

Stick it to the rich? Experimental evidence on the effect of targeting the wealthy to increase the acceptance and the financial support of non-violent civil disobedience actions

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Abstract

This paper examines how the immediate targets of non-violent civil disobedience and information about carbon inequality influence public acceptance of climate protests and support for related climate policies. Using a large-scale lab-in-the-field experiment with 5,200 participants in Germany, we randomly exposed participants to images of non-violent civil disobedience targeting either average citizens (e.g., obstructing traffic) or wealthy individuals (e.g., defacing a private jet). Participants were also provided with information comparing their carbon footprints to those of either average citizens or billionaires to emphasize disparities in climate impact between both groups. Our findings show that acceptance of non-violent civil disobedience is generally low, and financial support for organizations associated with these actions, such as Fridays for Future and the Last Generation, is significantly lower than for other environmental groups like Greenpeace and WWF. However, acceptance slightly increases when protests target wealthy individuals, particularly when paired with information highlighting the disproportionate emissions of billionaires compared to average citizens. Despite this modest increase in acceptance, we find no significant effect on financial contributions to organizations linked to non-violent civil disobedience or on support for stricter climate policies. These results suggest that while targeting wealthy individuals and emphasizing carbon inequality can modestly improve public attitudes toward non-violent civil disobedience, these strategies have limited potential to generate broader public support or tangible financial backing for climate protest movements.

1. Introduction

Addressing climate change and its negative impacts on people, society, and the economy poses a major challenge for humanity. At the core of this challenge lies the effective reduction of greenhouse gas emissions, which is only feasible with well-coordinated international climate policy measures (e.g., Nordhaus, 2019). Despite this necessity, many countries have fallen short of meeting the emission targets outlined in the Paris Agreement (Victor et al., 2017; Sognaes et al., 2021). Substantial mitigation efforts beyond current climate policies are essential to limit the global temperature rise to below two degrees Celsius (Meinshausen et al., 2022). This challenge is further complicated by the unequal distribution of emissions responsibility, with wealthier individuals and nations contributing disproportionately to global greenhouse gas emissions (Wiedenhofer et al., 2017; Barros and Wilk, 2021). Therefore, in the absence of sufficient policy measures, social movements have emerged to bridge the gap between political promises and actual mitigation efforts, particularly among younger people (Nash and Steurer, 2021; Svensson and Wahlström, 2023).

Social movements have historically succeeded in driving transformative social change, yet debates persist over which protest tactics are most effective in achieving their goals (Ostarek et al., 2024). Maintaining a high level of public pressure on policymakers has become a central strategy to secure the commitment of political actors to meet existing emission targets and support more ambitious climate goals (Nisbett et al., 2024). Social movements such as Fridays for Future and the Last Generation employ various forms of protest not only to encourage government action but also to promote individual engagement in climate action. Recent movements have adopted civil resistance strategies, notably non-violent civil disobedience, where activists intentionally break laws or challenge authorities without violence—such as by gluing themselves to infrastructure or defacing property (Orazani and Leidner, 2019; Feinberg et al., 2020). Moreover, social movements frequently emphasize the need for climate solutions that not only target systemic change but also address the inequities in responsibility for and impacts of climate change.

Although actions of non-violent civil disobedience effectively capture public attention for climate issues, they do not consistently translate into broader support for climate policies. Extreme or disruptive protest tactics can sometimes reduce public support for social movements, for example, by alienating moderate sympathizers and reinforcing negative stereotypes of activists (Bashir et al., 2013; Thomas and Louis, 2014; Wang and Piazza, 2016; Feinberg et al., 2020). Feinberg et al. (2020) found that extreme protest actions can decrease identification with protest movements and reduce the willingness to support the goals of the protest movements. In addition, there are often skeptical reactions from the public to these protest movements, which are frequently referred to with derogatory terms such as “Klimakleber” (Climate Glue), and are sometimes even met with acts of violence (Focus, 2023). This public skepticism may have fueled political backlash, potentially contributing to the criminalization of protest movements (Gulliver et al., 2023) and undermining their effectiveness in driving policy change, particularly when average citizens are the immediate targets of such protests (Feinberg et al., 2020).

In response to these challenges, some protest movements have adjusted their strategies and refrain from actions that inconvenience average citizens (Süddeutsche Zeitung, 2024). Instead, some have sought to redirect public attention to the disproportionate emissions of wealthier individuals (Wiedenhofer et al., 2017; Ivanova and Wood, 2020; Barros and Wilk, 2021; Starr et al., 2023). For example, recent protests focus on symbolic actions such as gluing themselves next to private jets to highlight the stark contrast in carbon emissions (Tagesspiegel, 2024). This shift toward highlighting inequality in carbon emissions could be particularly effective in increasing the support for climate protests and policies, as research shows that many people struggle to accurately assess their own carbon footprints relative to others and underestimate the level of carbon inequality (Camilleri et al., 2019; Nielsen et al., 2024), but also that information about others strongly affects own attitudes and behavior (Nyborg et al., 2016; Farrow et al., 2017).

This raises important questions about the impact and effectiveness of protest movements: Do people support non-violent civil disobedience as a legitimate means to promote climate protection? How does information about such actions influence individual support for climate policy measures? How do different immediate targets of non-violent civil disobedience (average citizens versus wealthy individuals) and the emphasis on inequality in carbon emissions affect public support for non-violent civil disobedience and related climate policy measures?

To address these questions, we conducted a lab-in-the-field experiment to examine the effects of different forms of non-violent civil disobedience on the individual support for such protests and related climate policies, using a broadly representative sample of the population (Falk and Heckman, 2009). Participants were randomly exposed to images depicting either non-violent civil disobedience actions that directly affect average citizens – that is, activists gluing themselves to roads to disrupt traffic - or actions targeting extremely wealthy individuals, that is, defacing a private jet with paint. To explore the role of inequality in shaping perceptions, we combined the manipulation of immediate protest targets with two types of social information about carbon footprints. Participants were shown either the carbon footprints of average citizens or those of wealthy individuals. This allowed participants to compare their own carbon footprints to those of others and highlighted the disproportionate impact of the very wealthy on climate change—specifically twelve billionaires whose combined emissions total nearly 17 million tons, surpassing the emissions of 2.1 million households (Barros and Wilk, 2021).

We find that acceptance of non-violent civil disobedience is generally low among participants. Financial contributions to movements associated with such actions, like Fridays for Future and the Last Generation, are also limited compared to donations to organizations such as Greenpeace, WWF, or Robin Wood, which account for about 90% of all contributions in our sample. However, acceptance of non-violent civil disobedience significantly increases when the immediate targets of the protests are wealthy individuals. This increase is even more pronounced when participants are presented with information highlighting the disproportionate climate impact of billionaires compared to that of average citizens. Despite this increased acceptance, we do not find evidence that making people aware of the

difference in carbon footprints between average citizens and billionaires changes their support for climate policy measures. Our manipulation checks reveal that participants exposed to protests targeting wealthy individuals, particularly when combined with information on the disproportionate climate impact of billionaires, are significantly more likely to recognize the responsibility of the wealthy for greenhouse gas emissions, while the effects on perceived efficacy of public protests are modest and limited to specific treatment groups. Overall, these findings suggest that public skepticism toward non-violent civil disobedience can be slightly mitigated when actions emphasize the inequality in carbon footprints between wealthy individuals and average citizens, but they also indicate that such information does not necessarily translate into greater support for climate policy measures.

By highlighting the significant emissions of wealthy individuals and observing increased acceptance of protest targeting them, our study contributes to the literature on how inequality influences public support for environmental policies and actions (e.g., Brekke and Johansson-Stenman, 2008; McCall et al., 2017). Specifically, we show that individuals exposed to non-violent civil disobedience targeting wealthy individuals, coupled with information emphasizing the inequality in carbon footprints between average citizens and billionaires, are more likely to accept such protests as a legitimate means of promoting climate protection. However, this increased acceptance does lead to a stronger support for stricter climate policies.

