Optional or obligatory?

An analysis of social information provision for climate protection donations

Very preliminary version

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Abstract

Based on data from a representative online survey among 1,751 individuals in Germany that comprised an incentivized donation experiment, this paper empirically examines whether obligatory or optional social information, presenting an objective social norm, can increase individual donation for climate protection. Our econometric analysis with linear regression and Tobit models reveals no significant differences in the probability to donate for climate protection and the total amount donated for climate protection depending on whether individuals receive obligatory or optional social information. However, our empirical analysis shows that individuals who have the option to receive additional information and choose to see additional social norm information have a higher probability to donate for climate protection and donate more for climate protection. Both information treatments do not affect the individual expectations on how much other individuals donate for climate protection. In addition, environmental attitudes, social preferences, and perceived social and personal norms in an environmental context increase the probability to donate for climate protection and the total amount donated for climate protection. These results suggest that the design of donation appeals, i.e., how additional information is provided, can decrease donation behavior when they facilitate information avoidance.

Keywords: information nudges, framed field experiment, information avoidance, donation for climate protection, social norms

1. Introduction

In our modern world, the easy availability of media through various channels has created a constant flow of information leading to information overload. The daily volume of information can pose challenges to decision-making. It can become challenging to filter out what information is important and accurate. However, this form of information processing plays a crucial role in shaping public awareness and engagement with environmental issues. Effective communication and dissemination of information about climate change, its impacts, and the importance of proactive measures are essential for raising awareness among individuals and communities. Therefore, this study aims to examine whether pro-environmental behavior differs depending on whether individuals have the choice to receive additional information or not.

Our empirical analysis is based on data from a large-scale computer-assisted online survey of more than 1,700 broadly representative individuals in Germany that was conducted in April 2020. In this study, pro-environmental behavior is represented by donations for emission allowances that can be purchased from the European Emission Trading System (EU-ETS) to reduce greenhouse gas emissions. Our experimental design is based on a standard, incentivized dictator game in which respondents can decide how much of their initial endowment to keep for themselves and how much to donate to purchase emission allowances. We specifically focus on the provision of social norm information, as this specific form of information provision has been proven effective with respect to an increase of pro-environmental behavior (e.g., Farrow et al., 2017).

Respondents are randomly allocated to the control group, the *obligatory social information group*, or the *optional social information group*. Depending on the group, respondents receive different information prior to their donation decision. Respondents in the control group do not receive any information prior to their donation decision. Respondents in the *obligatory social information group* receive information about the donation behavior of other respondents in a similar study. Respondents in the *optional social information group* can voluntarily decide whether they want to see the same social information as in the *obligatory social information group* or not. All respondents receive an initial endowment of 100€ which they can split in any possible way between themselves and the donation for climate protection. Respondents will be informed that 15 of them will be randomly selected and for each of them their donation decisions will be realized, and actual emission allowances will be bought to reduce greenhouse gas emissions.

In general, we do not find any evidence for treatment effects between social information, obligatorily or optionally provided, on the decision of whether to donate and how much to donate for climate protection. However, our analysis reveals that the respondents in the *optional social information group* who choose to see the social information are not only more likely to be donating but are also willing to donate more for climate protection compared to the respondents that did not see additional social norm information. Moreover, we do not find any evidence that the information the *obligatory social information* and *optional social information group* has an impact on the respondents' expectation on how much other respondents would donate for climate protection. In line with other studies, variables describing the environmental attitudes, such as climate change belief or climate knowledge, social preferences, as well as perceived norms in an environmental context are important determinants for donations for climate protection.

Economically speaking, information avoidance can lead to unfavorable outcomes as it prevents people from considering potentially valuable input for decision making (Golman et al., 2017). One example is climate change denial: Even though natural disasters caused by climate change, like droughts and floodings, have increased in recent years, a certain degree of climate change skepticism still prevails in society (e.g., Lind et al, 2019). This can be problematic when it comes to the increase of provision and implementation of climate change mitigation activities.

Behavioral economics delivers explanations for why information avoidance nevertheless leads to higher utility in specific contexts. Information overload is one of such reasons, as too much information can have negative effects on well-being (e.g., Soroya et al., 2021; Swar et al., 2017). Providing "plausible deniability" of unethical behavior is another (e.g., Golman et al., 2017). Dana et al. (2007) introduces the theory of moral wiggle room that emerges if an individual's self-interest conflicts with societal norms, creating a moral dilemma. As individuals want to comply with the norm, moral obligations arise (e.g., Krupka and Weber, 2013; Nyborg, 2011). These obligations can lead to negative utility and the avoidance of information. Consequently, individuals may use "plausible deniability" to act in their own self-interest (d'Adda et al., 2018; Golman et al., 2017).

There is a vast literature that analyzes the provision of information to increase pro-environmental behavior and climate change mitigation activities (e.g., Byerly et al., 2018; Farrow et al., 2017; Schubert, 2017; Osbaldiston and Schott, 2012). The provision of information nudges is often used to correct prevailing misperceptions (e.g., Bursztyn et al., 2020). Information on norms is commonly used in research to increase pro-environmental

behavior. Information about social norms can increase energy conservation (e.g., Andor et al., 2020; Allcott, 2011), water conservation (e.g., Ferraro and Price, 2013, 2011) or donation to charity (e.g., Lindersson et al., 2019; Agerström et al, 2016). However, empirical evidence on information avoidance shows that it can decrease pro-environmental behavior (d'Adda et al., 2018). (Voluntarily) decreasing transparency leads to more self-interested decisions and allows individuals to preserve their self-image (e.g., Dana et al., 2007; Grossman and Van der Weele, 2017; d'Adda et al., 2018). Grossman (2014) shows that some people are even willing to pay a price for staying ignorant. This is not only true for selfish individuals, but also for individuals with other-regarding preferences (e.g., d'Adda et al., 2018, Feiler 2014). This becomes even more problematic if information acquisition is costly which is often the case for pro-environmental behavior, for example when looking for a suitable sustainable investment. Felgendreher (2018) shows that individuals are very price sensitive towards the cost of information, leading to an increase in information avoidance once a cost for the information is introduced.

Our empirical analysis contributes in three ways. Firstly, previous studies usually focus on avoidance of information on pay-off structures (e.g., Feiler, 2014; Grossman, 2014; Dana et al. 2007), environmental and social impacts of own behavior (e.g., Felgendreher, 2018; Andreoni et al., 2017), (energy) saving potentials (e.g., d'Adda et al., 2018), but, to the best of our knowledge, none do consider avoidance of information on descriptive norms in a donation for climate protection context. Thus, with this research we can contribute to the growing body of literature on information avoidance by delivering insights if information avoidance occurs in a donation context and which factors might foster the occurrence of information avoidance.

Secondly, we can contribute to the literature on the provision of social norm information (e.g., Farrow et al., 2017). In most cases, respondents of studies with social norm information provision experiments are obliged to see the information the experimenter wants them to see. We make a contribution by analyzing whether the same social norm information affects donation behavior differently, depending on whether respondents are obliged to see the information or can voluntarily choose. Thirdly, with this study we contribute to the research on the elicitation of revealed willingness to pay for climate change mitigation with our incentive-compatible experimental design including a wide range of explanatory variables (e.g., Löschel et al., 2017, 2012).

The remainder is structured as follows: Section 2 describes the survey, the experimental and the variables which form the basis for this analysis. Section 3 discusses the estimation results and section 4 concludes.

2. Data, experiment, and variables

2.1 Recruitment process and survey structure

We base our empirical analysis on a large-scale computer-assisted online survey among 1,751 individuals in Germany. The survey was conducted in April 2020 in cooperation with the German market research institute Psyma+Consultic GmbH (Psyma). In particular, Psyma was responsible for programming the questionnaire, conducting the online survey, and recruiting the respondents from an online panel. The sample is stratified with regard to age, gender, education and place of main residence to ensure representativeness for the German population. Only individuals older than 18 years are considered for our study. Moreover, Psyma applied quality checks (e.g., regarding systematic response patterns) on all completed surveys throughout the field phase. Interviews with a low quality, i.e., those indicating that respondents were not reading or answering the questions adequately, due to systematic responses or too short completion time, were excluded from the sample and new respondents were recruited accordingly.

The questionnaire is composed of eight different parts (A-H). Part A contains screening questions that allow us to meet the above-mentioned criteria of a representative sample for the German population. Part B comprises questions on personal values and attitudes, including economic preferences. Part C consists of questions about psychological factors and additional economic preferences. Part D deals with environment and climate related questions. Part E aims at obtaining COVID-19 crisis evaluations and perceptions. Part F determines cognitive abilities. Part G contains our incentivized experiment which will be in the focus of this analysis. Part H covered further questions on the socio-demographic background of our respondents. The median time to complete the survey across all respondents was about 22.92 minutes.

2.2 Experimental design

Our experimental design is based on a standard dictator game, portraying pro-environmental behavior through (climate protection) donations, that is commonly used in similar studies in the field of environmental economics (e.g., Engler et al., 2022; Diederich and Goeschl, 2018; for a review of dictator games see Engel, 2011). All respondents receive an initial endowment of

100€ which they can either keep for themselves, donate, or split the money in any proportion between both options. To make the experiment incentive-compatible, we use probabilistic incentives in line with, for example, Dohmen et al. (2011) and Diederich and Goeschl (2017).[1] Accordingly, our respondents were informed that 15 of them are randomly chosen and that for these respondents their final decision on how to divide the initial endowment will be realized.

