# Group Image Concerns*

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**Abstract**

We initiate the study of group image concerns, showing that individuals change their behavior and willingly incur costs to enhance the public image of the social groups to which they belong. We develop an experimental method to identify and quantify group image concerns, and conduct a series of laboratory and online experiments to measure them in three distinct domains. In the first two experiments focused on charitable behavior, participants donate more when their contributions are publicly attributed to their group identity, despite their individual identity remaining private. They also pay significant amounts to keep low donations from fellow group members private and to make high donations public. These findings emerge for students in the laboratory, where we elicit their group image concerns related to university affiliation, as well as for online participants from the U.S., probing their religious group identities. Further online experiments explore the group image concerns of Democrats and Republicans regarding their party members' patriotism, measured by their knowledge of the U.S. national anthem, and students' concerns about their university's reputation for intelligence in solving matrix completion tasks. We isolate group image concerns from individual image concerns and benchmark them against individual image concerns in our laboratory experiment. Our results establish group image concerns as an important driver of individual behavior and a significant source of utility across various domains.

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# 1 Introduction

Social recognition matters. We care about how others see and think of us, striving to appear prosocial, civic-minded, and intelligent, rather than selfish, stupid, or indifferent to one's country. Because we care, we behave in socially desirable ways when observed, suppress information that could reveal unfavorable traits, and feel shame or pride depending on how others perceive us, influencing behaviors from donation patterns and voting to workplace effort and community involvement.[1]


Image source: Ventachinkway (2013)

**Figure 1:** Individual leveraging group image concerns to solicit donations.

While image concerns related to how we are *individually* perceived by others have been extensively studied in economics, *group image concerns*—i.e., concerns about the public image of the social groups to which we belong—have not garnered any attention. This oversight is notable given that prominent models of group identity, such as Akerlof and Kranton (2000), align with the concept of such concerns and that there is abundant anecdotal evidence supporting their significance. Figure 1, a widely shared photo on social media, suggests that concerns about group image—such as those related to one's religion—can motivate public displays of prosocial behavior. Relatedly, many of us are familiar with the feeling of needing to behave particularly well when in a foreign country, driven by concerns about what observers might think of 'the

[1] See, e.g., Bernheim (1994); Bénabou and Tirole (2006); Andreoni and Bernheim (2009); Ariely, Bracha and Meier (2009); DellaVigna, List and Malmendier (2012); Dellavigna et al. (2016); Bursztyn and Jensen (2017); Exley (2018); Butera et al. (2022), among others.

German' or 'the American' behaving rudely. In a similar vein, we often feel shame when *other* members of our group perform poorly in the public eye, and pride when they excel, as reflected, for example, in the tendency of students to publicly display their university affiliation after their school's sport teams have been victorious rather than nonvictorious (e.g., Cialdini et al., 1976), a phenomenon also observed among supporters of political parties in the context of elections (Boen et al., 2002).

The above examples suggest that group image concerns may significantly influence individual behavior and serve as a key source of utility across various domains. In fact, with group identities often being more salient and easier to display publicly than individual identities, there are numerous instances where group image concerns, not individual image concerns, may be the prime driver of publicity effects on utility and behavior. Yet, to date, no systematic test exists that could causally identify and quantify the presence, prevalence, and importance of group image concerns.

In this paper, we develop such a test and introduce group image concerns as a novel object of empirical study. Through a series of laboratory and online experiments using different groups and choice domains, we show how to measure both the behavioral and utility relevance of group image concerns and demonstrate their significance in a variety of economic and social contexts. A critical feature of our study is isolating, as far as possible, group image concerns from individual social image concerns, which typically co-occur in real-life. Our method is both widely applicable and easy to implement, making it a portable tool for future research delving deeper into the matter.

To identify group image concerns, we base our analysis on two key predictions. The first is behavioral: To enhance the group's image, a group-image concerned individual will display socially desirable behaviors when her actions can be publicly attributed to her group identity, even if her personal identity is concealed. The second concerns the utility of group-image relevant information: A group-image concerned individual will pay to conceal undesirable behaviors and outcomes of other group members and to reveal desirable ones, aiming to present her group in a positive light. In Section 2, we show using a simple theoretical framework how these two predictions follow straightforwardly from the assumption that group image concerns (modelled as the public's belief about the behavior of group members) enter the utility function of the individual.

We conduct a total of four experimental studies to test these predictions. In Section 3 we present the design and results of our first experiment (Study 1), which involves 256 university students in a laboratory setting. In this first study, we center our interest on group image concerns pertaining to the generosity of one's ingroup. We invite students from two major German universities, the University of Bonn and the University of Cologne, to explore group image concerns associated with their university affiliation. Each participant decides how much of a 200-euro budget they wish to personally donate to charity, both privately and publicly. One donation per session is selected to be realized. In the public condition, if the donation is realized, *another participant* from the same university as the donor announces the donation in the name of their student body (either "students of the University of Bonn" or "students of the University of Cologne") during a videoconference at the end of the session. The donor's individual identity remains anonymous, thus isolating group image concerns from individual image concerns.

Our first—behavioral—measure of group image concerns is the difference between public and private donations. We find that public announcements made in the name of one's group increase the average donation by 12.86 euros or 14.6 percent (from 88.16 to 101.02 euros, $p < 0.001$), supporting our first prediction that concerns about the public image of one's group significantly influence behavior. Our second measure involves eliciting participants' willingness to pay to either make public or keep private the donations of other group members across the entire donation spectrum. We adapt an incentive-compatible method from Butera et al. (2022), originally used to measure the utility effects of individual publicity. In our study, the willingness-to-pay curve reflects how much participants value sharing positive group information (high donations) due to group pride, or concealing negative information (low donations) due to group shame. Consistent with our second prediction, we find that the willingness to pay for publicizing the donations of other students from one's university strictly increases with the donation amount ($p < 0.001$), ranging from -€5.65 for a zero-euro donation to +€1.56 for a donation exceeding €175. Since the willingness-to-pay assessment excludes the possibility of participants revealing their own donations, these effects are again attributable to group, not individual, image concerns.

To assess the strength of group image concerns relative to individual image concerns in the same donation setting, we run a separate treatment. In this treatment, we measure the impact

of *individual* publicity—the public disclosure of the participant's individual identity alongside her donation—on donations and willingness to pay. We find that, on average, individual publicity generates stronger effects on both behavior and willingness to pay, roughly double the size of the effects observed with group publicity. However, this difference is largely driven by a higher percentage of participants (50% vs. 30%) responding to individual publicity compared to group publicity (extensive margin), rather than a difference in the magnitude of the response (intensive margin). When examining only those participants who change their donation amount between public and private scenarios, the effects of group and individual publicity on donation amounts are comparable, with average increases of 36.99 and 44.84 euros, respectively. Overall, our laboratory experiment provides strong initial evidence that group image concerns are prevalent, significant, and economically meaningful. This interpretation is further supported by correlations with responses to a battery of survey questions in the post-experimental questionnaire.