Our study also contributes to existing research on the impact of protest diversity within social movements and the effectiveness of different protest tactics in raising awareness of climate issues (e.g., Thomas and Louis, 2014; Feinberg et al., 2020). These studies show that extreme protest actions, such as blocking highways or vandalizing property, often reduce public support for both the movements and their causes due to perceptions of immorality and reduced social identification. In contrast, our findings reveal that public support for non-violent civil disobedience slightly increases when the immediate targets of the protests are wealthy individuals rather than average citizens, especially when information about inequality in carbon emissions is provided. This suggests that highlighting emission inequality partially counteracts the negative reactions often associated with non-violent civil disobedience.

In addition, we contribute to the literature on the effects of social information in shaping environmental attitudes, behaviors, and policy support (e.g., Goldstein et al., 2008; Allcott, 2011; Ferraro and Price, 2013; Drews and van den Bergh, 2016). By providing participants with information about the carbon footprints of average citizens and billionaires, our study highlights how awareness of others' environmental impacts influences individual support for climate protest movements and climate policy measures. Notably, we find that emphasizing the disproportionate climate impact of wealthy individuals increases support of non-violent civil disobedience targeting wealthy individuals. However, this increased acceptance does not translate into greater financial contributions to movements associated with these actions.

The remainder of the paper is organized as follows: Section 2 presents the survey structure, experimental design, and variables used in our empirical analysis. Section 3 outlines hypotheses for the econometric analyses, while Section 4 presents the descriptive statistics and the main econometric results. Lastly, Section 5 discusses the findings, and Section 6 concludes the paper by providing policy implications.

2. Survey structure, experimental design, and variables

We base our analysis on a large lab-in-the-field experiment, which was implemented through an online survey among 5,200 individuals in Germany. The survey was carried out in collaboration with a professional market research institute. The survey's target group consists of individuals aged 18 or older. All participants received a fee paid in panel points (the market research institute's reward system) for their participation in the survey and had the chance to win additional money in the experiment. At the start of the survey, each respondent gave explicit consent to participate and had the option to opt out at any point during the survey. The sample was stratified with respect to age, gender, region (at the state level), and education.

2.1. Survey structure

The survey consisted of four different sections (A-D): Part A included questions about the age, gender, education, and place of residence of respondents which were used to stratify the sample so that it is representative of the German population in terms of these characteristics. Part B featured questions about respondents' prior and posterior beliefs concerning the effectiveness of climate protection activities and various forms of climate protests, as well as questions for calculating each respondent's individual CO₂ footprint. This section also contained statements on agreement with non-violent civil disobedience, included the dictator game experiment, and measures for individual climate policy support. Part C encompassed measures of other individual characteristics, such as economic preferences and personal attitudes. The concluding section, Part D, consisted of additional questions on the socio-demographic and socio-economic backgrounds of our respondents.

2.2. Experimental design

After the screening questions in Part A of the survey and questions about respondents' prior beliefs as well as questions for calculating each respondent's individual CO₂ footprint in Part B of the survey, participants were randomly assigned to one of five experimental groups in a between-subject design. The experimental group assignment was conducted through simple randomization, ensuring a target sample size of about 1,000 for each group¹ and without participants' knowledge by the survey questionnaire software. The control group received information on climate protest and its motivations:

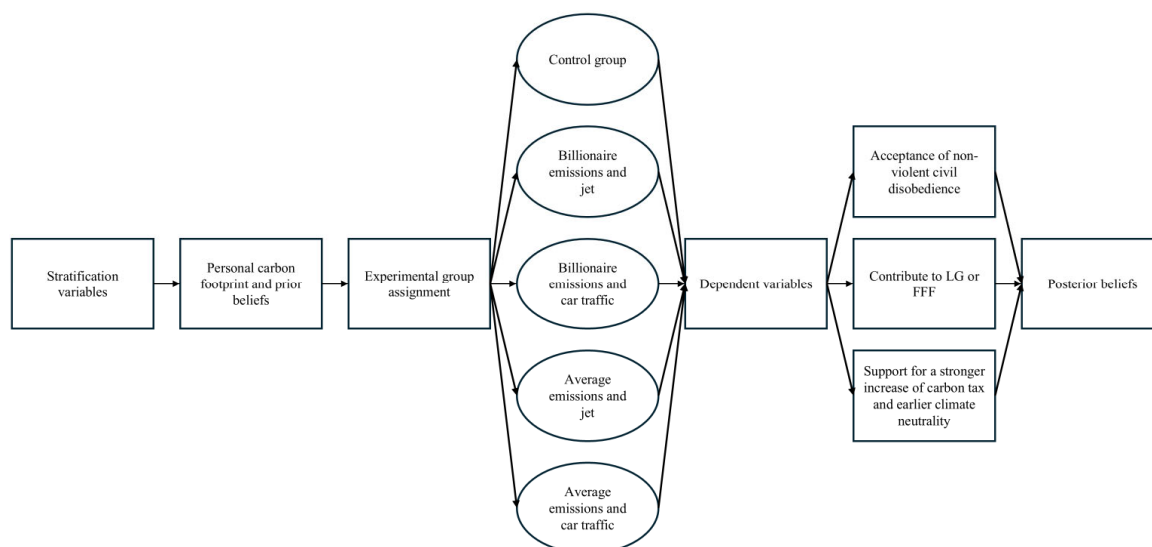
¹ Based on Haaland et al. (2023), we aimed for a sample size of 1,000 respondents per experimental group in our study. Our power analysis with G*Power 3.1.9.7 indicates that we can detect an increase of 12 percentage points in the dependent variables for (1) Acceptance of civil disobedience and 2) Support for climate policy measures), assuming a baseline proportion of 20% agreement in the control group. This is with a power of 90% in logistic regression models with 1,000 respondents per experimental group. In our linear regression models, we are able to detect an effect size of $f^2 = 0.01$ with a power of 90% with 1,000 respondents per experimental group.

Non-violent civil disobedience is a political protest form where people intentionally disobey certain laws, regulations, or government authorities without using violence or physical aggression. Environmental organizations and climate protest movements use non-violent civil disobedience to draw attention to environmental issues and climate change. They emphasize the need for immediate and sustained action to address the climate crisis and protect our planet for future generations.

In addition to the provided information, there are four experimental groups that differ in the information they receive about the personal carbon footprint compared to that of a wealthy or average person, as well as in the target of the climate protest. Experimental group one (*Billionaire emissions and jet*) receives information about their personal carbon footprint relative to the carbon emissions of billionaires combined with an image of a private jet as the target of climate protest, suggesting that the target of the protest is a wealthy person. Experimental group two (*Billionaire emissions and car traffic*) receives information about their personal carbon footprint relative to the carbon emissions of billionaires, combined with an image of people taped up in a public street for a climate protest, suggesting that the target of the protest is average persons. Experimental group three (*Average emissions and jet*) is provided with information about their carbon footprint in comparison to an average person's carbon footprint, combined with an image of a private jet as the target of a climate protest, again suggesting that the target of the protest is a wealthy person. Experimental group four (*Average emissions and car traffic*) is provided with information about their personal carbon footprint relative to the average person's carbon footprint, combined with an image of people taped up in a public street for a climate protest, again suggesting that the target of the protest are average persons.

Participants then directly proceeded with indicating their agreement with non-violent civil disobedience and then with the incentivized dictator game as the main part of our study, in which donations for climate protection are considered as contributions to public goods. On the first screen of the experiment, we described the basic setting to the respondents. Participants were informed that they could earn some extra money with a bit of luck. Specifically, they learned that 120 participants would be randomly drawn to win €50 each (about 2% of respondents) after the survey. Participants were also informed that they could choose to keep the entire amount for themselves, donate it all to an organization dedicated to climate protection, or split it between these two options. This approach aligns with previous studies using probabilistic incentives (e.g., Diederich and Goeschl, 2017; Falk et al., 2021). Additionally, participants were assured that they would receive immediate notification after the survey and that their allocation decisions regarding the €50 were guaranteed to be carried out. Due to the random selection process for the incentives, we emphasized that respondents should make decisions as if they were certain to be chosen.