They were further informed that donations, hence their contribution to climate protection, is made through a direct reduction of global greenhouse gas emissions by buying emission allowances from the European Emission Trading System (EU-ETS). Respondents receive an explanation of the EU-ETS [2] and how it is used to reduce greenhouse gas emissions. Respondents are informed that donations are used to purchase emission certificates via a union called Compensators e.V. from the German Emissions Trading Office of the Federal Environment Agency. Respondents receive further information that helps them to assess how many emissions are reduced depending on their donation and examples that should help them to put the emission reduction in perspective. Climate donations via Compensators e.V. can be considered as more direct climate protection activities in comparison to other climate-related donations for charitable organizations used in other studies. Other carbon offsetting activities often include co-benefits that go beyond pure climate protection, for example, in the case of re-/afforestation as displayed in the study of Schwirplies et al. (2019).

We randomly divide respondents into 3 groups: the *control group*, the *obligatory social information group*, and the *optional social information group*. All three groups received the same information on the experiment and the incentivization. However, the three groups differ with regard to the information they receive prior to making their donation decision. The *control group* does not receive any further information. The *obligatory social information group* received the following information:

> "In an earlier study, an average of 31% of the funds available were used to purchase emission certificates."

The *optional social information group* was informed that if they would like to see how much of the available funds' respondents used to purchase emission certificates in an earlier study,

[1] Dohmen et al. (2011) randomly chose approximately 14% of 450 respondents and Diederich and Goeschl (2017) randomly selected 2% out of 2,440 respondents.

[2] We describe the EU-ETS as follows: "A fixed cap has been introduced in the European Union (including Norway, Iceland and Liechtenstein), as part of the European emissions trade, which specifies the amount of greenhouse gases annually permitted by energy and other industrial companies. Within this cap, companies receive or acquire emission certificates with which they may trade. In Germany, these certificates can be obtained from the Emissions Trading Office of the Federal Environment Agency. After purchase, these certificates are no longer available to other companies so that the previously agreed upon cap of greenhouse gas emissions is not exceeded."

they could do so by clicking on a link and a social information appears on the same screen. If they choose to do so, they see the same information as the *obligatory social information group* displayed above.

2.3 Variables

2.3.1 Experiment variables

The amount that respondents allocated to purchase greenhouse gas emission certificates suit as basis for three dependent variables to analyze the effect of the different information treatments on the amount respondents are willing to donate for climate protection, i.e., to purchase greenhouse gas emission certificates. The first dependent variable *total amount of donations for climate protection* is measured as continuous variable and represents the amount respondents indicate to buy emission allowances via Compensators e.V. with. This variable is measured in integers and can take values between 0 and 100. The second dependent variable *positive donations for climate protection* (extensive margin) is designed as dummy variable that takes a value of one if respondents make positive donations and zero if they decided to keep the 100€ for themselves and not purchase any emission allowances. The third dependent variable *total amount of donation conditional on positive donations* measures the total amount that was donated to purchase emission allowances conditional on a donation being made. This variable is used for the analysis at the intensive margin and can only take positive integer values up to 100€. Furthermore, we create a dependent variable *estimated amount spent on emission certificates* for the amount of the 100€ respondents think other respondents in this survey spent on average to purchase of emission certificates. This variable is measures in integers and can take values between 0 and 100. It can be seen as the perceived social descriptive norm. The social norm information respondents receive in the treatments might correct underlying misperceptions regarding the actual willingness to donate for climate protection and lead individuals to make more pro-social decisions (Bursztyn et al., 2018).

To identify potential effects of the different information provided, we create a dummy variable for each treatment group. The variable *control group* takes a value of one if a participant receives no further information prior to the donation decision. The variable *obligatory social information group* takes a value of one if a participant receives additional information on the average share of funds that were used to purchase emission certificates by respondents in an earlier study. The variable *optional social information group* takes the value of one if a participant is assigned to the group that could voluntarily decide on whether to receive further

information on how much of the available funds' respondents used to purchase emission certificates in an earlier study.

2.3.2. Survey variables

Environmental awareness

As research shows a strong relevance of environmental attitudes on climate protection activities (e.g., Ziegler, 2021), we capture environmental awareness by the *NEP (New Ecological Paradigm)* scale. We used a reduced form of the *NEP* scales according to Dunlap et al. (2000) which includes only six items. This procedure is validated by Whitmarsh (2008, 2011), who shows in pilot studies that many respondents are not able to interpret the remaining nine *NEP* items. Accordingly, the following six statements are considered: "Humans have the right to modify the natural environment to suit their needs", "humans are severely abusing the planet", "plants and animals have the same right to exist as humans", "nature is strong enough to cope with the impacts of modern industrial nations", "humans were meant to rule over the rest of nature", and "the balance of nature is very delicate and easily upset". The respondents were asked to indicate the extent to which they agree with these statements on a five-point Likert scale including the categories "totally disagree", "rather disagree", "undecided", "rather agree", and "totally agree".

For the design of the *NEP* variable we follow, for example, the procedure of Schwirplies and Ziegler (2016). We construct a dummy variable for all of the six statements. For pro-environmentally framed statements, the corresponding dummy variables take the value one if a respondent rather or totally agrees with the statement. In the case of anti-environmentally worded statements, the dummy variables take the value one if a respondent is undecided, rather disagrees, or strongly disagrees. To create the variable *NEP*, we add up each of the six dummy variables. *NEP* can hence vary between zero and six. Higher values imply a higher environmental awareness. In addition, the dummy variable *environmental awareness* is created. It takes the value one if the *NEP* variable takes the value six.

In various contexts, knowledge can increase pro-environmental behavior (e.g., Pothitou et al., 2016). As we expect the same for climate-related donations, we include a measure for climate knowledge. Respondents were asked to assess the correctness of the following five statements: "Carbon dioxide is a gas in the earth's atmosphere, created during plant growth", "Greenhouse gases are gases in the earth's atmosphere that absorb a large part of the sunlight arriving on earth", "The concentration of carbon dioxide (CO2) in the earth's atmosphere has remained

relatively stable since the beginning of the industrial revolution 150 years ago", "Changes in the concentration of carbon dioxide (CO2) in the earth's atmosphere contribute to a change in the mean temperature on earth", and "Changes in the methane concentration in the earth's atmosphere contribute to a change in the mean temperature on earth". They could either choose "correct", "incorrect", or "don't know". We create five dummy variables for each of the statements that take a value of one if respondents evaluated the statement correctly and zero if respondents evaluated the statement incorrectly or chose "don't know". It should be noted that not all statements are phrased to be "correct". For some of the statements the correct answer would be to choose "incorrect". The variable climate knowledge is designed as the sum of all five dummy variables can thus range between zero and five. In addition, we create a dummy variable *high climate knowledge* that takes the value one if respondents' climate knowledge is higher than the median climate knowledge.

As another measure for environmental attitudes, we create the variable *belief in climate change* which takes a value of one if respondents indicate that they think climate change is already taking place and / or will take place in the future.

Social preferences

Moreover, we include measures for social preferences in our study. We focus on altruism, as studies show that particularly altruism can predict donations to charity in dictator games (e.g., Eckel and Grossman, 1996) and the engagement in pro-environmental behavior (e.g., Lades et al., 2021; Ziegler, 2021). We measure altruism using validated survey questions from the Global Preferences Survey Module. Therefore, we ask respondents "How willing are you to donate something for a good cause without expecting anything in return?". Respondents indicate their willingness on a five-point Likert scale ranging from "completely unwilling" to "completely willing." Based on this scale, we construct the dummy variable *altruism* that takes the value one for respondents who indicate "completely willing" and "rather willing" and the value zero for the responses "undecided", "rather unwilling", or "completely unwilling".

In addition to *altruism*, we include trust as another measure for social preferences, as trust can, amongst other things, explain donations for climate protection (e.g., Engler et al., 2022, Ziegler, 2021). To measure trust, we again use validated survey questions from the Global Preference Survey Module. To create the variable *trust*, respondents indicate to what extent they agree with the following three statements: "In general, one can trust people", "Nowadays one cannot rely on anyone", "When dealing with strangers, it is better to be careful before you trust them". *Trust* is measured on a five-point Likert scale ranging from "totally disagree" to "totally agree".

We then construct three dummy variables for each of the statements. Similar to the NEP scale, some of the statements are phrased positively, whereas other are phrased negatively. For the positive statement, the dummy variable takes the value one if respondents rate their agreement with either "rather agree" or "totally agree", and zero if they rate their agreement with "totally disagree", "rather disagree", or "undecided". For the negative statements, the dummy variable takes the value one if respondents "totally disagree" or "rather disagree" with the statement, and zero if they are "undecided", "rather agree", or "totally agree". The variable *trust* is constructed by summing up all three dummy variables and hence can range between zero and three. Additionally, we create a dummy variable *high trust* that takes the value one if respondents score higher than the median for *trust* and zero if they score below the median.

Norms

Moreover, we include a measure for perceived social norms, as well as personal norms in an environmental context. To create a measure for perceived social norms, respondents are asked to indicate to what extent they agree with the following three statements: "Society expects me to contribute to environmental protection", "My environment (friends, family, colleagues) makes a contribution to environmental protection", and "Others who make their own contribution to environmental protection benefit from my contribution". To create a measure for personal norms, we asked respondents to indicate their agreement to the following three statements: "I feel responsible for contributing to environmental protection", "I contribute to environmental protection in order to be a role model for others", and "When I contribute to environmental protection, I feel good". The agreement is measured on a five-point Likert scale ranging from "totally disagree" to "totally agree". For both perceived social norms as well as personal norms, we create a dummy variable for each of the three statements that takes a value of one if respondents indicate to "rather agree" or "totally agree" with a statement and zero if respondents indicate to "totally disagree", "rather disagree", or be "undecided".