To further solidify and extend the evidence on group image concerns, in Section 4, we present the design and results of three additional experiments involving 597 participants from the general U.S. population, conducted online. The first online experiment (Study 2) replicates the donation experiment from the lab but uses religious group identities (Christian, Muslim, Jewish, and Non-Religious) instead of university affiliations. Since generosity is often associated with religious identities, this experiment provides a more natural test of group image concerns in the domain of prosociality. We also simplify the public announcement of group donations, using a simple (anonymous) website publication rather than a videoconference, further minimizing the possibility of personal identification and focusing solely on group information. This approach also demonstrates how our method can be easily applied in standard online surveys.

The results of the online donation experiment strongly confirm the findings of our laboratory experiment. In the online setting, where groups are formed based on religious affiliation, the average donation increases by 7.63 dollars or 8.27% (from 92.24 to 99.87 dollars out of 200, $p = 0.003$) when the donation is publicly announced as coming from a member of the donor's religion. The willingness-to-pay measures for group image concerns are even more pronounced than in the lab. The willingness-to-pay curve exhibits a steeper positive slope ($p < 0.001$), with online participants paying an average of 8.49 dollars to avoid the publication of a zero donation by another group member and 11.90 dollars to ensure the publication of a donation exceeding

175 dollars.

The other two online experiments expand our analysis to domains beyond generosity and prosociality, employing the same principal methods. The second online experiment (Study 3) examines Republicans' and Democrats' concerns with their groups' perceived patriotism. In this study, participants complete a task where they identify and correct intentional errors in the U.S. national anthem. We then assess how their performance varies depending on whether their results are made public in the name of their group (Republicans or Democrats) and measure participants' willingness to pay to either publish or keep secret the performances of other group members. In the third online experiment (Study 4), we explore university students' group image concerns regarding their student body's perceived intelligence. Participants complete a matrix completion task, similar to Raven's matrices. We analyze how their performance changes when it can be publicly attributed to their university, and assess their willingness to pay to control the publication of the results of other students from the same university. Although we do not find statistically significant treatment effects on task performance in these experiments (possible reasons for this are discussed in Section 4.4), we observe very robust willingness-to-pay measures for the utility effects of making group-image relevant information public.

When probing the group image concerns of Republicans and Democrats regarding their group's perceived patriotism, the average willingness-to-pay curve ranges from -4.50 dollars (to avoid the public disclosure of another Republican/Democrat not finding any mistakes in the anthem task) to 18.97 dollars (to ensure the publication of another Republican/Democrat finding all mistakes). Similarly, in the intelligence setting of our third online experiment, university students are willing to pay 8.97 dollars to avert the publication of a zero score in the matrix completion task by another student from their university, and 19.68 dollars for the publication of a maximum score. Across all studies, we observe that the willingness-to-pay curve for publishing group information is strongly positively sloped over the outcome domain ($p < 0.001$). This finding aligns with the notion that the utility derived from image-relevant group information increases with the favorability of the information about the group. Overall, our results indicate significant group image concerns among students regarding their university's reputation for generosity and intelligence, among political party members regarding their party's reputation for patriotism, and among religious adherents regarding their religion's reputation for generosity. This suggests that group image concerns are indeed a generalizable phenomenon and an im-

portant factor to account for when studying the role of group identities in social and economic contexts.

**Related Literature.** Our paper extends the literature in two main respects. First, to the best of our knowledge, we are the first to systematically introduce group image concerns to the economics literature, provide a causal test of their behavioral and utility relevance, and demonstrate their significance across a range of natural group identities and choice domains. In economics, image concerns have so far been modeled and tested based on the idea that individuals seek to acquire or maintain a positive *personal* image. Thus, the focus has been on a person's *individual* social image, specifically the inferences others make about one's personal characteristics and preferences. This literature has shown that individual social recognition is a strong motivator in human behavior. For example, individuals donate more to charities, work harder, are more likely to vote, are more cooperative, and more likely to consume status products if their actions or the outcomes of their actions are observable.[2] Our work expands the economics literature on image concerns to the group domain. We suggest and show evidence that image concerns not only derive from an individual's own person but also their group identities. While related concepts have been floated in the psychology literature in the context of terms like meta- (or group-) stereotypes, collective narcissism, and group loyalty, measurements of these concepts have been based on hypothetical behavior or attitudes rather than observing actual behavior.[3]

[2]For a review of field experiments, see Bursztyn and Jensen (2017). Laboratory experiments that vary observability of one's actions or outcomes yield similar results with respect to the role of social image concerns on prosocial behavior, even though the image benefit from being considered fair or cooperative in a laboratory setting may be assumed more limited compared to the field (e.g., Andreoni and Bernheim, 2009; Ariely, Bracha and Meier, 2009; Exley, 2018). Interestingly, results of a recent study by Henry and Sonntag (2019) hints at group image concerns being a potential confound in the measurement of individual image concerns: In their experiments, members of minority groups were more concerned with their image if the observer was from the majority group, suggesting that group identity (revealed through the name of a participant) plays a role.

[3]For instance, Hopkins et al. (2007) and van Leeuwen and Täuber (2012) find that individuals express a higher willingness to engage in outgroup helping when confronted with negative meta-stereotypes, which are beliefs held by outsiders that the group is not prosocial. This aligns with the idea of adjusting one's behavior to improve the group's image. Similarly, Klein and Azzi (2001) observe that French-speaking Belgian students are more likely to select positive attributes to describe their ingroup when they believe the researcher reading their responses is from an outgroup (Dutch-speaking) rather than their own ingroup (French-speaking). This behavior suggests an effort to maintain a good image of one's group in the eyes of an outside observer. More recently, Gronfeldt et al. (2023) explore collective narcissism—the belief that one's own group is exceptional and not adequately appreciated by others (de Zavala et al., 2009)—in the U.K. and U.S. during the COVID-19 pandemic. They find that individuals with higher levels of national narcissism are more willing to sacrifice the health of ingroup members (such as by opposing COVID-19 testing) to project a positive image of their nation in the pandemic response. In a similar vein, Cislak, Wojcik and Cichocka (2018) suggest that in Poland, support for the coal industry and logging an ancient forest was partly explained by the desire to uphold a group image of an independent and strong nation. Most notably, our willingness-to-pay measure for group image concerns bear similarity to survey questions developed by Jonathan Haidt and Jesse Graham (see, e.g., Haidt, 2007, 2012; Haidt and Graham, 2007), later incorporated into the Moral Foundations Sacredness Scale (Graham and Haidt, 2012) as part of the group loyalty measure. These questions inquire about the amount of money one would

The main strengths of our work compared to existing studies in the psychology literature are threefold. First, we investigate actual behaviors rather than relying on hypothetical scenarios. Second, we examine the effects of real publications of outcomes and decisions, studying how making these behaviors public influences participants' actions and utility. Finally, our use of monetarily incentivized willingness-to-pay measures provides detailed insights into the utility aspect of group image concerns.