Figure 1: Study design



2.3. Dependent variables

The dependent variables relate to individuals' attitudes toward non-violent civil disobedience, supporting protests financially by donating to organizations involved in climate protection, and support for climate policies (see Table A1 in the appendix for a detailed description of the dependent variables).

The scale for measuring non-violent civil disobedience based on nine items exhibits excellent internal consistency (Cronbach's alpha = 0.89), with 52% of the total variance attributable to the first principal component (see Table A1 in the appendix for more details on the nine items). Therefore, the scale can be considered one-dimensional. For this reason, we interpret the mean of the nine items as a composite scale of the acceptance of non-violent civil disobedience. The corresponding variable is *Acceptance of non-violent civil disobedience*.²

To elicit financial support for organizations involved in climate protection, we used a dictator game where participants were given the opportunity to allocate their €50 endowment entirely to themselves, donate it entirely to one of several non-governmental organizations, or split it between these two options in €5 increments. We created the dummy variable *Contribute to LG or FFF*, which takes the value of one if a respondent chooses to donate to "The Last Generation" or "Fridays for Future," and zero otherwise. These organizations are known for their involvement in non-violent civil disobedience, which is central to our study. (See Table A1 in the appendix for more details on the construction of the variable

² We initially pre-registered to consider each of the nine statements on non-violent civil disobedience individually in our empirical analysis. However, due to the reasons outlined earlier, and because all statements have a correlation of at least 0.35, we use the composite scale in our analysis. The estimation results for the individual statements are nonetheless provided in Tables A3–A7 in the appendix.

Contribute to LG or FFF and the non-governmental organizations that participants could choose to donate to.)

Concerning support for climate policies, we use two dependent variables based on respondents' support for two specific climate policy measures. The first climate policy measure refers to support for a stronger increase in carbon taxes. The corresponding dependent variable *Support for a stronger increase of carbon tax* takes the value of one if the respondent rather or completely agreed with the statement "The price for carbon dioxide emissions (CO₂ price), currently €30 per tonne, should increase more than originally planned in future," with "do not agree at all," "rather disagree," "undecided," "rather agree," and "completely agree" as answer options.

The second climate policy measure refers to support for an earlier climate neutrality in Germany. The corresponding dependent variable *Support for earlier climate neutrality* takes the value of one if the respondent rather or completely agreed with the statement "Germany should become carbon-neutral in 2035 instead of the currently planned year 2045," with "do not agree at all," "rather disagree," "undecided," "rather agree," and "completely agree" as answer options.

2.4. Further variables

The main explanatory variables in the econometric analysis relate to the experimental groups. We construct five dummy variables, namely *Control group*, *Billionaire emissions and jet*, *Billionaire emissions and car traffic*, *Average emissions and jet*, and *Average emissions and car traffic*, which take the value of one if a respondent was assigned to the corresponding experimental group, and zero otherwise, respectively. We also construct two aggregate treatment dummy variables. The *Average emissions* dummy variable takes the value of one if a respondent was assigned to one of the two experimental groups *Average emissions and jet* and *Average emissions and car traffic*, and zero otherwise. The *Billionaire emissions* dummy variable takes the value of one if a respondent was assigned to one of the two experimental groups *Billionaire emissions and jet* and *Billionaire emissions and car traffic*, and zero otherwise. The dummy variable *Car traffic* takes the value of one if a respondent was assigned to one of the two experimental groups *Billionaire emissions and car traffic* and *Average emissions and car traffic*, and zero otherwise. Lastly, the dummy variable *Jet* takes the value of one if a respondent was assigned to one of the two experimental groups *Billionaire emissions and jet* and *Average emissions and jet*, and zero otherwise.

In addition, we consider several individual characteristics to ensure that there are no significant differences between the experimental groups regarding participants' beliefs, CO₂ emissions, and socio-demographic characteristics (see Table A.2 for more details on these variables and whether they were measured before or after the treatment assignment).

3. Hypotheses

Targeting wealthy individuals

Given the public debate on the inequality in carbon footprints between average citizens and the very wealthy (Wiedenhofer et al., 2017; Ivanova and Wood, 2020; Barros and Wilk, 2021), our first set of hypotheses is that directing non-violent civil disobedience toward wealthy individuals will increase acceptance of and financial support for non-violent civil disobedience among the general population:

- **H1a:** When individuals are made aware that non-violent civil disobedience targets wealthy individuals, they are more likely to accept it as a means of promoting climate protection.
- **H1b:** When individuals are made aware that non-violent civil disobedience targets wealthy individuals, they are more likely to financially support movements associated with such actions, such as Fridays for Future and the Last Generation.
- **H1c:** When individuals are made aware that non-violent civil disobedience targets wealthy individuals, they are more likely to support stricter climate policy measures.

Awareness of carbon inequality

Since people often underestimate the level of carbon inequality (Beiser-McGrath and Busemeyer, 2023), providing information about this disparity may affect the acceptance of and support for non-violent civil disobedience. Our second set of hypotheses suggests that increasing awareness of the disproportionate climate impact of the wealthy will enhance acceptance and financial support for non-violent civil disobedience:

- **H2a:** When individuals are informed about the disparity between their own carbon emissions and those of billionaires, they are more likely to accept non-violent civil disobedience as a method of advocating for increased climate protection.
- **H2b:** When individuals are informed about the disparity between their own carbon emissions and those of billionaires, they are more likely to financially support movements that advocate for increased climate protection through non-violent civil disobedience, such as Fridays for Future and the Last Generation.
- **H2c:** When individuals are informed about the disparity between their own carbon emissions and those of billionaires, they are more likely to support stricter climate policy measures.

Combination of targeting wealthy individuals and awareness of carbon inequality

Our third set of hypotheses proposes that combining the targeting of wealthy individuals with increased awareness of their disproportionate emissions will be particularly effective in enhancing acceptance of and financial support for non-violent civil disobedience. This combined approach may amplify the public's concern about carbon inequality and lead to greater acceptance of and support for non-violent civil disobedience. We propose the following hypotheses:

- **H3a:** When individuals are informed that non-violent civil disobedience targets wealthy individuals and are made aware of the disparity between billionaires' carbon emissions and their

own, they are more likely to accept non-violent civil disobedience as a method of advocating for increased climate protection.