The variable *perceived social norm in environmental context* is the sum of the three dummy variables regarding the perceived social norm statements added up and can thus take values from zero to three. We create a dummy variable *high perceived social norm in environmental context* that takes a value of one if respondents score higher than the median for *perceived social norm in environmental context*, and zero if they score below the median. We can compare the measure for perceived social norms to the dependent variable *estimated amount spent on emission certificates* to capture a possible belief update due to the information treatments. Additionally, we create the variable *personal norm in environmental context* that is the sum of

the three dummy variables regarding the personal norm statements added up. Hence, it can take values from zero to three. Similar to the perceived social norm, we further create a dummy variable *high personal norm in environmental context* that takes the value one if respondents score higher than the median for *personal norm in environmental context* and zero if they score below the median.

In addition, we include various variables as control variables for our study. In particular we include variables for other economic preferences, political orientation, equivalized income[3], education, marital status, age, gender, and place of residence. A description of all variables can be found in Table 1.

2.4 Descriptive statistics, sample characteristics and randomization

Table 2 reports selected descriptive statistics for the dependent variables. On average, respondents donate about 30€ for climate protection which corresponds to 30% of their endowment. About 79% of the respondents made a positive donation. Considering only these respondents with positive donations, the average amount donated increases to 39€. These results are in line with Engler et al. (2022) who use a similar German sample in their study. Figure 1 shows the distribution of the total amount of donations for climate protection in our experiment. The distribution reveals two peaks. One at the value of 0€ and one at the value of 50€ which is half of our endowment. Around 21% of our respondents donate nothing to climate protection and keep their endowment for themselves, and around 21% of our respondents donate half of their endowment to climate protection. Only around 6% of our respondents donate the full amount of 100€ to purchase emission allowances.

More detailed information on descriptive statistics of the explanatory variables for the whole sample, as well as for the *control group* and the two treatment groups can be found in the upper part of Table 3. The first column contains the mean and standard deviation for the full sample of 1,751 respondents. The following columns comprise the mean and standard deviation for the *control group* that consists of 701 respondents and the two treatment groups which each consists of 525 respondents. We use mean comparison t-tests to check if our randomization was successful. The bottom part of Table 3 reports the differences in means between the *control group* and the two information groups for each explanatory variable we include and the corresponding t-statistics. On the basis of 57 comparisons, we expect between zero and one

[3] The equivalized income according to the OECD (accessible via https://www.oecd.org/economy/growth/OECD-Note-EquivalenceScales.pdf) is calculated by diving the income by a measure that assigns a value of 1 to the first household member, a value of 0.7 to each additional adult, and a value of 0.5 to each child.

difference to be significantly different from zero at the 1% significance level (i.e., 1% of 57), about three differences to be significantly different from zero at the 5% significance level, and about six differences to be significantly different from zero at the 10% significance level. Table 3 reveals that no difference is significantly different at the 1% significance level, only one difference is significantly different at the 5% significance level, and five differences are significantly different at the 10% significance level. Therefore, the number of significant differences is lower as statistically expected. This finding suggests a successful randomization process.

3. Econometric analysis

3.1 Can information frames increase donations for climate protection?

This section displays our analysis of average treatment effects of the treatment information, as well as treatment effects at the extensive margin. We compare the average donations for climate protection across all three experimental groups to analyze the impact of our information treatments on climate protection donations. Figure 2 shows the descriptive results of the average donation in each experimental group. The average amount donated is 31€ in the *control group* (C), 31€ in the *obligatory social information group* (T1), and around 30€ in the *optional social information group* (T2). These amounts are in line with what other respondents typically donate in dictator games (e.g., Engel, 2011). Corresponding mean comparison t-tests show no significant differences between the average donations for climate protection in the *control group* (C) and the two information groups (the t-statistics for the comparison between C and T1, C and T2, and T1 and T2 are 0.20, -1.02, and -0.79). Therefore, we find no evidence that the information we provide respondents with is relevant, as the amount donated for climate protection in the treatments does not significantly differ from the amount donated in the *control group*.

Our econometric analysis confirms these results. Since our dependent variable *total amount of donations for climate protection* is of quantitative nature, we estimate linear regression models with the ordinary least squares (OLS) method. However, as the variable is restricted to the range between 0€ and 100€, we also estimate Tobit models with maximum likelihood (ML) method due to this corner solution response variable in line with, for example, Fornwagner and Hauser (2022) and Engler et al. (2022). To ensure comparability between the two models, we display estimated marginal and discrete probability effects. Table 4 reports the corresponding estimated parameters (besides heteroskedasticity robust z-statistics) in the linear regression models and

the estimated marginal and discrete effects (besides robust z-statistics) in the Tobit models. In line with our descriptive results, we find no significant effects of the information treatments on the total amount of donations for climate protection, neither in the linear regression model nor in the Tobit model. These results are in line with Engler et al. (2022) who also do not find significant effects of their social information treatments on climate protection donations. These results are further comparable to Löschel et al. (2017) who do not find any significant effect of the provision of social norm information on the demand for climate change mitigation.

With respect to economic preferences, we find significant effects especially for the social preferences trust and altruism. Both are highly significantly positively correlated with donations for climate protection. These results are strongly in line with previous studies (e.g., Ziegler, 2020, 2021; Fischbacher et al., 2021). Regarding environmental attitudes, we find that belief in climate change and high climate knowledge are significantly positively correlated with the amount that is donated to purchase emission allowances. In addition, our results reveal a strong significant positive correlation for ecological policy orientation and climate protection donations. In addition, we find the perceived social norm and the personal norm in environmental contexts to be significantly positively correlated with the amount of donations for climate protection.

Focusing on the *optional social information group*, we find significant differences depending on whether the respondents saw the social information or not. Figure 3 shows the average donations for climate protection in the *optional social information group*. Of the 525 respondents belonging to this group, 112 choose to see the social information we provided them with and 413 choose not to see additional information. Thus, around 79% of respondents in this treatment group chose to remain uninformed. This is in line with research of Dana et al. (2007) and Matthey and Regner (2011), but in contrast to research of Lind et al. (2019) who find that only a share between 5% and 22% remain ignorant in a similar dictator game where the recipient is a charity. The respondents that do not choose to see additional information, donated on average around 28€, whereas those choose to see additional information donated around 35€ on average. A mean comparison t-test shows that this difference is significant at the 5% significance level (the t-statistic is -2.203). This suggests that respondents who actively chose to look at additional social information on average donate more for climate protection compared to respondents who do not look at additional information. These results are supported by our econometric analysis of linear regression and Tobit models which can be found in Table 5. The regression results show that there is a weak significant positive correlation between whether people clicked to see additional social information and the average amount they donated for

climate protection. This finding is in contrast to the results of Andersson et al. (2022) who state that individuals who avoid seeing norm information, donate on average more.

In a next step, we analyze the average treatment effect at the extensive.[4] To do so, we first compare the decision to donate for climate protection across the three experimental groups. Figure 4 show the corresponding descriptive results. The share of respondents who donate positive amounts for climate protection is, with around 80%, the highest in the *obligatory social information group* (T1), followed by a share of around 79% in the *control group* (C). Only around 77% of respondents chose to donate for climate protection in the *optional social information group* (T2). Nonetheless, corresponding mean comparison t-tests show no significant differences between the share of respondents who donate positive amounts for climate protection in the *control group* (C) and the two information groups (the t-statistics for the comparison between C and T1, C and T2, and T1 and T2 are -0.58, 0.87, and -1.36). Therefore, we find no evidence that the information we provide respondents with is a relevant determinant for whether respondents decide to donate for climate protection.

Our econometric analysis confirms these results. As the dependent variable *positive donations for climate protection* is a binary variable, we estimate a binary probit model with the ML method. The estimated average marginal and discrete probability effects (besides robust z-statistics) are reported in Table 6. In line with the results presented in Table 4, we do not find any significant effects for the information treatments on the probability of donating for climate protection. These results are in line with Engler et al. (2022). Consequently, we do not find any evidence at the extensive margin that the use of social information, obligatory or optional, can stimulate the willingness to donate for climate protection. With regard to economic preferences, altruism is strongly significantly positively correlated with the probability of making positive donations for climate protection. For variables describing the environmental attitude, climate knowledge and the belief in climate change are also significantly positively correlated with the probability of making positive donations for climate protection. In addition, we find a significant positive correlation between perceived social and personal norms in an environmental context and the probability to make positive donations for climate protection.

Taking only the *optional social information group* into consideration, we do find significant differences depending on whether the respondents clicked to see the social information or not. Figure 5 shows the share of respondents donating for climate protection in the *optional social*

[4] As robustness check we also estimate a two-equation hurdle model. However, the results are very similar to the estimation results in probit and Tobit models.

information group. Of the 112 respondents who chose to see additional social information, a share of around 90% donated for climate protection, whereas of the 413 respondents who chose not to see additional social information a share of around 73% donated for climate protection. A mean comparison t-test shows that this difference is significant at the 1% significance level (the t-statistic is -3.79). These results are supported by our econometric analysis of binary probit models which can be found in Table 7. The regression results show that there is a highly significantly positive correlation between people that clicked to see additional social information and the probability of donating for climate protection. This suggests that individuals who actively choose to look at additional social information are more likely to donate for climate protection. Additional estimation results of the intensive margin can be found in Table A1in the online appendix.

3.2 Can social norm information treatments impact perceived social norms in an environmental context?

Goeschl et al. (2018) find that providing social information has an effect on the perception of descriptive norms. To see if this holds true in our environmental context, we examine the expected amount of donations for climate protection of other respondents. Since we (possibly) present respondents with the information how much other respondents of a similar study donated for climate protection, the respondents of the treatment groups might update their beliefs about how much other respondents donate on average and thus resolve prevailing misperceptions. The correction of such misperceptions can lead to an increase in pro-social decisions (Bursztyn et al., 2020), as perceived social descriptive norms have a direct effect on behavior (Dannenberg et al., 2024). Hence, we compare the expected amount of donations for climate protection of other respondents across all three experimental groups to analyze the impact of our information treatments on the expected social descriptive norm.