As the second main contribution, we add to the literature on the effect of group identities on behavior. Social identity theory posits that individuals seek positive feelings from being part of a group (Tajfel, 1978; Tajfel and Turner, 1979; Akerlof and Kranton, 2000). As a result, they may view their ingroup members more positively than others or deminutize outgroups' qualities (Otten and Moskowitz, 2000; Mullen, Brown and Smith, 1992). Seeking positive distinctiveness for one's ingroup is thus considered a central tenet of having a group identity (Hewstone, Rubin and Willis, 2002). Past work deriving from social identity theory typically focused on situations in which group identity leads to ingroup bias in resource allocation and intergroup conflict in a variety of tasks and settings. In these, a common feature is that ingroup bias manifests as larger benefits to other ingroup members compared to outgroup members (see, e.g., Chen and Li 2009, Kranton and Sanders 2017, and the meta-analysis on ingroup bias in cooperation by Balliet, Wu and De Dreu 2014), as well as intergroup conflict (De Dreu et al., 2016; Weisel and Böhm, 2015; Weisel et al., 2016; Doğan, Glowacki and Rusch, 2018). The positive distinctiveness mechanism not only predicts differential cooperation or increased conflict between groups but also influences perceptions, attitudes, and behaviors aimed at enhancing a group's status or image. Accordingly, an individual might sacrifice resources to boost their group's image or status relative to others. This aspect of social identity theory has received minimal attention in experimental literature, and to our knowledge, no prior research has determined whether and how much individuals sacrifice money, time, or effort to improve their group's image. Our work is a first step in that direction.[4]

hypothetically require to say something bad about one's nation while being anonymously tuned into a public broadcast. We included a version of their question in the post-experimental questionnaire of our laboratory experiment to examine its correlation with incentivized measures of group image concerns.

[4]Differential attribution of behaviors based on group membership has been previously identified as intergroup attribution bias, outgroup attribution bias, or ultimate attribution error. The focus in this past research was on attribution of behaviors to either the character of the individual or situational factors, rather than in- or outgroup qualities themselves (Stephan, 1977; Islam and Hewstone, 1993; Ariyanto, Hornsey and Gallois, 2009; Hewstone, 1990; Tarrant and North, 2004). Combined with the general tendency to consider outgroups as more homogenous than one's ingroup (Boldry, Gaertner and Quinn, 2007), evaluation of an outgroup member's character would be expected to correlate with beliefs about outgroup qualities. This is supported by the interaction of intergroup

The paper is organized as follows. In Section 2, we outline the main predictions for our experiments and a theoretical framework to support them. Section 3 details the design and results of our laboratory experiment, while Section 4 provides the design and results of our online experiments. Section 5 concludes. Further results and supplementary data as well as the instructions of all experiments are in the Online Appendix.

# 2 Predictions

We predict that individuals care about public information regarding the behavior or traits of their group, as this information can affect how others perceive and evaluate the group. Specifically, we expect such group image concerns to manifest in two distinct ways:

1. When a person's behavior can be publicly attributed to her group identity – even if her personal identity remains concealed – that person will seek to exhibit socially desirable behavior or traits because this leads to a more positive (less negative) public evaluation of her group.

2. Given the choice to publicly reveal the behavior of *other members* in her group, the person will prefer to conceal socially undesirable (i.e., low) behaviors and traits, but will prefer to reveal socially desirable (i.e., high) behaviors and traits. Again, this preference is driven by the aim to present one's group in a positive, rather than a negative, light.

In our experiments, we test these predictions by studying the behavior of participants in private and public group settings, as well as by eliciting their willingness to pay for concealing or making public desirable versus undesirable signals about the group. Below, we sketch a theoretical framework in which we formalize the above predictions.

## 2.1 Theoretical framework

We think of group image concerns as the value an individual attaches to the public perceiving her group as exhibiting socially desirable traits or behaviors. In our experiments, this is represented

attribution bias with stereotypes (Haslam et al., 1999). Further evidence is seen in responsibility attribution: Members of victim groups attribute responsibility to the entire perpetrator group for past or present conflicts, whereas members of perpetrator groups tend to make situational attributions (Bilali and Vollhardt, 2019). This bias is not exclusive to laypersons; analysis of psychology research indicates that behaviors of racial minority members are more often attributed to culture compared to behaviors of majority members (Causadias, Vitriol and Atkin, 2018).

by individuals attaching value to public information about how much individuals sharing the same group identity donate to charity (generosity), how many mistakes they identify in a faulty version of the US national anthem (patriotism), or how well they perform on a Raven matrix test (intelligence). Let $a_j \in \mathcal{A}$, $\mathcal{A} = [0, \bar{a}]$, be the directly observable and measurable output (i.e., the donation or performance) of an individual $j$ belonging to group $G$ in one of these tasks.[5] The public image of group $G$, $v_G \in \mathbb{R}$, is a function of the (expected) outputs of all members of group $G$, $\tilde{A}_G = \{\tilde{a}_j \,|\, j \in G\}$, where $\tilde{a}_j$ reflects that output $a_j$ may be unobserved or hypothetical and thus a function of the public beliefs about $a_j$ rather than an actual output. Below, we assume that $v(\tilde{A}_G)$ is the (expected) sum of outputs $\sum_{j \in G} \tilde{a}_j$, but the predictions go through for any $v_G(\tilde{A}_G)$ assuming that $\frac{\partial v_G}{\partial \tilde{a}_j} > 0 \; \forall j \in G$, i.e., that an increase in any individual output $\tilde{a}_j$, ceteris paribus, results in an increase in the public image of group $G$, taking into account possible updates to the public's expectations of other outputs from the same group.[6]

The utility of individual $i \in G$ is

$$y_i + u_i(a_i) + \alpha_i^G \cdot v_G(\tilde{A}_G), \tag{1}$$

where $y_i$ is the income of individual $i$, $u_i(a_i)$ is her intrinsic utility from producing output $a_i$, and $\alpha_i^G \geq 0$ measures the extent of her group image concerns. Letting $v_G(\tilde{A}_G) = \sum_{j \in G} \tilde{a}_j$, we have

$$y_i + u_i(a_i) + \alpha_i^G \cdot \sum_{j \in G} \tilde{a}_j. \tag{2}$$

We consider situations in which the output of any individual $j \in G$ is private (private group scenario), and situations in which the output and group affiliation of one selected individual from the group is made public (public group scenario). Using these two scenarios, we investigate the effect of making public the output of person $i$ on this person's output $a_i$, as well as the willingness to pay for making public (or keeping private) the output $a_k$, $k \neq i$, of other group

[5] We assume below that the individual chooses output $a_j$ directly. In the case of $a_j$ being a performance measure, the accurate representation of our experiments would involve the choice of effort, which maps into output. If this mapping is strictly monotonic (i.e., output increases as effort increases), our reduced form approach below is without loss of generality.

[6] Instead of assuming that $v_G = \sum_{j \in G} \tilde{a}_j$, another way of arriving at the same expression is to assume that the public image of group $G$ is the average output of group members, $\bar{a}_G := \frac{1}{|G|} \cdot \sum_{j \in G} \tilde{a}_j$. If agent $i$ cares about how this image reflects on all group members, including herself, it leads to the image part of the utility function being $\alpha_i^G \cdot |G| \cdot \bar{a}_G = \alpha_i^G \cdot \sum_{j \in G} \tilde{a}_j$.

members. The first measure examines the *behavioral* consequences of group image concerns for the choice of public actions, while the second measure more directly gauges the *utility* gains and losses of manipulating the group's public image. Note that in none of these scenarios, the individual identity of group members is revealed, thus excluding any direct channel for individual image concerns. In our laboratory experiment, we measure individual image concerns (using a separate treatment) as well. For predictions on this, see the separate paragraph further below.