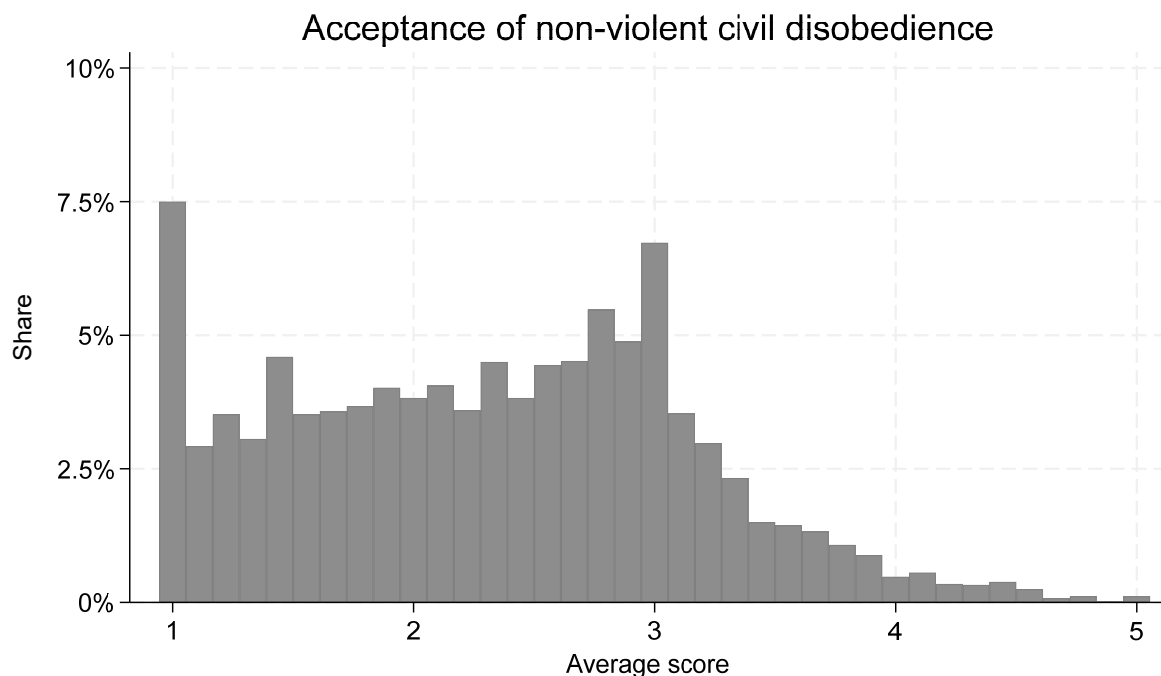
- **H3b:** When individuals are informed that non-violent civil disobedience targets wealthy individuals and are made aware of the disparity between billionaires' carbon emissions and their own, they are more likely to financially support movements associated with such actions, such as Fridays for Future and the Last Generation.
- **H3b:** When individuals are informed that non-violent civil disobedience targets wealthy individuals and are made aware of the disparity between billionaires' carbon emissions and their own, they are more likely to support stricter climate policy measures.

4. Empirical analysis

4.1. Data description

Our sample comprises 5,200 individuals from Germany, stratified by age, gender, region, and education to ensure representativeness. The overall acceptance of non-violent civil disobedience among participants is relatively low, with a mean score of 2.31 on a scale from 1 to 5. Figure 2 indicates that the overwhelming majority of participants have a mean score between 1 and 3, while only a few respondents have a score higher than 3, indicating that they, on average, are in favor of non-violent civil disobedience.

Figure 2: Acceptance of non-violent civil disobedience



Financial support for movements associated with non-violent civil disobedience, such as Fridays for Future and the Last Generation, is limited. Overall, only 4% of participants chose to donate to these organizations. This aligns with our earlier observations of low acceptance levels. In contrast, the

majority of donations were directed toward more traditional environmental organizations like Greenpeace, WWF, and Robin Wood, which accounted for about 90% of all donations in our sample.

Support for more ambitious climate policies, including a stronger increase in the carbon tax and earlier climate neutrality, remains mixed. Overall, only 24% of participants rather or completely support raising the carbon tax rate beyond current plans. Meanwhile, 41% of respondents rather or completely support accelerating climate neutrality from 2045 to 2035. This indicates somewhat higher support for earlier decarbonization than for higher carbon taxes, but the majority of respondents are still either undecided or do not support stricter climate policies.

Before the assignment to the different experimental groups, about 25% of our participants select “approximately 50%” (the correct answer according to Chancel, 2022) when they are asked to assess what percentage of global greenhouse gas emissions is caused by the wealthiest 10% of the world’s population. However, this level of accuracy is only marginally better than random guessing, given that there were five possible response options with only one correct answer. Regarding the efficacy of public protests, about 40% of the participants agree that protests are an effective means to influence political decisions in Germany.

After the assignment to the different experimental groups, about 65% of participants rather or strongly agree that the wealthiest segments of the population in Germany contribute significantly to emissions. In addition, approximately 25% of participants rather or strongly agree that public protests have contributed to the implementation of stricter climate policy measures in Germany. Therefore, respondents perceive the efficacy of public protests to be, at best, modest.

The average annual carbon footprint among participants is 10.26 tons of CO₂ equivalent, which aligns closely with the national average of approximately 11 tons per capita in Germany (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection, 2023). This suggests that our sample is representative in terms of carbon footprint.

Demographically, the sample is balanced with respect to gender (50% female) and includes about 20% of participants from East Germany. On average, respondents are about 47 years old. About 23% of participants hold a university degree. Individuals with an income above the sample median income class constitute 46% of the sample. These numbers are mostly consistent with official population statistics (German Federal Statistical Office, 2023a; 2023b).

Table 1 presents the summary statistics for key variables across the experimental groups. The randomization process was successful, as there are only very few significant differences in individual characteristics that were measured before the assignment to the different experimental groups (the corresponding test results are available upon request).

Table 1: Descriptive statistics by experimental group

Variable	Total sample		Control group		Billionaire emissions and jet		Billionaire emissions and car traffic		Average emissions and jet		Average emissions and car traffic	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
<i>Panel A: Dependent variables</i>												
Acceptance of non-violent civil disobedience	2.31	0.83	2.43	0.81	2.37	0.86	2.23	0.82	2.30	0.84	2.21	0.83
Contribute to LG or FFF	0.04	0.20	0.04	0.20	0.03	0.18	0.04	0.19	0.05	0.21	0.05	0.21
Support for a stronger increase of carbon tax	0.24	0.43	0.22	0.41	0.23	0.42	0.25	0.43	0.24	0.43	0.24	0.43
Support for earlier climate neutrality	0.41	0.49	0.41	0.49	0.40	0.49	0.41	0.49	0.41	0.49	0.42	0.49
<i>Panel B: Individual characteristics measured before assignment to experimental groups</i>												
Prior belief: Emissions by wealthy individuals	0.25	0.43	0.27	0.44	0.24	0.43	0.25	0.43	0.25	0.43	0.25	0.43
Prior belief: Protests	0.40	0.49	0.39	0.49	0.40	0.49	0.39	0.49	0.40	0.49	0.39	0.49
Carbon footprint (in yearly tons CO ₂ e)	10.26	6.83	10.06	4.94	10.01	5.71	10.15	6.97	10.45	7.21	10.60	8.69
Age	47.18	15.65	47.24	15.72	47.62	15.62	47.29	15.45	47.61	15.89	46.18	15.54
Female	0.50	0.50	0.50	0.50	0.49	0.50	0.49	0.50	0.51	0.50	0.50	0.50
University degree	0.23	0.42	0.24	0.42	0.22	0.41	0.23	0.42	0.22	0.42	0.22	0.41
High income	0.46	0.50	0.45	0.50	0.46	0.50	0.47	0.50	0.46	0.50	0.47	0.50
East	0.20	0.40	0.19	0.39	0.21	0.40	0.19	0.39	0.22	0.42	0.20	0.40
<i>Panel C: Individual characteristics measured after assignment to experimental groups</i>												
Posterior belief: Emissions by wealthy individuals	0.65	0.48	0.59	0.49	0.70	0.46	0.71	0.45	0.64	0.48	0.60	0.49
Posterior belief: Protests	0.25	0.43	0.24	0.43	0.27	0.45	0.23	0.42	0.27	0.44	0.23	0.42
Number of observations	5,200		1,051		1,023		1,028		1,047		1,051	

Note: Panel A reports the dependent variables used in our analysis. Panel B shows individual characteristics that were measured before the assignment to the different experimental groups. Panel C individual characteristics that were measured after the assignment to the different experimental groups.

4.2. Manipulation checks

To assess the effectiveness of our experimental manipulations, we measured participants' beliefs regarding the disproportionate climate impact of wealthy individuals and the efficacy of public protests after the treatment assignment. Specifically, we used the variables *Posterior belief: Emissions by wealthy individuals* and *Posterior belief: Protests* (see Table A.2 in the appendix for more details on these variables). Table 2 displays the estimated discrete probability effects (along with robust z-statistics) of the aggregate treatments in binary probit models on posterior beliefs about emissions by the wealthy individuals and the efficacy of climate protests.