Figure 8 shows the descriptive results of the expected amount of donations for climate protection of other respondents in each experimental group. In the *control group* and in the *obligatory social information group* (T1), respondents expect other respondents to donate around 31€ for climate protection. In the *optional social information group* (T2), they expect other respondents to donate around 30€. Corresponding mean comparison t-tests show no significant differences between the expected amount of donations for climate protection of other respondents in the *control group* (C) and the two information groups (the t-statistics for the comparison between C and T1, C and T2, and T1 and T2 are 0.34, 0.58, and -0.27). Therefore,

we find no evidence that the information we provide respondents with has an impact on the expected amount of donations for climate protection of other respondents.

Our econometric analysis in Table 8 confirms these results. In addition, our results show that the perceived social norm in environmental context is significantly positively correlated with the expected amount of donations for climate protection of other respondents. Considering these results, we expect respondents to have a good intuition about the descriptive social norm with regard to donation behavior for climate protection. As there are no underlying misperceptions, they cannot be resolved by our information treatments. Interestingly, we do not find a significant correlation for the personal norm in an environmental context. Thus, the personal norm does not seem to determine the expectation regarding the social descriptive norm for climate protection donations. In line with our results above, we do not find significant differences for the expected amount of donations for climate protection of other respondents in the *optional social information group* depending on whether the respondents saw the social information or not which is displayed in Figure 9.

4. Conclusion

Many studies have used social norm information treatments to analyze their effect on specific forms of pro-environmental or pro-social behavior (e.g., Engler et al., 2022; Doskeland and Pedersen, 2016; Allcott, 2011; Ferraro et al., 2011; Goldstein et al., 2008, for a review see Farrow et al., 2017). Nonetheless, all these studies take as given that individuals want to receive further information before making a decision. These studies do not account for the fact that individuals deliberately might decide to choose not to obtain additional information. Therefore, we give respondents in our study the opportunity to decide whether they want to receive additional social information or not. This approach allows us to analyze whether the deliberate choice of receiving further information has an impact on donation behavior for climate protection. In comparing this treatment to a treatment with obligatory social information, we can examine if letting respondents decide whether to see more information is more effective than "forcing" respondents to consider social information to change behavior.

Our study is based on a representative online survey among about 1,751 individuals in Germany that was conducted in April 2020. For this purpose, we look at emission allowances that can be bought from the European Emission Trading System (EU-ETS) to reduce greenhouse gas emissions. We base our experimental design on a standard dictator game in which respondents can decide how much of their initial endowment they want to keep for themselves and how much they want to donate to buy emission allowances and thus reduce greenhouse gas

emissions. Respondents are randomly allocated to the *control group*, the *obligatory social information group*, or the *optional social information group*. Depending on the group, respondents receive different information prior to their donation decision. Respondents in the *control group* do not receive any information prior to their donation decision. Respondents in the *obligatory social information group* receive information about the donation behavior of other respondents in a similar study. Respondents in the *optional social information group* can choose whether they want to see the same social information as in the *obligatory social information group*. All respondents receive an initial endowment of 100€ which they can allocate between themselves and the donation for climate protection. Respondents are informed that 15 of them will be randomly selected and for each of them their donation decisions are realized, and actual emission allowances are bought to reduce greenhouse gas emissions.

Overall, we do not find any significant effects of both our information treatments, obligatory and optional, on the decision of whether to donate and how much to donate for climate protection. However, we can draw the conclusion that the respondents in the *optional social information group* that actually choose to see additional social information, have a higher probability to donate and, on average, donate more for climate protection compared to the respondents that did not see additional social norm information. Moreover, we do not find any evidence that the information the *obligatory social information* and *optional social information group* has an impact on the respondents' expectation on how much other respondents would donate for climate protection.

As the social norm information, we provide respondents with, state that respondents are willing to donate around 31% on average, and we see in our sample that, independent of the treatment, respondents on average donate around 31€, the social norm information might not be strong enough to influence behavior. Especially since there seem to be no misperceptions regarding the donation behavior of others that are resolved by our information treatments. As respondents behave already in accordance with the social norm, the additional information might not be valuable to individuals. Referring to the work of Bicchieri (2020) and Chen and Li (2009), this result might also be attributed to a lack of social proximity or group identity, since the social information is relatively vaguely formulated. As Grossman and Van der Weele (2017) show, the combination of information pointing out the social benefits of a decision and raising (self-) image concerns might be more effective to counteract information avoidance and increase the effectiveness of information provision.

In future research, we would like to transfer our insights regarding information avoidance to an environmental topic that is more controversial, for example speed limits, for which additional information could lead to important changes in behavior towards more pro-environmental decisions, but for which the acquisition of information is more inconvenient. This could be connected to the work of Matthey and Regner (2011) who state that there is more research needed to disentangle social preferences and cognitive dissonance in a setting with prevailing information avoidance. We would like to analyze how these cognitive dissonances could be resolved and how we can nudge respondents to be willing to acquire more information on that specific topic.

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Tables

Table 1: Variable definitions

Variables	Definitions
Total amount of donations for climate protection	Continuous variable that represents the amount (between 0 and 100) respondents indicate to buy emission allowances with
Positive donations for climate protection	Dummy variable that takes the value of one if respondent makes positive donations
Expected donations for climate protection	Amount of the 100€ that respondents think other respondents in this survey spent on average to purchase of emission certificates
Obligatory social information	Dummy variable that takes the value of one if respondent belong to the obligatory social information treatment group
Optional social information	Dummy variable that takes the value of one if respondent belong to the optional social information treatment group
Clicked to see additional social norm information	Dummy variable that takes the value of one if respondent in the optional social information treatment group clicked to see additional social information
High perceived social norm in environmental context	Dummy variable that takes the value of one if respondent scores higher than the median for the following statement: "Society expects me to contribute to environmental protection", "My environment (friends, family, colleagues) makes a contribution to environmental protection", and "Others who make their own contribution to environmental protection benefit from my contribution"
High perceived personal norm in environmental context	Dummy variable that takes the value of one if respondent scores higher than the median for the following statement: "I feel responsible for contributing to environmental protection", "I contribute to environmental protection in order to be a role model for others", and "When I contribute to environmental protection, I feel good"
Altruism	Dummy variable that takes the value of one if respondent states to be rather or very willing to give to a good cause without expecting anything in return
Trust	Dummy variable that takes the value of one if the respondent scores higher than the median for the following statement: "In general, one can trust people", "Nowadays one cannot rely on anyone", and "When dealing with strangers, it is better to be careful before you trust them".
Patience	Dummy variable that takes the value of one if respondent states to be rather or completely willing to give up something that benefits them today to benefit more in the future
Risk averse	Dummy variable that takes the value of one if respondent states to be rather not or not at all willing to take risks
Environmental awareness	Dummy variable that takes the value of one if respondent rather or totally agree with the following positively framed statements and totally or rather disagree with the following negatively framed statements: "Humans have the right to modify the natural environment to suit their needs", "humans are severely abusing the planet", "plants and animals have the same right to exist as humans", "nature is strong enough to cope with the impacts of modern industrial nations", "humans were meant to rule over the rest of nature", and "the balance of nature is very delicate and easily upset"
Belief in climate change	Dummy variable that takes the value of one if respondents indicate that they think climate change is already taking place and / or will take place in the future
High climate knowledge	Dummy variable that takes the value of one if respondents are able to answer more of the following questions correctly than the median: "Carbon dioxide is a gas in the earth's atmosphere, created during plant growth", "Greenhouse gases are gases in the earth's atmosphere that absorb a large part of the sunlight arriving on earth", "The concentration of carbon dioxide (CO2) in the earth's atmosphere has remained relatively stable since the beginning of the industrial revolution 150 years ago", "Changes in the concentration of carbon dioxide (CO2) in the earth's atmosphere

	contribute to a change in the mean temperature on earth", and "Changes in the methane concentration in the earth's atmosphere contribute to a change in the mean temperature on earth"
Ecological policy orientation	Dummy variable that takes the value one if the participant rather or totally agrees with ecological policies
Social policy orientation	Dummy variable that takes the value one if the participant rather or totally agrees with social policies
Liberal policy orientation	Dummy variable that takes the value one if the participant rather or totally agrees with liberal policies
Conservative policy orientation	Dummy variable that takes the value one if the participant rather or totally agrees with conservative policies
Equivalized income	Income divided by a measure that assigns a value of 1 to the first household member, a value of 0.5 to each additional adult, and a value of 0.3 to each child
High education	Dummy variable that takes the value one if the participant has at least a university entrance degree
Married or living together	Dummy variable that takes the value one if the participant is married of living together
Age	Age of the participant in years
Female	Dummy variable that takes the value one if the participant is female
West	Dummy variable that takes the value one if the participant lives in the former West German federal states, including Berlin

Table 2: Descriptive statistics for the dependent variables

Dependent variables	Number of respondents	Mean	Standard deviation	Minimum	Maximum
Total amount of donations for climate protection	1,751	30.57	28.11	0	100
Positive donations for climate protection	1,751	0.79	0.41	0	1
Total amount of donations conditional on positive donations	1,380	38.79	26.15	1	100
Expected donations for climate protection	1,751	30.61	20.46	0	100