In the case of large societal groups, such as religions or political party affiliations in our online samples, the (expected) sum of outputs $\sum_{j \in G} \tilde{a}_j$ can become arbitrarily large, rendering the assumption that the individual internalizes this sum in her utility function psychologically undesirable. A potentially more appropriate approach to modeling group image concerns for large groups therefore is to assume that the individual cares directly about the *change* in group image that her actions entail, relative to the benchmark of not revealing any information. Similar to how Kaufmann, Andre and Kőszegi (2024) model socially responsible consumers who care about externalities associated with their consumption choices, the image utility of the individual would then operate over the difference $v_k(\tilde{A}_G^1) - v_k(\tilde{A}_G^0)$ rather than over $v_k(\tilde{A}_G)$, where the superscripts 1 and 0 refer to the public beliefs about group output conditional on observing the information revealed by $i$ and the public beliefs conditional on not observing said information, respectively. Our predictions below hold when using this alternative approach.[7]

**Behavioral predictions**

In the private group scenario, the output of all individuals $j \in G$ is kept private, implying that the output $a_i$ of individual $i$ cannot influence the public image of her group. Her utility from producing output $a_i$ in this case is

$$y_i + u_i(a_i) + \alpha_i^G \cdot \sum_{j \in G} \mathbb{E}[a_j | j \in G],$$

where $\mathbb{E}[a_j | j \in G]$ is the public's expectation (i.e., belief) regarding the output of an individual belonging to group $G$. Since the individual cannot influence public beliefs with private actions, she behaves as if she would be maximizing $y_i + u_i(a_i)$. We assume that for each individual $i$, $y_i + u_i(a_i)$ is single-peaked in $\mathcal{A}$. Thus, each individual $i$ has some optimal private output level $a_i^* \in \mathcal{A}$.

[7] We thank Marc Kaufmann for pointing us to this possibility.

In the public group scenario, the individual chooses output $a_i$ conditional on her output being publicly revealed alongside her group affiliation. Her utility from producing output $a_i$ in this case is

$$y_i + u_i(a_i) + \alpha_i^G \cdot a_i + \alpha_i^G \cdot \sum_{j \in G \setminus \{i\}} \mathbb{E}[a_j | a_i, j \in G].$$

The third term in this expression is the direct effect of public output $a_i$ on the public reputation of group $G$. Owing to this term, a group-image concerned individual ($\alpha_i^G > 0$) will increase her output relative to the private scenario, since the term is strictly increasing in $a_i$. Depending on the size of the group, the individual's output may also send a signal about the output of other group members, further positively or negatively influencing the group's public image. This is captured by the fourth term in the above expression. We assume that $\partial \mathbb{E}[a_j | a_i, j \in G] / \partial a_i \geq 0$, such that the net effect of increasing output $a_i$ on group image is always positive. Note that an individual with no group image concerns ($\alpha_i^G = 0$) will provide the same output in the public group scenario as in the private group scenario. We thus have the following prediction:

**Prediction 1.** *If there are individuals with group image concerns ($\alpha_i^G > 0$), average output will be higher in the public group scenario than in the private group scenario.*

**Predictions regarding willingness to pay for disclosing group behaviors**

Consider a situation in which individual $i \in G$ can decide whether to publicly reveal the output $a_k$ of another group member $k \in G$, $k \neq i$. If output $a_k$ is publicly revealed, this is the only output of group $G$ that is revealed. If output $a_k$ is not revealed, no output of group $G$ is revealed. Keeping everything else constant, $i$'s difference in utility between revealing and not revealing output $a_k$ is

$$\Delta U(a_k) = \alpha_i^G \cdot (a_k - \mathbb{E}[a_j | j \in G]) + \alpha_i^G \cdot \sum_{j \in G \setminus \{k\}} \left( \mathbb{E}[a_j | a_k, j \in G] - \mathbb{E}[a_j | j \in G] \right), \qquad (3)$$

where the first term measures the *direct* impact of revealing $a_k$ on the group's reputation (observed output of $k$ minus the expected output of an individual belonging to group $G$), and the second term measures the *indirect* effect of revealing $a_k$ on group image, i.e., the signaling effect of revealing $a_k$ on the expected output of other group members. Both terms are weighted by the group image concern $\alpha_i^G$ of individual $i$. For an individual with no group image concerns

($\alpha_i^G = 0$) the difference in utility between revealing and not revealing output $a_k$ is always zero.

For an individual *with* group image concerns, the first term of expression (3) is negative if $a_k < \mathbb{E}[a_j|j \in G]$, that is, if the output of $j$ is lower than what the public expects from a member of group $G$. It is positive if the output of $k$ is higher than expected, $a_k > \mathbb{E}[a_j|j \in G]$. If the group is large, the signalling value of $a_k$ on $\mathbb{E}[a_j|j \in G]$ is negligible, implying that the second term is zero. If the group is smaller, such that $|\mathbb{E}[a_j|a_k, j \in G] - \mathbb{E}[a_j|j \in G]| > \epsilon$ for some strictly positive value $\epsilon$, then, under reasonable assumptions on the distribution of expected outputs,[8] we also have that the second term is negative if and only if $a_k < \mathbb{E}[a_j|j \in G]$ and positive if and only if $a_k > \mathbb{E}[a_j|j \in G]$. It follows that publicly revealing output $a_k$ results in a *utility gain* for individual $i$ if person $k$ outperforms the public's expectations for group $G$, and in a *utility loss* for individual $i$ when person $k$ falls short of those expectations.

By the utility function defined in (1), $\Delta U(a_j)$ is equal to the income loss $\Delta y(a_j)$ that individual $i$ is willing to incur to guarantee or (in the case of negative $\Delta U$) to prevent the publication of $a_k$. In other words, the expression in (3) defines the willingness to pay of individual $i$ for publicly revealing output $a_k$. From the properties of expression (3) derived above, we thus have the following prediction:

**Prediction 2.** *If there are individuals with group image concerns ($\alpha_i^G > 0$), the average willingness to pay for publicly revealing the output $a_k$ of another group member $k$ will be strictly negative if $a_k < \mathbb{E}[a_j|j \in G]$ and strictly positive if $a_k > \mathbb{E}[a_j|j \in G]$. Furthermore, the willingness-to-pay curve will be strictly increasing in $a_k$.*

### Individual image concerns

In the laboratory experiment, we also measure individual image concerns to provide a benchmark against which to compare the size and extent of group image concerns. To isolate individual image concerns and eliminate group-related factors, we introduce a separate treatment where any information about the group identity of participants is suppressed. In this individual setting, we explore how publicly revealing an individual's *personal* identity (name and face) alongside her respective output affects behavior. We also elicit participants' willingness to pay for disclosing individual output levels.

[8] For instance, if expected outputs are normally distributed, and, more generally, if expectations satisfy the *updating in direction of the signal* (UDS) property (see Chambers and Healy, 2012).