Treatment effects on beliefs about emissions by wealthy individuals

As shown in the first column of Table 2, compared to the control group, participants who saw protests targeting either private jets or car traffic are significantly more likely to believe that the wealthiest population groups are responsible for a large portion of Germany's greenhouse gas emissions. This suggests that visual exposure to protest targets, regardless of whether they affect wealthy individuals or average citizens, increases awareness of the rich's contribution to emissions.

The second column of Table 2 highlights that these effects are mainly driven by information about the emissions of billionaires. Participants who received information about the disproportionate emissions of billionaires (*Billionaire emissions and jet* and *Billionaire emissions and car traffic* groups) are significantly more likely to believe that the richest population groups are responsible for a large portion of Germany's greenhouse gas emissions. In contrast, the corresponding effect is only marginally significant (on the 10% level) for the experimental groups that saw the carbon footprint of an average person (*Average emissions and jet* and *Average emissions and car traffic* groups).

Furthermore, the third column of Table 2 shows that the combination of billionaire emissions information with both protest targets (*Billionaire emissions and jet* and *Billionaire emissions and car traffic*) resulted in significant increases in the probability—by about 11 and 12 percentage points, respectively—of believing that the richest population groups are responsible for a large portion of Germany's greenhouse gas emissions. Notably, even the combination of average emissions information with the jet protest image (*Average emissions and jet*) led to a modest increase in this probability by about 5 percentage points. Additional estimation results show that the effect of the *Average emissions and jet* treatment is significantly weaker than for both treatments that included billionaire emissions information.

These findings confirm that our manipulations effectively heightened awareness of the disproportionate climate impact of the wealthiest population groups, particularly when the protest imagery targeted wealthy individuals. The combination of information about billionaire emissions and protests targeting the wealthy appears to have the strongest effect on altering beliefs about wealthy individuals' responsibility for greenhouse gas emissions.

Treatment effects on beliefs about the efficacy of public protests to change climate policy

As shown in the three models on the right side of Table 2, the estimation results for the impact on beliefs about the efficacy of public protests show no significant differences between the experimental groups at the 5% significance level. However, at the 10% significance level, the effects for the *Jet* treatments and the *Billionaire emissions and jet* treatment are statistically different from zero.

Specifically, compared to the control group, participants who were exposed to protests targeting private jets (*Jet* treatments) are marginally more likely to believe that public protests have contributed to the implementation of stronger climate policy measures in Germany. The corresponding discrete probability effect is positive and significant at the 10% level.

Similarly, the combination of information about billionaire emissions with protests targeting wealthy individuals (*Billionaire emissions and jet* treatment) shows a marginally significant positive effect on participants' beliefs about the efficacy of public protests. This suggests that when participants are both informed about the disproportionate emissions of billionaires and see protests targeting the wealthy, they are slightly more inclined to perceive public protests as effective in influencing climate policy.

In contrast, the *Car traffic* treatments, *Billionaire emissions and car traffic* treatment, and the *Average emissions* treatments, did significantly affect beliefs about the efficacy of public protests, even at the 10% significance level. This indicates that visual exposure to protests affecting average citizens or providing information about average emissions does not significantly alter participants' perceptions of protest effectiveness.

Overall, these findings suggest that our experimental manipulations had a limited effect on participants' beliefs regarding the efficacy of public protests. However, there is some evidence that targeting wealthy individuals in protest imagery, especially when combined with information about their disproportionate climate impact, can modestly enhance the perceived effectiveness of public protests among participants.

These results align with our earlier observations on the impact of treatments on beliefs about the emissions by the rich, reinforcing the notion that combining visual protest targets with information about carbon inequality can influence public perceptions, albeit to a limited extent in the context of beliefs about the efficacy of protests to influence climate policy.

Taken together, our manipulation checks indicate that the treatments primarily increase the awareness of the disproportionate climate impact of the wealthy. This heightened awareness is most effective when combined with protest imagery targeting wealthy individuals, leading to stronger beliefs about the rich's responsibility for greenhouse gas emissions. While the treatments had limited effect on beliefs about the efficacy of public protests, targeting wealthy individuals modestly enhanced perceptions of protest effectiveness. Thus, emphasizing carbon inequality, especially when protests focus on the wealthy, appears to be the key channel through which the treatments influence participants' attitudes.

Table 2: Manipulation checks

	Posterior belief: Emissions by rich	Posterior belief: Emissions by rich	Posterior belief: Emissions by rich	Posterior belief: Protests	Posterior belief: Protests	Posterior belief: Protests
<i>(Base: Control group)</i>						
Jet	0.08*** (4.71)			0.03 (1.81)		
Car traffic	0.07*** (3.77)			-0.01 (-0.83)		
Billionaire emissions		0.12*** (6.86)			0.01 (0.69)	
Average emissions		0.03 (1.80)			0.01 (0.35)	
Billionaire emissions and jet			0.11*** (5.87)			0.03 (1.68)
Billionaire emissions and car traffic			0.12*** (6.29)			-0.01 (-0.55)
Average emissions and jet			0.05* (2.54)			0.03 (1.43)
Average emissions and car traffic			0.01 (0.62)			-0.02 (-0.89)
Number of observations	5,200	5,200	5,200	5,200	5,200	5,200

Note: *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level.

4.3. The effect of target and norms on the acceptance of non-violent civil disobedience and the financial support of LG and FFF

To examine whether directing non-violent civil disobedience towards wealthy individuals has a measurable positive effect on acceptance of such actions and financial support for organizations advocating for enhanced climate protection, we compare participants exposed to an image of a private jet covered in paint (*Jet* treatments) with those shown protesters glued to the street, stopping car traffic (*Car traffic* treatments).

Model 1 in Table 3 presents the treatment effects estimated using a linear regression model where the dependent variable is *Acceptance of non-violent civil disobedience*. Models 2, 3, and 4 show estimates of discrete probability effects from binary probit regression models where the dependent variables are *Contribute to LG or FFF*, *Support for a stronger increase of carbon tax*, and *Support for earlier climate neutrality*. The control group serves as a reference point for the interpretation of the dummy variables that identify the different experimental groups in all models.

As shown in Table 3, there are significant differences between the *Jet* and *Car traffic* treatments regarding acceptance of non-violent civil disobedience. Specifically, for participants in the *Jet* treatments, the scale for measuring non-violent civil disobedience is 0.11 points higher compared to those in the *Car traffic* treatments. This suggests that when non-violent civil disobedience targets wealthy individuals, acceptance of such actions is higher among the general population.

In contrast, the results for financial contributions to LG or FFF show no statistically significant difference between the *Jet* and *Car Traffic* treatments. Similarly, our analysis of support for stricter climate policy measures suggests that there is no difference in support between these experimental groups. This indicates that, although targeting wealthy individuals increases acceptance of non-violent civil disobedience, it does not translate into greater financial support for organizations associated with these actions or stronger support for stricter climate policy measures.

Overall, these findings support hypothesis H1a, but not H1b and H1c. While making individuals aware of protests where wealthy individuals are the immediate targets increases acceptance of non-violent civil disobedience (H1a), it does not significantly impact financial contributions to organizations like LG and FFF (H1b) or support for stricter climate policy measures (H1c).

Table 3: Effect of information that wealthy individuals are immediate targets of non-violent civil disobedience on the acceptance of and financial support for non-violent civil disobedience and the support for climate policies

	Acceptance of non-violent civil disobedience	Contribute to LG or FFF	Support for a stronger increase of carbon tax	Support for earlier climate neutrality
<i>(Base: Car traffic)</i>				
Jet	0.11*** (4.32)	-0.00 (-0.29)	-0.01 (-0.61)	-0.01 (-0.45)
Control group	0.21*** (6.72)	-0.00 (-0.25)	-0.03 (-1.65)	-0.00 (-0.14)
Intercept	2.22*** (122.74)			
Number of observations	5,200	5,200	5,200	5,200

Note: *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level.