Table 3: Descriptive statistics for the explanatory variables

	Mean (standard deviation)			
	Full sample	Control group (C)	Obligatory social information treatment (T1)	Optional social information treatment (T2)
High perceived social norm in environmental context	0.242 (0.429)	0.255 (0.436)	0.227 (0.419)	0.240 (0.427)
High perceived personal norm in environmental context	0.459 (0.498)	0.454 (0.498)	0.472 (0.500)	0.453 (0.498)
Altruism	0.638 (0.481)	0.652 (0.477)	0.632 (0.483)	0.625 (0.485)
Trust	0.477 (0.500)	0.469 (0.500)	0.486 (0.500)	0.480 (0.500)
Patience	0.597 (0.491)	0.612 (0.488)	0.592 (0.492)	0.581 (0.494)
Risk averse	0.485 (0.500)	0.502 (0.500)	0.467 (0.500)	0.482 (0.500)
Environmental awareness	0.351 (0.477)	0.382 (0.486)	0.347 (0.476)	0.314 (0.465)
Belief in climate change	0.909 (0.288)	0.917 (0.276)	0.901 (0.299)	0.905 (0.294)
High climate knowledge	0.679 (0.467)	0.695 (0.461)	0.691 (0.462)	0.646 (0.479)
Ecological policy orientation	0.461 (0.499)	0.486 (0.500)	0.436 (0.496)	0.451 (0.498)
Social policy orientation	0.597 (0.491)	0.599 (0.490)	0.587 (0.493)	0.606 (0.489)
Liberal policy orientation	0.343 (0.475)	0.342 (0.475)	0.345 (0.476)	0.343 (0.475)
Conservative policy orientation	0.240 (0.427)	0.235 (0.425)	0.250 (0.433)	0.236 (0.425)
Equivalized income	1,686.22 (1,018.29)	1,668.76 (1,045.75)	1,725.80 (947.67)	1,669.94 (1,049.65)
High education	0.359 (0.480)	0.345 (0.476)	0.341 (0.474)	0.396 (0.490)
Married or living together	0.583 (0.493)	0.601 (0.490)	0.577 (0.494)	0.564 (0.496)
Age	49.934 (16.342)	50.280 (16.038)	50.230 (16.954)	49.177 (16.125)
Female	0.496 (0.500)	0.505 (0.500)	0.484 (0.500)	0.495 (0.500)
West	0.828 (0.378)	0.819 (0.385)	0.853 (0.354)	0.813 (0.390)
Number of respondents	1,751	701	525	525

Table 3 (continued): Descriptive statistics for the explanatory variables

	Difference in means (t-statistics)		
	C versus T1	C versus T2	T1 versus T2
High perceived social norm in environmental context	0.029 (1.158)	0.015 (0.615)	0.013 (0.510)
High perceived personal norm in environmental context	-0.019 (-0.651)	0.000 (0.011)	-0.019 (-0.618)
Altruism	0.020 (0.707)	0.027 (0.980)	-0.008 (-0.255)
Trust	-0.040 (-0.758)	0.016 (0.308)	-0.055 (-1.007)
Patience	0.020 (0.694)	0.031 (1.097)	-0.011 (-0.376)
Risk averse	0.035 (1.229)	0.020 (0.701)	0.015 (0.494)
Environmental awareness	0.036 (1.281)	0.068** (2.470)	-0.032 (-1.115)
Belief in climate change	0.016 (0.988)	0.012 (0.764)	0.004 (0.208)
High climate knowledge	0.003 (0.124)	0.049* (1.812)	-0.046 (-1.574)
Ecological policy orientation	0.050* (1.747)	0.035 (1.215)	0.015 (0.497)
Social policy orientation	0.012 (0.440)	-0.007 (-0.232)	0.019 (0.629)
Liberal policy orientation	-0.002 (-0.087)	-0.000 (-0.018)	-0.002 (-0.065)
Conservative policy orientation	-0.014 (-0.572)	-0.001 (-0.033)	-0.013 (-0.503)
Equivalized income	-57.040 (-0.983)	-1.187 (-0.020)	-55.852 (-0.905)
High education	0.004 (0.156)	-0.051* (-1.833)	0.055* (1.856)
Married or living together	0.023 (0.825)	0.037 (1.292)	-0.013 (-0.436)
Age	0.049 (0.052)	1.102 (1.188)	-1.053 (-1.032)
Female	0.021 (0.734)	0.010 (0.338)	0.011 (0.370)
West	-0.035 (-1.606)	0.005 (0.246)	-0.040* (-1.740)
Number of respondents	1,226	1,226	1,050

Note: * (**, ***) means that the difference in the means between the experimental groups on the basis of a mean comparison t-test is different from zero at the 10 % (5 %, 1 %) significance level, respectively.

Table 4: OLS estimates (heteroskedasticity robust z-statistics) in linear regression models and ML estimates of average marginal and discrete effects (robust z-statistics) in Tobit models, dependent variable: Total amount of donations for climate protection, 1,751 respondents

Explanatory variables	Total amount of donations for climate protection	
	Linear regression model	Tobit model
Obligatory social information	0.216 (0.14)	0.216 (0.14)
Optional social information	-0.673 (-0.43)	-0.673 (-0.43)
High perceived social norm in environmental context	3.383** (2.05)	3.383** (2.06)
High perceived personal norm in environmental context	2.853* (1.94)	2.853* (1.95)
Altruism	8.582*** (6.03)	8.582*** (6.06)
Trust	3.331** (2.45)	3.331** (2.47)
Patience	-0.817 (-0.58)	-0.817 (-0.59)
Risk averse	-1.654 (-1.23)	-1.654 (-1.24)
Environmental awareness	2.278 (1.53)	2.278 (1.54)
Belief in climate change	4.430** (2.00)	4.430** (2.01)
High climate knowledge	3.951** (2.52)	3.951** (2.54)
Ecological policy orientation	5.714*** (3.59)	5.714*** (3.61)
Social policy orientation	0.165 (0.11)	0.165 (0.11)
Liberal policy orientation	-1.415 (-0.97)	-1.415 (-0.97)
Conservative policy orientation	-0.904 (-0.55)	-0.904 (-0.56)
Equivalized income	0.001 (0.93)	0.001 (0.94)
High education	-0.144 (-0.10)	-0.144 (-0.10)
Married or living together	2.866** (2.14)	2.866** (2.15)
Age	0.069 (1.55)	0.069 (1.56)
Female	0.450 (0.33)	0.450 (0.33)
West	1.470 (0.86)	1.470 (0.86)
Number of respondents	1,751	

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.

Table 5: OLS estimates (heteroskedasticity robust z-statistics) in linear regression models and ML estimates of average marginal and discrete effects (robust z-statistics) in Tobit models for the optional social information group only, dependent variable: Total amount of donations for climate protection, 525 respondents

Explanatory variables	Total amount of donations for climate protection	
	Linear regression model	Tobit model
Clicked to see additional social norm information	5.029* (1.88)	5.029* (1.92)
High perceived social norm in environmental context	2.029 (0.68)	2.029 (0.69)
High perceived personal norm in environmental context	-0.094 (-0.04)	-0.094 (-0.04)
Altruism	8.393*** (3.24)	8.393*** (3.30)
Trust	2.443 (1.00)	2.443 (1.02)
Patience	-0.807 (-0.30)	-0.807 (-0.31)
Risk averse	-2.525 (-1.04)	-2.525 (-1.06)
Environmental awareness	-1.953 (-0.67)	-1.953 (-0.68)
Belief in climate change	8.907** (2.26)	8.907** (2.30)
High climate knowledge	7.180** (2.53)	7.180** (2.58)
Ecological policy orientation	4.960* (1.72)	4.960* (1.75)
Social policy orientation	-0.670 (-0.24)	-0.670 (-0.24)
Liberal policy orientation	2.856 (1.07)	2.856 (1.10)
Conservative policy orientation	0.085 (0.03)	0.085 (0.03)
Equivalized income	0.000 (0.29)	0.000 (0.30)
High education	-2.235 (-0.88)	-2.235 (-0.89)
Married or living together	0.322 (0.13)	0.322 (0.14)
Age	-0.046 (-0.58)	-0.046 (-0.59)
Female	3.139 (1.31)	3.139 (1.33)
West	-2.690 (-0.87)	-2.690 (-0.89)
Number of respondents	525	

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.

Table 6: ML estimates of average marginal and discrete probability effects (robust z-statistics) in binary probit models, dependent variable: Positive donations for climate protection (extensive margin), 1,751 respondents

Explanatory variables	Positive donations for climate protection
	Binary probit model
Obligatory social information	0.022 (1.00)
Optional social information	-0.008 (-0.37)
High perceived social norm in environmental context	0.051** (2.13)
High perceived personal norm in environmental context	0.038* (1.78)
Altruism	0.146*** (6.49)
Trust	0.030 (1.58)
Patience	-0.021 (-1.08)
Risk averse	-0.010 (-0.52)
Environmental awareness	-0.014 (-0.64)
Belief in climate change	0.092** (2.56)
High climate knowledge	0.067*** (2.96)
Ecological policy orientation	0.035 (1.50)
Social policy orientation	0.032 (1.42)
Liberal policy orientation	0.016 (0.75)
Conservative policy orientation	-0.018 (-0.77)
Equivalized income	-0.000 (-0.57)
High education	-0.009 (-0.41)
Married or living together	0.036* (1.87)
Age	0.001 (0.85)
Female	0.032 (1.61)
West	0.007 (0.29)
Number of respondents	1,751

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.

Table 7: ML estimates of average marginal and discrete probability effects (robust z-statistics) in binary probit models for the optional social information group only, dependent variable: Positive donations for climate protection (extensive margin), 525 respondents

Explanatory variables	Positive donations for climate protection
	Binary probit model
Clicked to see additional social norm information	0.152*** (4.39)
High perceived social norm in environmental context	0.025 (0.57)
High perceived personal norm in environmental context	0.042 (1.09)
Altruism	0.155*** (3.80)
Trust	0.026 (0.75)
Patience	-0.041 (-1.13)
Risk averse	-0.057* (-1.65)
Environmental awareness	-0.049 (-1.19)
Belief in climate change	0.226*** (3.19)
High climate knowledge	0.091** (2.24)
Ecological policy orientation	0.033 (0.72)
Social policy orientation	0.026 (0.63)
Liberal policy orientation	0.026 (0.67)
Conservative policy orientation	0.019 (0.47)
Equivalized income	0.000 (0.78)
High education	-0.029 (-0.77)
Married or living together	0.020 (0.61)
Age	-0.002 (-1.42)
Female	0.021 (0.62)
West	-0.069* (-1.78)
Number of respondents	525

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.