To derive predictions for the individual setting, assume that individual $i$'s utility is given by

$$y_i + u_i(a_i) + \alpha_i^I \cdot v_i(\tilde{a}_i), \tag{4}$$

which corresponds to (1), except for a slight alteration in the third term. In this new term, $v_i(\tilde{a}_i)$ is the social image of individual $i$ and $\alpha_i^I \geq 0$ measures the extent of $i$'s *individual* image concerns, i.e., how much she values said image. Using this utility function and following the same derivations as above, we arrive at two analogous predictions regarding the effects of individual publicity on output and willingness to pay: First, if $\alpha_i^I > 0$, publicly revealing an individual's personal identity alongside her output will increase her output relative to a private scenario. Second, the individual's willingness to pay for publicly revealing her output $a_i$ will be strictly negative if $a_i < \mathbb{E}[a_i]$, strictly positive if $a_i > \mathbb{E}[a_i]$, and strictly increasing in $a_i$.

Our prime motive for eliciting individual image concerns is to compare their strength and prevalence to the strength and prevalence of group image concerns. We will do this by comparing the impact of individual publicity with that of group publicity on output, as well as by comparing the willingness-to-pay curve associated with publishing individual output information with the willingness-to-pay curve associated with publishing information about the output of other group members.

# 3 Study 1: Laboratory Experiment

The laboratory experiment was conducted online with students from the Cologne Laboratory for Economic Research at the University of Cologne and the BonnEconLab at the University of Bonn, two large, proximate, and reputable universities in Germany. In total, 256 people completed the experiment; of those, 146 are from the University of Bonn. The sample size was based on the results of a pilot study and a subsequent power calculation. Overall, 67.19 percent of participants are female, and the mean age is 23.85 years. The experiment was programmed in oTree (Chen, Schonger and Wickens, 2016) and participants were recruited using ORSEE (Greiner, 2015). The experiment was pre-registered at the AEA RCT registry.[9]

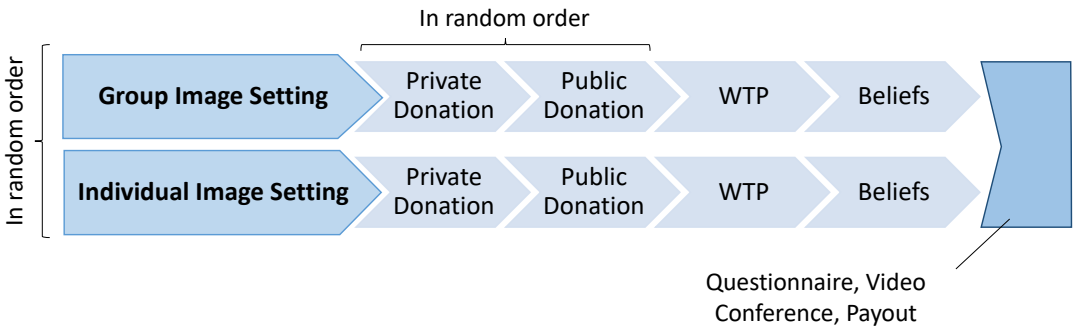
[9]See `https://www.socialscienceregistry.org/trials/7749`. As outlined in the pre-registration, we originally intended to recruit students from the University of Düsseldorf as the second group for the experiment. However, for practical reasons, we subsequently opted to recruit participants for the second group through the BonnEconLab, i.e., students from the University of Bonn instead. A pilot study with students from the University of Düsseldorf yielded results consistent with those of our main experiment, indicating that changing the group did not impact our findings.

### 3.1 Design

The laboratory experiment measures group image concerns as well as individual image concerns with regard to generosity, using donations to a charity as the image-relevant action. Our participants comprise students from the University of Cologne and University of Bonn, and we study group image concerns related to the university affiliation of our participants.

Our within-subject design comprises two settings: One to measure individual social image concerns (individual image setting) and one to measure group image concerns (group image setting). In each setting, participants decide how much to donate to the charity Deutsches Kinderhilfswerk (German Children's Fund) both privately and publicly. Deutsches Kinderhilfswerk is a non-political charity dedicated to bettering children's welfare and rights in Germany. The order of the individual image setting and the group image setting, as well as the order of private and public donation decisions within each setting, are randomly determined. For each donation decision, participants are endowed with 200 euros, and may choose any amount between 0 and 200 as their donation. In both settings, participants additionally state their willingness to pay (WTP) regarding the public announcement of different donation amounts. This task is adapted from Butera et al. (2022).

Per experimental session, only one setting (individual or group) and from this setting one donation decision (private or public) of one participant is randomly chosen and realized for payout. The donor receives the money she does not donate, while her donation goes to the charity. If a public donation is realized, the donated amount is announced by the participant herself (individual image setting) or another group member (group image setting) in a scheduled video conference held later on the same day. This video conference session is outlined during the participant recruitment process as an essential step to receive compensation from the experiment. Before participating in the experiment, participants consent to attending the video conference, knowing that they may be prompted to activate their camera and microphone, share their first name, and reveal an experiment-related detail. Figures 2 and 3 summarize our design. The within-subject design increases our study's statistical power while allowing the categorization of participants with respect to their image concerns. Below, we describe the different elements of our design in detail. The instructions of the experiment are in Online Appendix C.




*Notes.* Each participant makes private and public decisions in both the individual image setting and the group image setting. The order of the settings and decisions are randomized per participant. Public announcements are made in the video conference at the end of the experiment.

**Figure 2:** Laboratory experiment: Experimental timeline.

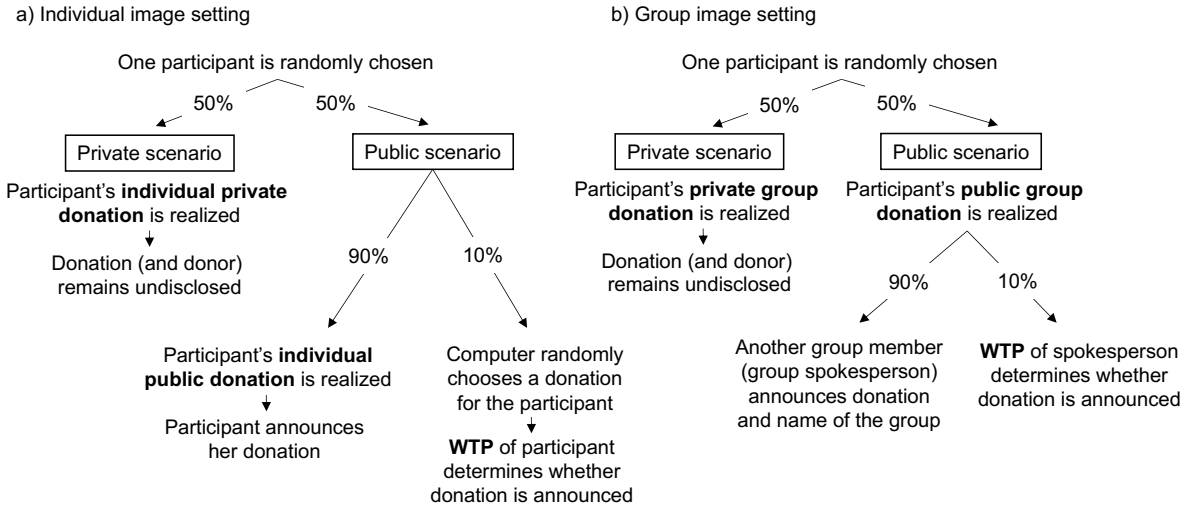



**Figure 3:** Laboratory experiment: Implementation probabilities in the individual image setting (a) and in the group image setting (b).