To examine whether increasing awareness of the disproportionate climate impact of wealthy individuals strengthens acceptance of non-violent civil disobedience and financial support for organizations like the Last Generation and Fridays for Future, we compare the effects of providing participants with information about billionaires' carbon emissions relative to their own carbon footprint (*Billionaire emissions* treatments) versus information about the average citizen's emissions (*Average emissions* treatments).

Model 1 in Table 4 presents the treatment effects estimated using a linear regression model with *Acceptance of non-violent civil disobedience* as the dependent variable. Models 2, 3, and 4 again show estimates of discrete probability effects from binary probit regression models where the dependent variables are *Contribute to LG or FFF*, *Support for a stronger increase of carbon tax*, and *Support for earlier climate neutrality*. In both models, the control group serves as a reference point for comparison.

As shown in Table 4, exposure to the billionaire emissions information, when compared to the average emissions information, does not yield a significant effect on acceptance of non-violent civil disobedience or financial support for organizations advocating for enhanced climate protection at the 5% significance level. However, at the 10% significance level, participants in the *Billionaire emissions* treatments are marginally more likely to accept non-violent civil disobedience. Conversely, at the 10% significance level, participants in the *Billionaire emissions* treatments are marginally less likely to contribute financially to LG or FFF. Again, we find no statistically significant difference between the treatments regarding support for stricter climate policy measures.

These results suggest that making participants aware of the disparity between billionaires' carbon emissions and their own marginally increases acceptance of non-violent civil disobedience, it may simultaneously decrease financial support for organizations associated with such actions. Therefore, raising awareness of carbon inequality appears to marginally increase acceptance of non-violent civil disobedience (weak evidence for H2a). However, it does not increase (in contrast, even slightly decrease) financial support for movements like LG and FFF (H2b) or the support for stricter climate policy measures (H3c).

Table 4: Effect of information about the disparity between own carbon emissions and those of billionaires on the acceptance of and financial support for non-violent civil disobedience and the support for climate policies

	Acceptance of non-violent civil disobedience	Contribute to LG or FFF	Support for a stronger increase of carbon tax	Support for earlier climate neutrality
<i>(Base: Average emissions)</i>				
Billionaire emissions	0.05 (1.89)	-0.01 (-1.93)	0.00 (0.01)	-0.01 (-0.59)
Control group	0.18*** (5.68)	-0.01 (-0.90)	-0.02 (-1.39)	-0.00 (-0.20)
Intercept	2.25*** (123.91)			
Number of observations	5,200	5,200	5,200	5,200

Note: *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level.

To examine the effectiveness of combining the targeting of wealthy individuals with increased awareness of their disproportionate climate impact in enhancing acceptance of non-violent civil disobedience and financial support, we compare the effects of providing participants with information about billionaires' carbon emissions combined with car traffic as protest target (*Billionaire emissions and car traffic* treatment), information about average people's carbon emissions combined with jets as protest target (*Average emissions and jet* treatment), and average people's carbon emissions combined with car traffic as protest target (*Average emissions and car traffic* treatment) relative to information

about billionaires’ carbon emissions combined with car traffic as protest target (*Billionaire emissions and jet*), with the same dependent variables as in the models shown in Tables 3 and 4.

As shown in Table 5, the combination of targeting wealthy individuals and providing information about the disproportionate emissions of billionaires (*Billionaire emissions and jet* treatment) results in higher levels of acceptance of non-violent civil disobedience compared to other experimental groups. Participants in the *Billionaire emissions and car traffic* have 0.14 less points on the acceptance scale, those in the *Average emissions and jet* treatment score 0.08 points lower, and participants in the *Average emissions and car traffic* treatment score 0.16 points lower.

By showing that the combined treatment of highlighting carbon inequality and targeting wealthy individuals significantly enhances acceptance of non-violent civil disobedience practices, these findings support H3a. However, we find no statistically significant effect on financial support for organizations advocating for increased climate protection through non-violent civil disobedience or stronger support for climate policy measures. This suggests that while the combined treatment increases acceptance, it does not translate into greater financial contributions to these movements or stricter climate policy, thus not supporting Hypotheses H3b and H3c. Importantly, Table 5 shows that all treatments—except for the Billionaire Emissions and Jet group -significantly reduced acceptance of non-violent civil disobedience compared to the control group. Due to our experimental design, we cannot distinguish which component of the treatment - the information about emissions or the protest image - drives this effect.

These findings suggest that combining information about the disproportionate emissions of billionaires with protest imagery targeting wealthy individuals is more effective in increasing acceptance of non-violent civil disobedience than either approach alone. However, this increased acceptance does not necessarily lead to increased financial support for organizations associated with such actions.

Table 5: Effect of the combination of information that wealthy individuals are targets of non-violent civil disobedience and information about the disparity between own carbon emissions and those of billionaires on the acceptance of and financial support for non-violent civil disobedience and the support for climate policies

	Acceptance of non-violent civil disobedience	Contribute to LG or FFF	Support for a stronger increase of carbon tax	Support for earlier climate neutrality
<i>(Base: Billionaire emissions and jet)</i>				
Billionaire emissions and car traffic	-0.14*** (-3.81)	0.00 (0.22)	0.02 (0.86)	0.01 (0.36)
Average emissions and jet	-0.08* (-2.10)	0.01 (1.26)	0.01 (0.43)	0.01 (0.45)

Average emissions and car traffic	-0.16*** (-4.37)	0.01 (1.42)	0.01 (0.43)	0.02 (0.73)
Control group	0.06 (1.51)	0.01 (0.67)	-0.01 (-0.76)	0.01 (0.43)
Intercept	2.37*** (88.67)			
Number of observations	5,200	5,200	5,200	5,200

Note: *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level.

5. Discussion

Our descriptive analysis reveals that acceptance of non-violent civil disobedience in our sample is generally low. Financial contributions to organizations associated with such practices, like the Last Generation or Fridays for Future, are also limited compared to donations to more traditional environmental groups such as Greenpeace, WWF, or Robin Wood, which account for about 90% of all contributions in our sample. Despite this overall low acceptance, our findings indicate that the target of the protests significantly influences public acceptance of non-violent civil disobedience. Specifically, acceptance increases when the protests implicitly target very wealthy individuals. This effect is further amplified when participants are presented with both wealthy individuals as the immediate targets and information highlighting the disproportionate climate impact of billionaires compared to average individuals. However, it is important to note that while these effects are statistically significant, they are small in magnitude. Therefore, our findings do not suggest that changing the typical targets of non-violent civil disobedience to wealthy individuals and increasing messaging about carbon inequality would substantially influence public opinion. The effects are insufficient to shift a significant proportion of participants toward a positive view of non-violent civil disobedience.

Our study has several limitations that should be considered. On the positive side, we utilized a large sample that closely mirrors the general German population in terms of age, gender, education, and average CO₂ footprint. However, because the sample was drawn from a panel provider's database rather than through random sampling of the general population, the results may not be fully generalizable to all of Germany.

A second limitation is the inability to implement a full factorial design due to budget constraints. Anticipating small effect sizes, we opted for a limited number of experimental groups. Consequently, we cannot definitively determine whether the observed decrease in acceptance of non-violent civil disobedience compared to the control group is driven by the presentation of information about the disparity between own carbon emissions and those of billionaires or average people, the immediate protest target, or an interaction of both. Both types of information could trigger cognitive processes that reduce acceptance of non-violent civil disobedience as an abstract form of political protest. This

“concretization” effect suggests that increased awareness of specific protest actions and their targets might lead to a decrease in overall acceptance of such methods for advocating climate action.