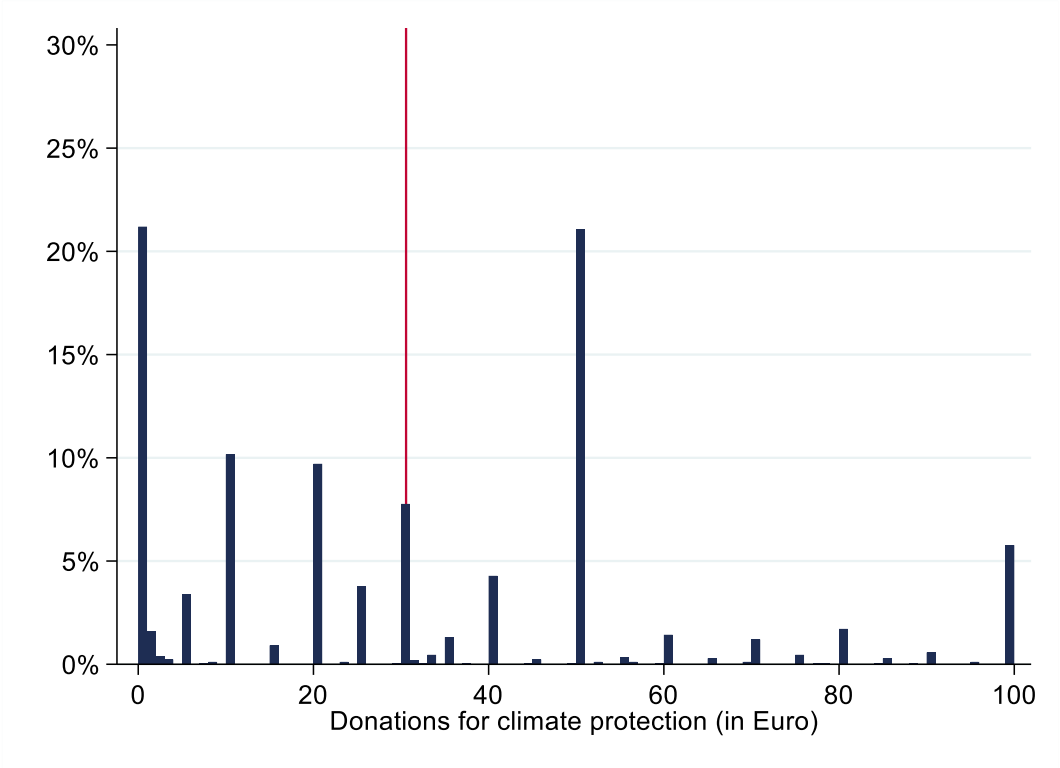
Table 8: OLS estimates (heteroskedasticity robust z-statistics) in linear regression models and ML estimates of average marginal and discrete effects (robust z-statistics) in Tobit models, dependent variable: Expected amount for donations for climate protection of other respondents, 1,751 respondents

Explanatory variables	Expected amount for donations for climate protection of other respondents	
	Linear regression model	Tobit model
Obligatory social information	-0.295 (-0.26)	-0.295 (-0.26)
Optional social information	-0.171 (-0.14)	-0.171 (-0.14)
High perceived social norm in environmental context	2.443** (2.02)	2.443** (2.03)
High perceived personal norm in environmental context	0.233 (0.21)	0.233 (0.21)
Other explanatory variables	Included	
Number of respondents	1,751	

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.

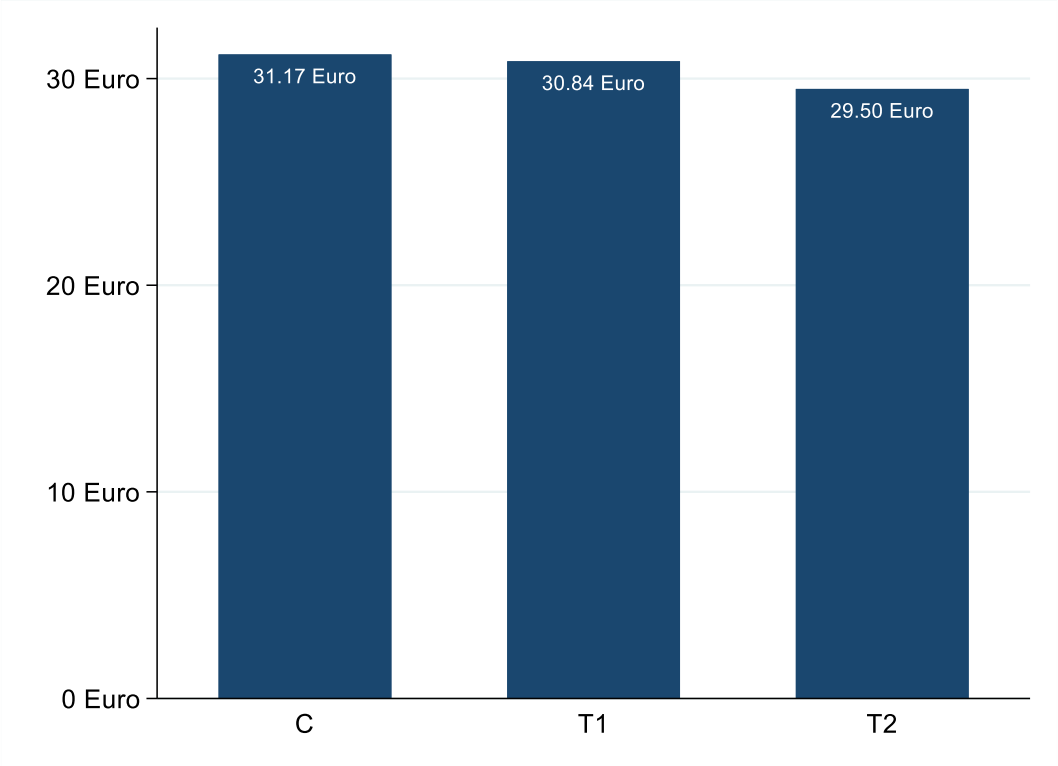
Figures

Figure 1: Distribution of the total amount donated to buy emission allowances over all treatment groups



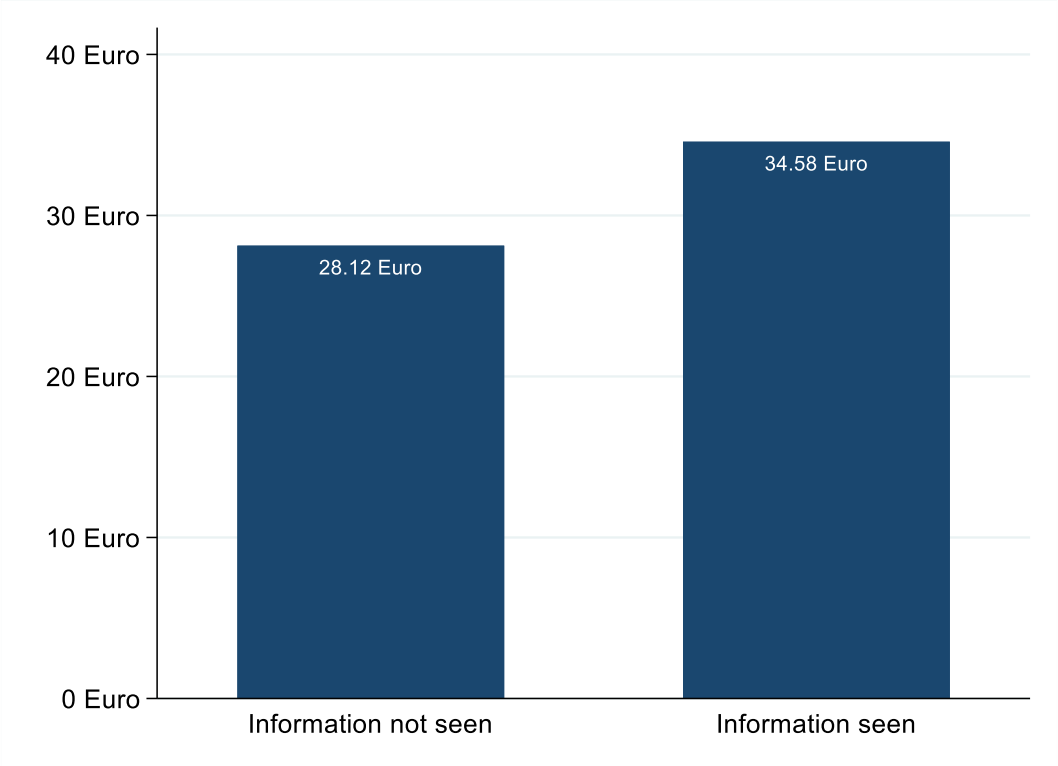
Note: The red line represents the mean of 30.57€.