**Individual image setting.** We begin by outlining the individual setting, which is used to measure concerns about the public perception of one's individual generosity. This setting follows a well-established experimental paradigm designed to reveal individual image concerns by measuring the difference in prosocial behavior between conditions where the individual's identity is publicly observed versus when it remains undisclosed. Throughout the individual setting, we deliberately avoid mentioning the group affiliations of our participants, and the group identities remain unobserved by others. At the beginning of the setting, participants are informed that there are 40 students participating in the session. They are introduced to both the private and public donation scenarios, each having an equal likelihood of implementation as illustrated in Figure 3, panel a). In the private donation scenario, both the identity of the donor and the amount donated are kept undisclosed to other participants. In the public donation scenario, the

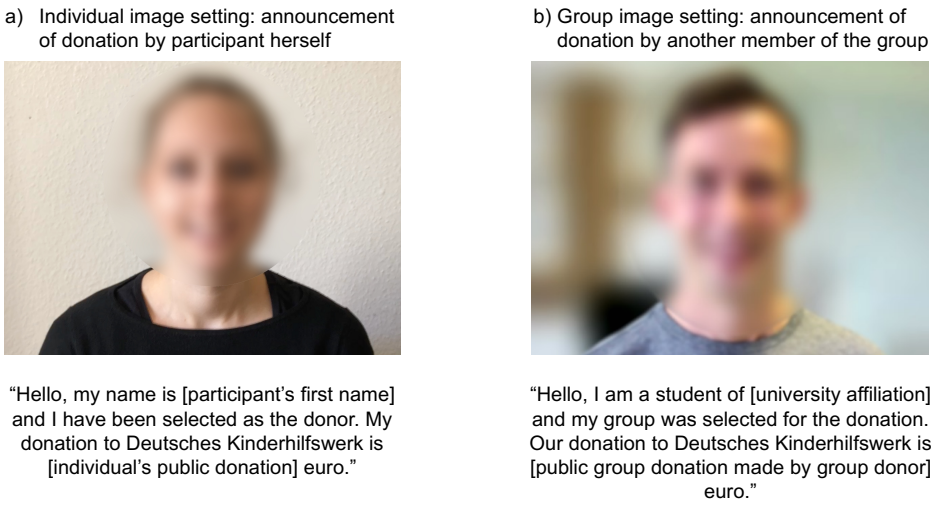
donor personally announces her first name and the amount donated to all participants during a scheduled video conference. For the exact phrasing of this public announcement, see Figure 4, panel a).

With a 10 percent chance, the public donation of the individual is chosen by the computer instead of by the donor herself. We do this in order to elicit participants' willingness to pay for making, or avoiding having to make, a public announcement as a function of different donation amounts. Details on how we elicit participants' willingness to pay are provided in a separate paragraph below.

**Group image setting.** Our approach to measuring group image concerns rests on a nuanced modification to the traditional paradigm. Rather than publicizing the individual identity of the donor, we assign a randomly selected second member from the donor's group to disclose the donation and the donor's group identity, while keeping the individual identity of the donor confidential. This adjustment allows us to assess the behavioral and utility impacts of group image concerns, effectively sidestepping direct individual image concerns. The designated "group spokesperson" identifies himself solely as a member of the group, without revealing his or the donor's personal name, and declares the donation amount on behalf of the entire group (students of the University of Bonn or students of the University of Cologne). The exact phrasing used in these announcements is detailed in Figure 4, panel b).

At the outset of this setting, participants are informed that the session includes two groups: one consisting of 20 students from the University of Cologne, and another of 20 students from the University of Bonn. The donation decision is framed as a "group donation", while maintaining the monetary consequences of the donation the same as in the individual setting. Participants thus make donation decisions "on behalf of their group"; once for a private donation scenario and once for a public donation scenario, see Figure 3, panel b). Framing the donation consistently as a "group donation" across both the private and public scenarios ensures that any differences in donations between these scenarios are driven by concerns about the publicity of the donation, rather than intrinsic effects of making a group-based donation. Our results show that private donations are statistically indistinguishable between the individual and group settings, suggesting that this framing did not significantly impact donation behavior.

In addition to providing public and private group donations, participants indicate their willingness to pay for announcing different donation amounts on behalf of their group, in case




*Notes.* For the announcement, the speaker activates her camera and microphone during the video conference and reads a pre-specified text aloud. Announcements are made in the event that a public donation is realized. Both in the individual image setting and in the group image setting, if a private donation is realized, no announcement is made during the video conference, and the camera and microphone of all participants remain deactivated.

**Figure 4:** Laboratory experiment: Public announcements in the individual image setting (a) and in the group image setting (b).

they are chosen as the group's spokesperson. With a 10 percent chance, this willingness to pay determines whether the donor's public group donation is announced during the video conference.

**Willingness to pay for announcing donations.** To measure the extent to which participants associate utility—specifically, shame or pride—with disclosing varying amounts of individual and group donations, we elicit their willingness to pay for either announcing or avoiding the announcement of possible donation amounts during the video conference. We use an incentive-compatible method developed by Butera et al. (2022) which combines the strategy method and the Becker-DeGroot-Marschak (BDM) mechanism. To do this, we partition the range of possible donations between 0 and 200 euros into 12 intervals; see Table 1. For each of the 12 intervals, we first ask participants whether they prefer to announce a donation falling within that interval or keep it private. In a second step, we inquire how much, from a 50 euro endowment, they are willing to pay to implement their choice—either announcing the donation or keeping it private. We use this elicitation method in both the individual image setting and the group image setting.

Answers are incentivized as follows. If a participant is selected as the donor in the individual setting, or as the group spokesperson in the group setting, their expressed willingness to announce will determine whether they are asked to announce the donation, with a 10 per-

| Donation is | | Step 1: Announce or keep private? | | Step 2: WTP (0-50 euro) to announce/keep private | |
|---|---|---|---|---|---|
| 0 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 1 - 4 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 5 - 9 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 10 - 19 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 20 - 29 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 30 - 49 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 50 - 74 | Euro | ◯ Announce | ◉ Keep private | | Euro |
| 75 - 99 | Euro | ◉ Announce | ◯ Keep private | | Euro |
| 100 - 124 | Euro | ◉ Announce | ◯ Keep private | | Euro |
| 125 - 149 | Euro | ◉ Announce | ◯ Keep private | | Euro |
| 150 - 174 | Euro | ◉ Announce | ◯ Keep private | | Euro |
| 175 - 200 | Euro | ◉ Announce | ◯ Keep private | | Euro |

*Notes.* In the individual image setting, the willingness to pay refers to personally announcing one's name and donation in the video conference. In the group image setting, the willingness to pay refers to announcing a donation made by another group member in the name of the group.