A third limitation refers to the stimuli used to imply different protest targets. We employed two images from actual protest events: one depicting protesters glued to a street to disrupt traffic (implying average citizens as targets), and another showing a private jet sprayed with paint (implying wealthy individuals as targets). Using specific images from real protests limits our control over certain aspects of the visual stimuli, such as participants' prior recognition of the images, their ability to identify the organizing groups, or the influence of specific image features like color and composition. Future research should consider utilizing a broader set of images, potentially generated through artificial intelligence, to better control for these variables and minimize confounding effects associated with particular images.

In summary, while our study provides insights into how targeting wealthy individuals and highlighting carbon inequality can influence acceptance of non-violent civil disobedience, the practical significance of these effects is limited. The small effect sizes suggest that such strategies may not substantially shift public opinion. Addressing the identified limitations in future research could help to better understand the potential of these approaches in influencing public support for climate activism.

6. Conclusion

While our study indicates that both the immediate target of non-violent civil disobedience actions and the provision of information about billionaire emissions influence their acceptance, the magnitude of these effects is rather small. Our descriptive results suggest that the overall acceptance of non-violent civil disobedience is low among participants. Given this context, the question of whether non-violent civil disobedience actions targeting wealthy individuals are an effective strategy to promote climate action at both systemic and individual levels should be approached with caution.

Although targeting wealthy individuals appears to be a better strategy than actions that directly affect average citizens, the effect of “switching” the target is too small to generate a significant positive level of support within our broad representative sample of 5,200 respondents from Germany. Moreover, we find no significant effects of targeting wealthy individuals on participants' willingness to support climate protest movements such as Fridays for Future and the Last Generation directly or on the support for stricter climate policies. This suggests that organizations engaging in non-violent civil disobedience should not expect that changing their immediate targets toward wealthy individuals will substantially enhance their capacity to raise funds or increase support for stricter climate policy measures.

These conclusions, however, should be considered preliminary given the limitations of our study. For example, employing visual stimuli that are systematically varied to control for specific image features and implementing full factorial designs would provide a more comprehensive understanding of these effects.

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Appendix

Table A1: Measures for the dependent variables

Variable	Definition
Acceptance of non-violent civil disobedience	Acceptance scale that is based on nine statements, whereby four of them are positively worded (“Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” “In principle, I support non-violent civil disobedience to demand more climate protection,” “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement”) and five of them are negatively worded (“Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” “Non-violent civil disobedience has no impact on climate policy decisions,” “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and “Non-violent civil disobedience often affects the wrong people”). Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree. By assigning increasing integers from one to five for the positively worded statements and decreasing integers from five to one for the negatively worded statements, we construct the variable <i>Acceptance of non-violent civil disobedience</i> by calculating the mean of the corresponding single values for the nine items. The variable can thus vary between 1 and 5, whereby higher values indicate a higher acceptance of non-violent civil disobedience
Donation to LG or FFF	Dummy variable that takes the value of one if the respondent donates at least €5 to either “The Last Generation” or “Fridays for Future.” Other possible organizations were “Robin Wood,” “Greenpeace,” and “WWF.” Respondents have the option to allocate their €50 endowment between themselves and the chosen organization in €5 increments (e.g., €50 for myself/€0 for the organization, €45 for myself/€5 for the organization, €40 for myself/€10 for the organization, and so forth, down to €0 for myself/€50 for the organization)
Support for a stronger increase of carbon tax	Dummy variable that takes the value of one if the respondent rather or completely agreed with the following statement: “The price for carbon dioxide emissions (CO ₂ price), currently €30 per tonne, should increase more than originally planned in future.” Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree
Support for earlier climate neutrality	Dummy variable that takes the value of one if the respondent rather or completely agreed with the following statement: “Germany should become carbon-neutral in 2035 instead of the currently planned year 2045.” Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree

Table A2: Measures for further variables

Variable	Definition
Prior belief: Emissions by wealthy individuals	Dummy variable that takes the value of one if the respondent answered “approximately 50%” on the following question (the correct answer according to Chancel, 2022): “Please provide your assessment of what percentage of global greenhouse gas emissions is caused by the wealthiest 10% of the world’s population.” Answer options: a) approximately 10%, b) approximately 30%, c) approximately 50%, d) approximately 70%, and e) approximately 90%.
Prior belief: Protests	Dummy variable that takes the value of one if the respondent rather or completely agreed with the following statement: “Public protests are an effective means to influence political decisions in Germany.” Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree
Posterior belief: Emissions by wealthy individuals	Dummy variable that takes the value of one if the respondent rather or completely agreed with the following statement: “The wealthiest segments of the population in Germany are responsible for a large portion of the country’s greenhouse gas emissions.” Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree
Posterior belief: Protests	Dummy variable that takes the value of one if the respondent rather or completely agreed with the following statement: “Public protests have contributed to the implementation of stronger climate policy measures in Germany.” Answer options: a) do not agree at all, b) rather disagree, c) undecided, d) rather agree, and e) completely agree
Carbon footprint (in yearly tons CO ₂ e)	Respondent’s annual CO ₂ footprint calculated based on their answers to questions about energy use, transportation, diet, and other lifestyle factors.
Age	Age of the respondent in years
Female	Dummy variable that takes the value of one if the respondent reported to be female
University degree	Dummy variable that takes the value of one if a respondent had a degree from a university or university of applied sciences
High income	Dummy variable that takes the value of one if a respondent reported a monthly net household income above €3,000, and thus above the median class of €2,500 to €3,000
East	Dummy variable that takes the value of one if a respondent lives in one of the Eastern German federal states including Berlin

Table A3: If individuals become aware of the disparity between billionaires' carbon emissions and their own carbon emissions (and additionally become aware of scenarios where either wealthy individuals or the average population are the focus of protests advocating for increased climate protection), they are more likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

Variables	(1) Legitimate means to compel decision-makers	(2) Generates more resistance than benefits	(3) Would definitely not participate	(4) Support	(5) Would personally participate	(6) Has no impact on climate policy decisions	(7) Damage too significant to be justified	(8) Good means to convince people	(9) Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
<i>(Base: Average emissions treatment)</i>									
Billionaire emissions treatment	0.02 (0.01)	0.00 (0.01)	0.01 (0.01)	0.02 (0.01)	0.02 (0.01)	0.00 (0.01)	0.01 (0.01)	0.03* (0.01)	0.01 (0.01)
Control group	0.03 (0.02)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.03* (0.01)	0.01 (0.02)	0.03* (0.01)	0.05** (0.02)	0.03* (0.01)
Observations	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories "Fully disagree," "Rather disagree," "Undecided," "Rather agree," or "Fully agree." For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses "Rather agree" or "Fully agree," and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement "Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection," the dummy variable *Support* for the statement "In principle, I support non-violent civil disobedience to demand more climate protection," the dummy variable *Would personally participate* for the statement "If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection," and the dummy variable *Good means to convince people* for the statement "Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement." For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses "Do not agree at all" or "Rather do not agree," and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement "Non-violent civil disobedience generates more resistance than benefits for the climate protection movement," the dummy variable *Would definitely not participate* for the statement "I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection," the dummy variable *Has no impact on climate policy decisions* for the statement "Non-violent civil disobedience has no impact on climate policy decisions," the dummy variable *Damage too significant to be justified* for the statement "The damages caused by non-violent civil disobedience in climate protests are too significant to be justified," and the dummy variable *Often affects the wrong people* for the statement "Non-violent civil disobedience often affects the wrong people." *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A4.1a: If individuals see that their own carbon emissions are higher than the average carbon emissions of the population in Germany (and additionally become aware of scenarios where either wealthy individuals or the average population are the focus of protests advocating for increased climate protection), they are less likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Legitimate means to compel decision-makers	Generates more resistance than benefits	Would definitely not participate	Support	Would personally participate	Has no impact on climate policy decisions	Damage too significant to be justified	Good means to convince people	Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
(Base: Billionaire emissions treatment)									
Average emissions treatment	-0.06*	-0.04*	-0.03	-0.05	-0.02	-0.04	-0.02	-0.04	-0.03
	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Control group	-0.03	-0.03	-0.01	-0.03	0.02	-0.02	0.00	0.03	-0.00
	(0.03)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)
Observations	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546	1,546

