* provided by Statistics Sweden. These are the weights pertaining to the stratified sampling based on the 54 strata (three age groups, two sex groups, three income groups, three housing wealth groups).

We rerun the main regressions in section 3 (the baseline treatment effect regression and the heterogeneity analysis) using the design weights instead of the calibrated weights. The results are shown in Table A8. The table shows that the estimated inheritance treatment effects on the support for a low exemption tax (columns 1-2) and the high exemption tax columns (4-5) do not change much. The baseline effect for the low exemption tax is somewhat smaller (0.071-0.072 versus 0.080-0.082 in table 2 depending on whether one includes other covariates) but all effects are statistically significant. For the high exemption tax, the treatment effect is about the same (0.048-0.050 versus 0.043-0.050 when using calibration weights) and borderline statistically significant.

The interacted treatment effects in the heterogeneity analysis (columns 3 and 6) also looks qualitatively similar. Our main analysis (3) showed that these interactions were generally statistically insignificantly different from zero, and the same holds true when using the design weights. The only case when there is a significant interaction



effect is the negative coefficient for the interacted top wealth decile and the support for a high exemption tax, which also was the case when using the calibrated weights.

In sum, this sensitivity check suggests that calibrating the sample based on observed response patterns does not seem to influence the results of the treatment effects. Both coefficient sizes and levels of statistical significance are roughly the same.

Table A8: Design weights and treatment effects

	Low exemption tax, $\tau^{LE}$			High exemption tax, $\tau^{HE}$		
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.072*** (0.028)	0.071** (0.028)	0.041 (0.055)	0.050* (0.030)	0.048 (0.030)	-0.010 (0.057)
University			0.015 (0.040)			-0.020 (0.043)
Treat $\times$ University			0.011 (0.051)			0.084 (0.055)
Top income decile			-0.077** (0.039)			-0.098** (0.046)
Treat $\times$ Top income decile			0.006 (0.061)			0.040 (0.069)
Top wealth decile			0.009 (0.041)			-0.040 (0.047)
Treat $\times$ Top wealth decile			-0.061 (0.060)			-0.147** (0.065)
Cut taxes/spending			-0.110*** (0.027)			-0.089*** (0.031)
Treat $\times$ Cut taxes/spending			0.029 (0.051)			0.019 (0.053)
More spending on defense			-0.111*** (0.028)			-0.163*** (0.037)
Treat $\times$ Defense			0.014 (0.059)			0.050 (0.066)
Left-green district			0.052* (0.027)			0.042 (0.031)
Treat $\times$ Left-green district			0.012 (0.052)			-0.004 (0.054)
Observations	5,546	5,371	5,152	5,544	5,375	5,151
Controls	No	Yes	No	Yes	Yes	Yes
Control mean	0.247	0.248	0.248	0.425	0.426	0.426

Note: Observations are stratification-weighted using population *design weights*, which do not account for differential response patterns (unlike the *calibrated weights* used in the main analysis). \*, \*\*, \*\*\* denote statistical significance at the 10%-, 5%-, and 1%-level.

## Appendix References

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