**Table 1:** Laboratory experiment: Elicitation of willingness to pay for public announcements.

cent probability.[10] Both steps of the elicitation procedure are incentivized: With a 50 percent probability, the decision made by the participant in the first step (announce or keep private) is implemented. If this occurs, the participant receives their preferred outcome along with an additional 50 euros. With the remaining 50 percent probability, the participant's willingness to pay stated in the second step applies. If this occurs, a simple BDM mechanism is used: The computer randomly draws a number $x$ between 0 and 50. If the value stated by the participant is greater than or equal to $x$, her preferred outcome (announce or keep private) is implemented. In return, the participant has to give up $x$ of her 50 euros. If the value stated by the participant is less than $x$, the outcome opposite to her stated preference is implemented and the participant receives 50 euros. To see how this makes truth-telling incentive compatible, note that the second stage is simply a second-price auction against the randomly acting computer. Another way to see incentive compatibility is to recognize that for every euro the participant invests, she increases the implementation probability of her desired outcome by one percentage point. If the participant is indifferent and invests nothing, then both outcomes (announce and keep private) are equally likely. If the participant invests all of her 50 euros, her preferred outcome is implemented with certainty. Consistent with prior research, particularly Butera et al. (2022), we interpret the willingness to pay as the monetary equivalent of the (dis)utility associated with

[10] Similar to Butera et al. (2022), we have chosen the implementation probability of 10 percent to make it almost certain that if a public donation is drawn, that donation will be publicly announced, regardless of the willingness to pay of the person who is required to announce it. This guarantees that the public donation we measure indeed represents the donation that participants make conditional on the donation becoming almost certainly public.

revealing information about one's own generosity (in the individual image setting) or that of another group member (in the group image setting).

In the individual image setting, incentivizing the willingness to pay requires an adjustment. Since there is only one interval into which the public donation chosen by the participant falls, asking about the willingness to pay for announcing donations that fall into other intervals carries the risk of untruthful answers, since these donations cannot realize. To avoid this problem and ensure incentive compatibility for all intervals, we let the computer randomly select the public donation with a 10 percent chance; see Figure 3, panel a).[11] Instead of eliciting the willingness to pay for announcing their own donation, we then ask participants to state their willingness to pay for announcing donations selected by the computer. Provided that participants cannot disclose during their announcement whether the donation was personally chosen or computer-selected, their stated willingness to pay should effectively reflect their responses as if we had randomly manipulated their self-chosen donation.

### 3.2 Primary outcome measures

Our primary outcome measures are the four donations (individual private, individual public, group private, group public) as well as the participants' willingness-to-pay curves with regard to announcing individual and group donations. Following our central Predictions 1 and 2 outlined in section 2, our hypotheses for the laboratory experiment are:

**Hypothesis 1** (Group image concerns I)**.** *In the group image setting, public group donations are higher than private group donations.*

**Hypothesis 2** (Group image concerns II)**.** *In the group image setting, the willingness to pay for publicly announcing the donation of other group members increases with the size of the donation.*

To formally test Hypothesis 2, we follow Butera et al. (2022), and interpret a positive willingness to pay for not announcing a donation, i.e., for keeping the donation private, as a negative willingness to pay for announcing the donation. Let $d \in [0, 200]$ be a donation amount that may or may not be announced. For all $d \in [0, 200]$, our experiment elicits a binary preference for either announcing the donation or keeping it private, and, conditional on this

[11] Specifically, the computer selects the donation at uniform random from the integers in [0,200].

preference, a willingness to pay. From this information, we construct individual willingness-to-pay functions $\text{WTP}_i(d)$ using the following rule:

$$\text{WTP}_i(d) := \begin{cases} \text{Elicited WTP if } i \text{ prefers to announce donation } d \\ \text{Elicited WTP} \cdot(-1) \text{ if } i \text{ prefers to keep the donation private} \end{cases} \tag{5}$$

where $d$ is the donation amount. Hypothesis 2 then posits that in the group image setting, $\text{WTP}_i(d)$ is increasing in $d$.

We measure *individual* image concerns analogously using data from the individual image setting. Specifically, we study the difference between *individual* public and *individual* private donations, as well as the slope of the willingness-to-pay curve regarding *individual* announcements. Individual image concerns as measured by these constructs serve as a benchmark against which we compare the size and extent of group image concerns.

**Belief elicitation and questionnaire items.** At the end of each setting, participants are asked to state their beliefs about the private and public donations of other participants within the same session. Specifically, for each of the twelve donation intervals presented in Table 1, participants are instructed to estimate the probability that a donation from a randomly chosen participant in their session would fall within each interval. Stated probabilities across all twelve intervals are required to sum up to 100 percent. Participants' answers are incentivized using payments based on a binarized scoring rule (Hossain and Okui, 2013). Beliefs are elicited separately for the individual image setting and the group image setting, and within each setting, participants provide separate belief distributions regarding public and private donations. In the group image setting, participants provide separate beliefs regarding the donations of their ingroup members and those of the outgroup.

The post-experimental questionnaire encompasses a series of demographic questions alongside survey measures pertaining to the charity, participants' group identities, and their concerns regarding image. The demographic segment solicits information on participants' age, gender, and income. Survey measures comprise ratings of the German Children's Fund's importance, trustworthiness, and suitability as a donation recipient; ratings of the prosociality of individuals and groups based on hypothetical donation amounts; importance placed on individual image and on group image; views on how prosocial one's ingroup and the outgroup are generally con-

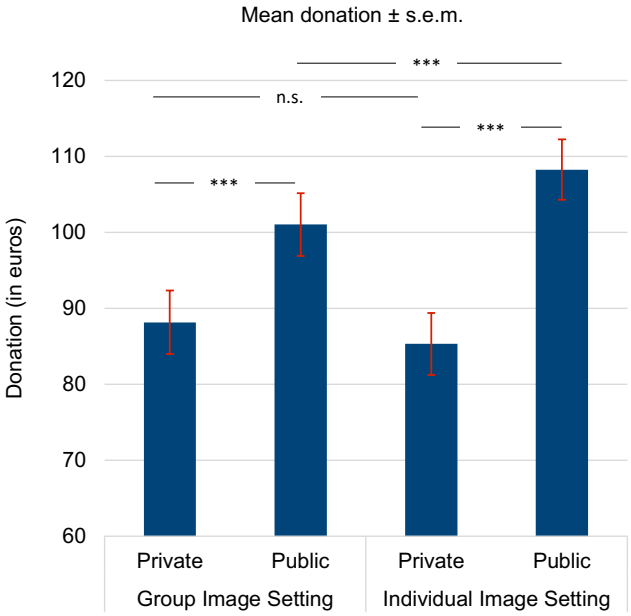
sidered to be; a hypothetical question about the amount of money required to anonymously disclose a critical view of one's home country on a live television broadcast (adapted from Graham and Haidt, 2012); a ranking task to determine the significance of university affiliation as a group identity; and a measure of ingroup bias adapted from Doğan, Glowacki and Rusch (2022). Analyses integrating these variables are of an exploratory nature. The comprehensive list of questionnaire items is in Online Appendix C.