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A4: If individuals see that their own carbon emissions are lower than the average carbon emissions of the population in Germany (and additionally become aware of scenarios where either wealthy individuals or the average population are the focus of protests advocating for increased climate protection), they are more likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

Variables	(1) Legitimate means to compel decision-makers	(2) Generates more resistance than benefits	(3) Would definitely not participate	(4) Support	(5) Would personally participate	(6) Has no impact on climate policy decisions	(7) Damage too significant to be justified	(8) Good means to convince people	(9) Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
<i>(Base: Billionaire emissions treatment)</i>									
Average emissions treatment	-0.01 (0.02)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.02)	-0.02 (0.01)	0.02 (0.01)	-0.00 (0.01)	-0.03 (0.01)	-0.00 (0.01)
Control group	0.02 (0.02)	0.03 (0.02)	-0.00 (0.01)	0.00 (0.02)	0.01 (0.01)	0.03 (0.02)	0.04* (0.02)	0.01 (0.02)	0.02 (0.01)
Observations	3,654	3,654	3,654	3,654	3,654	3,654	3,654	3,654	3,654

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A5a: If individuals become aware of a scenario where wealthy individuals are the focus of protests advocating for increased climate protection (and additionally become aware of the disparity between billionaires' carbon emissions and their own carbon emissions or the average carbon emissions of the population), they are more likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

Variables	(1) Legitimate means to compel decision-makers	(2) Generates more resistance than benefits	(3) Would definitely not participate	(4) Support	(5) Would personally participate	(6) Has no impact on climate policy decisions	(7) Damage too significant to be justified	(8) Good means to convince people	(9) Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
<i>(Base: Cars treatment)</i>									
Jet treatment	0.01 (0.01)	0.02 (0.01)	0.00 (0.01)	0.01 (0.01)	0.03** (0.01)	0.02 (0.01)	-0.01 (0.01)	0.03** (0.01)	0.01 (0.01)
Control group	0.03 (0.02)	0.02 (0.01)	0.00 (0.01)	0.01 (0.02)	0.04** (0.01)	0.03 (0.02)	0.02 (0.01)	0.05** (0.02)	0.03* (0.01)
Observations	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A5b: If individuals become aware of a scenario where the average population is focused in protests advocating for increased climate protection (and additionally become aware of the disparity between billionaires' carbon emissions and their own carbon emissions or the average carbon emissions of the population), they are less likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

Variables	(1) Legitimate means to compel decision-makers	(2) Generates more resistance than benefits	(3) Would definitely not participate	(4) Support	(5) Would personally participate	(6) Has no impact on climate policy decisions	(7) Damage too significant to be justified	(8) Good means to convince people	(9) Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
<i>(Base: Jet treatment)</i>									
Cars treatment	-0.01 (0.01)	-0.02 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.03** (0.01)	-0.02 (0.01)	0.02 (0.01)	-0.03** (0.01)	-0.01 (0.01)
Control group	0.01 (0.02)	0.00 (0.01)	-0.00 (0.01)	-0.00 (0.02)	0.01 (0.01)	0.00 (0.01)	0.04** (0.01)	0.02 (0.01)	0.01 (0.01)
Observations	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A6: Of the individuals who become aware of a scenario where wealthy individuals are the focus of protests advocating for increased climate protection, those who additionally become aware of the disparity in carbon emissions between billionaires and their own carbon emissions (compared to those who see a comparison of their own carbon emissions and the average carbon emissions of the population) are more likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

Variables	(1) Legitimate means to compel decision-makers	(2) Generates more resistance than benefits	(3) Would definitely not participate	(4) Support	(5) Would personally participate	(6) Has no impact on climate policy decisions	(7) Damage too significant to be justified	(8) Good means to convince people	(9) Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative
<i>(Base: Jet and average emissions treatment)</i>									
Jet and billionaire emissions treatment	0.02 (0.02)	0.01 (0.02)	0.01 (0.01)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)	0.03 (0.02)	0.01 (0.01)
Control group	0.02 (0.02)	0.01 (0.02)	0.01 (0.01)	0.01 (0.02)	0.02 (0.02)	0.01 (0.02)	0.05** (0.02)	0.03 (0.02)	0.02 (0.01)
Observations	3,121	3,121	3,121	3,121	3,121	3,121	3,121	3,121	3,121

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).

Table A7: Of the individuals who become aware of a scenario where average people are the focus of protests advocating for increased climate protection, those who additionally become aware of the disparity in carbon emissions between billionaires and their own carbon emissions (compared to those who see a comparison of their own carbon emissions and the average carbon emissions of the population) are less likely to agree (disagree) with positively-worded (negatively-worded) statements on nonviolent civil disobedience as a means of protesting for increased climate protection.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Legitimate means to compel decision-makers	Generates more resistance than benefits	Would definitely not participate	Support	Would personally participate	Has no impact on climate policy decisions	Damage too significant to be justified	Good means to convince people	Often affects the wrong people
Wording	Positive	Negative	Negative	Positive	Positive	Negative	Negative	Positive	Negative

(Base: Cars and average emissions treatment)

Cars and billionaire emissions treatment	0.03 (0.02)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)	0.03 (0.02)	0.01 (0.01)
Control group	0.04* (0.02)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.04** (0.01)	0.02 (0.02)	0.02 (0.02)	0.07*** (0.02)	0.03* (0.01)
Observations	3,130	3,130	3,130	3,130	3,130	3,130	3,130	3,130	3,130

Note: This table reports the maximum likelihood estimation results for average discrete probability effects in nine binary logit models. For each of the nine statements, respondents could indicate their level of agreement on a scale with the five ordered response categories “Fully disagree,” “Rather disagree,” “Undecided,” “Rather agree,” or “Fully agree.” For the positively-worded statements, a dummy variable is created that takes the value of one if a respondent chooses “Rather agree” or “Fully agree,” and zero otherwise. This encompasses the dummy variable *Legitimate means to compel decisionmakers* for the statement “Non-violent civil disobedience is a legitimate means to compel decision-makers in business and politics to prioritize more climate protection,” the dummy variable *Support* for the statement “In principle, I support non-violent civil disobedience to demand more climate protection,” the dummy variable *Would personally participate* for the statement “If the opportunity arises, I would personally participate in an action of non-violent civil disobedience to protest for more climate protection,” and the dummy variable *Good means to convince people* for the statement “Non-violent civil disobedience is a good means to convince more and more people of the goals of the climate protection movement.” For each negatively-worded statement, a dummy variable is created that takes the value of one if a respondent chooses “Do not agree at all” or “Rather do not agree,” and zero otherwise. This encompasses the dummy variable *Generates more resistance than benefits* for the statement “Non-violent civil disobedience generates more resistance than benefits for the climate protection movement,” the dummy variable *Would definitely not participate* for the statement “I would definitely not participate in actions of non-violent civil disobedience to protest for more climate protection,” the dummy variable *Has no impact on climate policy decisions* for the statement “Non-violent civil disobedience has no impact on climate policy decisions,” the dummy variable *Damage too significant to be justified* for the statement “The damages caused by non-violent civil disobedience in climate protests are too significant to be justified,” and the dummy variable *Often affects the wrong people* for the statement “Non-violent civil disobedience often affects the wrong people.” *** (**, *) indicates that the corresponding estimated parameter is significantly different from zero at the 0.1% (1%, 5%) significance level (robust standard errors in parentheses).