Figure 2: Average donations for climate protection



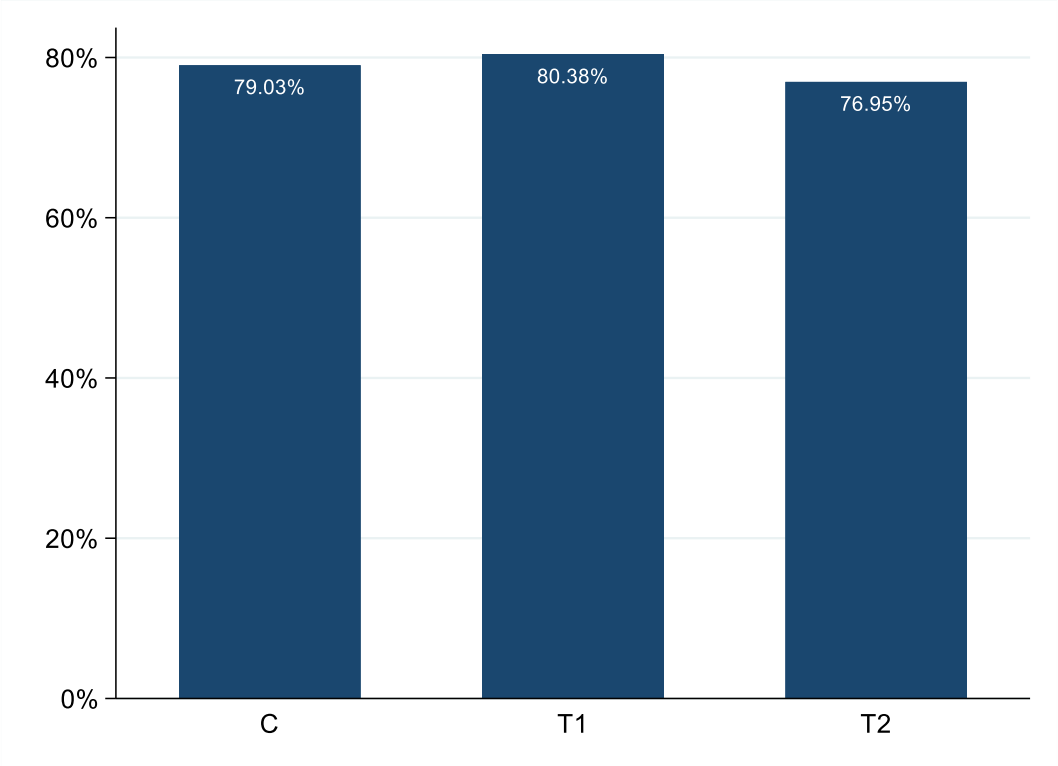
Note: The figure shows the average donations for climate protection (in Euro) for the 701 respondents in the control group (C), the 525 respondents in the obligatory social information treatment group (T1), and the 525 respondents in the optional social information treatment group (T2).

Figure 3: Average donations for climate protection in the optional social information group



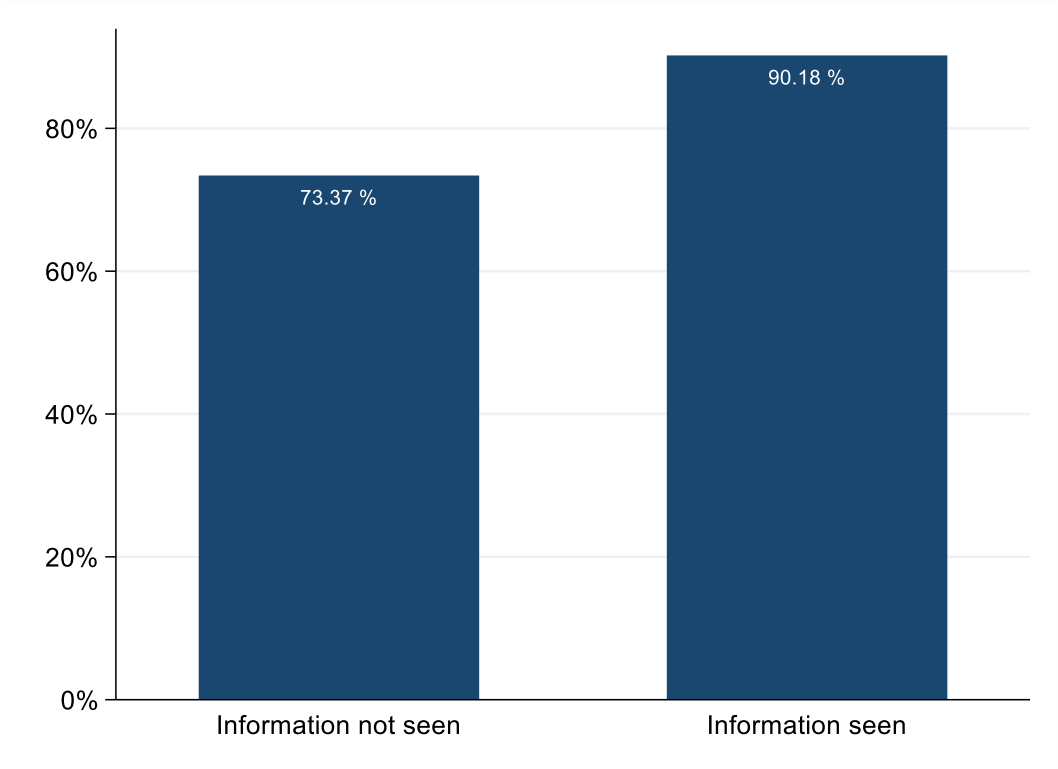
Note: The figure shows the average donations for climate protection (in Euro) for the 525 respondents in the optional social information treatment group (T2) divided by whether they chose to see the social information or not.

Figure 4: Shares of respondents who donate for climate protection



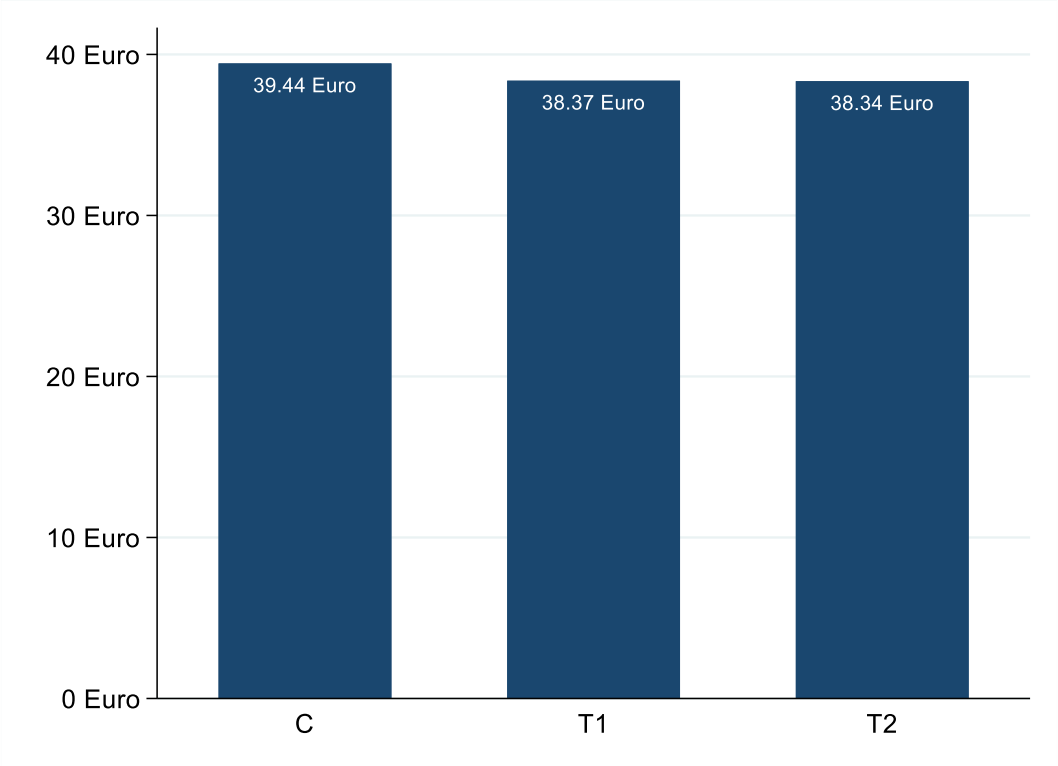
Note: The figure shows the shares of respondents (in %) who donate for climate protection for the 701 respondents in the control group (C), the 525 respondents in the obligatory social information group (T1) and the 525 respondents in the optional social information group (T2).

Figure 5: Shares of respondents who donate for climate protection in the optional social information group



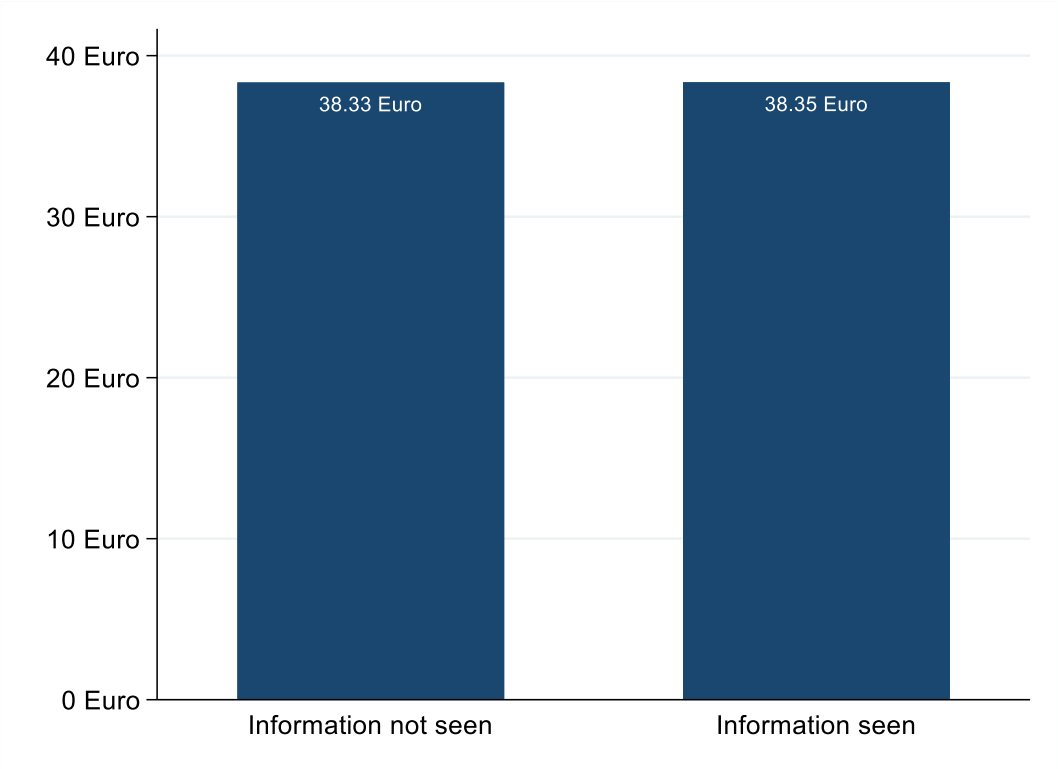
Note: The figure shows the shares of respondents (in %) who donate for climate protection for the 525 respondents in the optional social information group (T2) divided by whether they chose to see the social information or not.

Figure 6: Total amount of donation conditional on positive donations



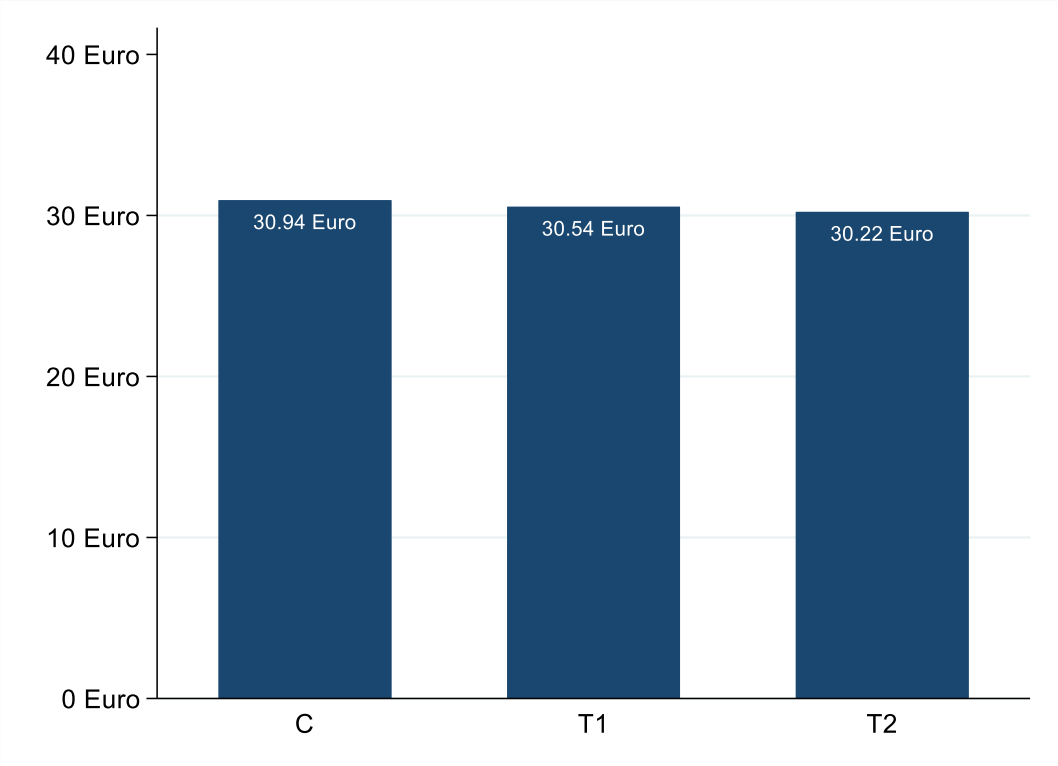
Note: The figure shows the average donations for climate protection conditional on positive donations (in Euro) for the 554 respondents in the control group (C), the 422 respondents in the obligatory social information treatment group (T1), and the 404 respondents in the optional social information treatment group (T2).

Figure 7: Total amount of donation conditional on positive donations in the optional social information group



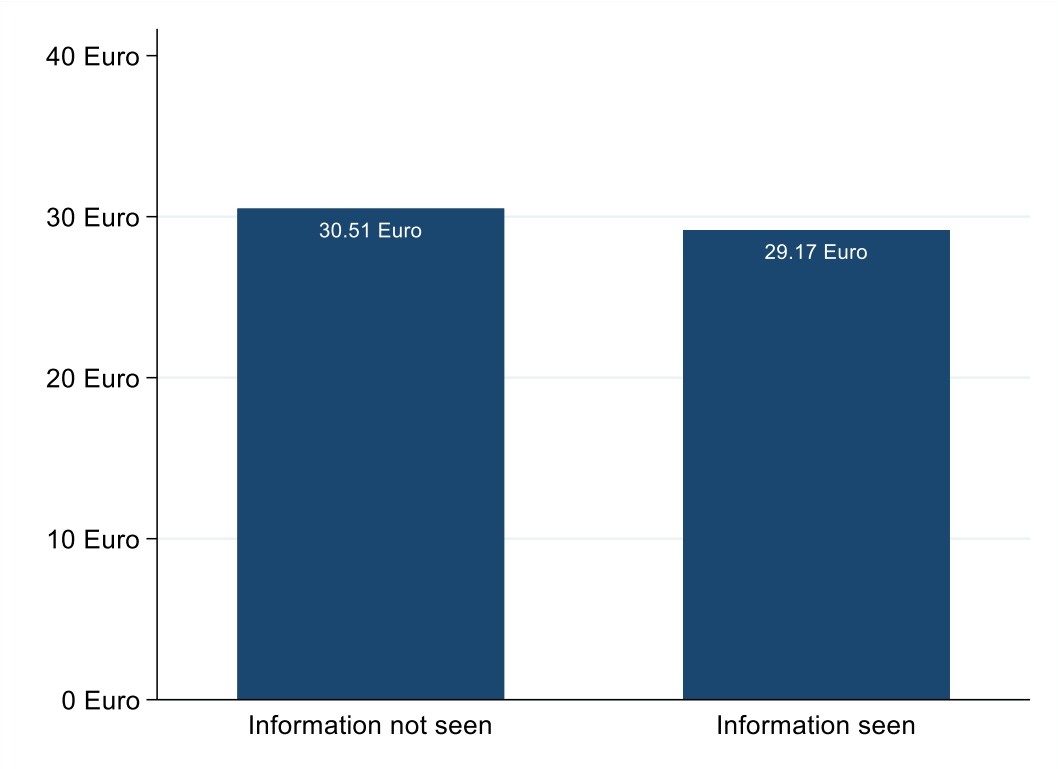
Note: The figure shows the average donations for climate protection conditional on positive donations (in Euro) for the 404 respondents in the optional social information treatment group (T2) divided by whether they chose to see the social information or not.

Figure 8: Expected amount for donations for climate protection of other respondents



Note: The figure shows the expected amount for donations for climate protection of other respondents (in Euro) for the 701 respondents in the control group (C), the 525 respondents in the obligatory social information treatment group (T1), and the 525 respondents in the optional social information treatment group (T2).

Figure 9: Expected amount for donations for climate protection of other respondents in the optional social information group



Note: The figure shows the expected amount for donations for climate protection of other respondents for the 506 respondents in the optional social information treatment group (T2) divided by whether they chose to see the social information or not.

Online Appendix: Supplementary tables

Table A1: OLS estimates (heteroskedasticity robust z-statistics) in linear regression models and ML estimates of average marginal and discrete effects (robust z-statistics) in Tobit models, dependent variable: Total amount of donation conditional on positive donations, 1,380 respondents

Explanatory variables	Total amount of donation conditional on positive donations	
	Linear regression model	Tobit model
Obligatory social information	-0.822 (-0.50)	-0.822 (-0.50)
Optional social information	-0.559 (-0.32)	-0.559 (-0.33)
High perceived social norm in environmental context	2.061 (1.23)	2.061 (1.24)
High perceived personal norm in environmental context	1.872 (1.22)	1.872 (1.23)
Altruism	4.189*** (2.65)	4.189*** (2.67)
Trust	2.654* (1.84)	2.654* (1.85)
Patience	-0.045 (-0.03)	-0.045 (-0.03)
Risk averse	-1.614 (-1.10)	-1.614 (-1.10)
Environmental awareness	3.409** (2.16)	3.409** (2.17)
Belief in climate change	1.806 (0.63)	1.806 (0.64)
High climate knowledge	1.918 (1.12)	1.918 (1.13)
Ecological policy orientation	5.484*** (3.27)	5.484*** (3.29)
Social policy orientation	-1.331 (-0.79)	-1.331 (-0.80)
Liberal policy orientation	-2.467 (-1.61)	-2.467 (-1.62)
Conservative policy orientation	-0.228 (-0.13)	-0.228 (-0.13)
Equivalized income	0.001* (1.68)	0.001* (1.69)
High education	0.170 (0.11)	0.170 (0.11)
Married or living together	1.847 (1.27)	1.847 (1.28)
Age	0.066 (1.40)	0.066 (1.41)
Female	-0.782 (-0.54)	-0.782 (-0.54)
West	1.619 (0.87)	1.619 (0.88)
Number of respondents	1,380	

Note: *** (**, *) indicates that the estimated parameters are significantly different from zero at the 1% (5%, 10%) significance level.