### 3.3 Results

Before delving into our main findings on group image concerns, we first note that the overwhelming majority of participants rated the German Children's Fund as highly trustworthy, committed to important work, and a highly suitable recipient of donations. Furthermore, questionnaire items indicate that charity donations serve as a significant indicator of prosociality; the greater the donation from an individual, ingroup, or outgroup to the German Children's Fund, the more prosocial each is rated to be, respectively. Moreover, university affiliation emerges as an important group identity for our participants: When prompted to rank various group affiliations by their importance, including university, club, nationality, religion, and place of residence, university affiliation emerges on average as the second most important group affiliation, only topped by place of residence (home town). An overview of the responses to questionnaire items is in Online Appendix A.5.

Our main results from the laboratory experiment can be summarized as follows. Group image concerns are prevalent and sizeable, with about one-third of participants displaying such concerns in their donation behavior and willingness to pay. On average, group publicity increases donations by about half that of individual publicity. Participants are willing to pay significantly positive amounts to keep low group donations private, as well as to publicly announce high group donations. Thus, the results support both of our hypotheses.

**Donations.** Our first measure, donations, studies how participants adjust their donations in response to the donation being publicly announced, either by having to reveal one's own donation and identity in a video conference (individual image setting) or by another group member revealing the donation in the name of the group (group image setting). Table 2 provides an overview of the mean donation by group affiliation and setting, as well as the mean differences between public and private donations. Figure 5 displays mean private and public donations




*Notes:* Stars denote statistical significance of two-sided paired t-tests. $^{*}$ $p < 0.1$, $^{**}$ $p < 0.05$, $^{***}$ $p < 0.01$

**Figure 5:** Laboratory experiment: Mean donation by setting.

across settings in a bar chart.[12] Table 3 shows linear regression results that analyze the impact of public announcements on the donation amount.

First, we note that private donations are statistically similar across the group and individual settings: Participants donate on average 88.16 euros when the donation remains private in the group setting, compared to an average of 85.31 euros in the individual setting, with no significant difference between them (two-sided paired t-test, $p = 0.112$). Hence, simply informing participants that they are part of a group or labeling a personal donation as being on behalf of a group does not affect donations. Next, we find that public announcements increase donations in both settings. In the individual image setting, where a public announcement entails revealing one's own donation and identity, there's an increase of 22.95 euros moving from private to public donations ($p < 0.001$). In the group image setting, where the announcement reveals the group identity but keeps the individual donor anonymous, donations increase by 12.86 euros on average ($p < 0.001$). These results are robust to the order of private and public donations. Thus, while the impact of group announcements on donations is less pronounced, its effect is substantial, especially considering that group announcements do not disclose the individual identities of donors. The mere act of publicly linking donations to a group identity leads to an

[12] See Figure A.1 in Online Appendix A for the entire histograms of private and public donations in the group and individual settings.

a) Group Image Setting

| | | Mean Donation | | | Participants with $\Delta$Don $\neq 0$ | |
|---|---|---|---|---|---|---|
| Group Affiliation | N | Private | Public | $\Delta$Don | Share percent | $\Delta$Don\|($\Delta$Don $\neq 0$) |
| Cologne | 110 | 71.25 | 85.84 | 14.58 | 35.5 | 41.13 |
| | | (6.23) | (6.39) | (2.57) | | (4.99) |
| Bonn | 146 | 100.89 | 112.45 | 11.56 | 34.2 | 33.76 |
| | | (5.45) | (5.18) | (1.82) | | (3.66) |
| Pooled | 256 | 88.16 | 101.02 | 12.86 | 34.8 | 36.99 |
| | | (4.19) | (4.11) | (1.52) | | (3.01) |

b) Individual Image Setting

| | | Mean Donation | | | Participants with $\Delta$Don $\neq 0$ | |
|---|---|---|---|---|---|---|
| Group Affiliation | N | Private | Public | $\Delta$Don | Share percent | $\Delta$Don\|($\Delta$Don $\neq 0$) |
| Cologne | 110 | 72.26 | 92.19 | 19.93 | 50.9 | 39.14 |
| | | (6.27) | (6.29) | (3.14) | | (4.96) |
| Bonn | 146 | 95.14 | 120.36 | 25.22 | 51.4 | 49.09 |
| | | (5.24) | (4.86) | (3.17) | | (4.75) |
| Pooled | 256 | 85.31 | 108.26 | 22.95 | 51.2 | 44.84 |
| | | (4.08) | (3.96) | (2.26) | | (3.46) |

*Notes.* $\Delta$Don = public donation - private donation. $\Delta$Don $\neq 0$ refers to participants with a non-zero difference between their public and private donations and $\Delta$Don|($\Delta$Don $\neq 0$) to the mean donation difference among these participants. Standard errors of the mean in parentheses.

**Table 2:** Laboratory experiment: Summary statistics of donation decisions.

effect more than half as large as that of individual announcements. This observation confirms Hypothesis 1, providing our first evidence that group image concerns not only exist but also have a meaningful impact on behavior.

In both the individual image setting and the group image setting, we observe notable heterogeneity in participants' responses to public announcements. Specifically, in the individual image setting, approximately half of the participants (51.2 percent) exhibit a difference between private and public donations, see Table 2. Within this subgroup, the increase from private to public donations averages 44.84 euros ($p < 0.001$), indicating a strong response to the visibility of their individual identity being linked to their donation and highlighting the influence of individual image concerns. In the group image setting, a slightly smaller yet significant portion of participants, 34.8 percent, adjust their donations in reaction to public announcements of their donation in the name of their group. This suggests that around one-third of participants are motivated by group image concerns, choosing to elevate their donations when these are publicly disclosed.[13] On average, these participants increase their public donations by 36.99 euros

[13]Showing a concern for group announcements is positively correlated with showing a concern for individual announcements, but not perfectly so. In particular, there exist a small minority (6.3 percent) for whom there is publicity effect only in the group image setting, and a relatively larger group (22.7 percent) with a publicity effect only in the individual image setting. Figure A.2 in Online Appendix A shows a scatter plot of publicity effect in the group image setting over that in the individual image setting. Table A.1 in Online Appendix A

| Dep. Var.: Donation amount | Group image setting (1) | Individual image setting (2) | Pooled (3) |
|---|---|---|---|
| Public announcement | 12.86*** | 22.95*** | 12.86*** |
| | (1.518) | (2.261) | (1.519) |
| Individual setting | | | -2.84 |
| | | | (1.784) |
| Public announcement x Individual setting | | | 10.09*** |
| | | | (2.175) |
| Constant | 88.16*** | 85.31*** | 88.16*** |
| | (4.199) | (4.081) | (4.201) |
| Observations: | 512 | 512 | 1024 |
| Subjects: | 256 | 256 | 256 |

*Notes.* The dependent variable (donation amount) can take values between 0 and 200 euros. Standard errors clustered at participant level in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

**Table 3:** Laboratory experiment: Linear regressions of the effect of public announcements on donations.

compared to their private donations ($p < 0.001$).[14]

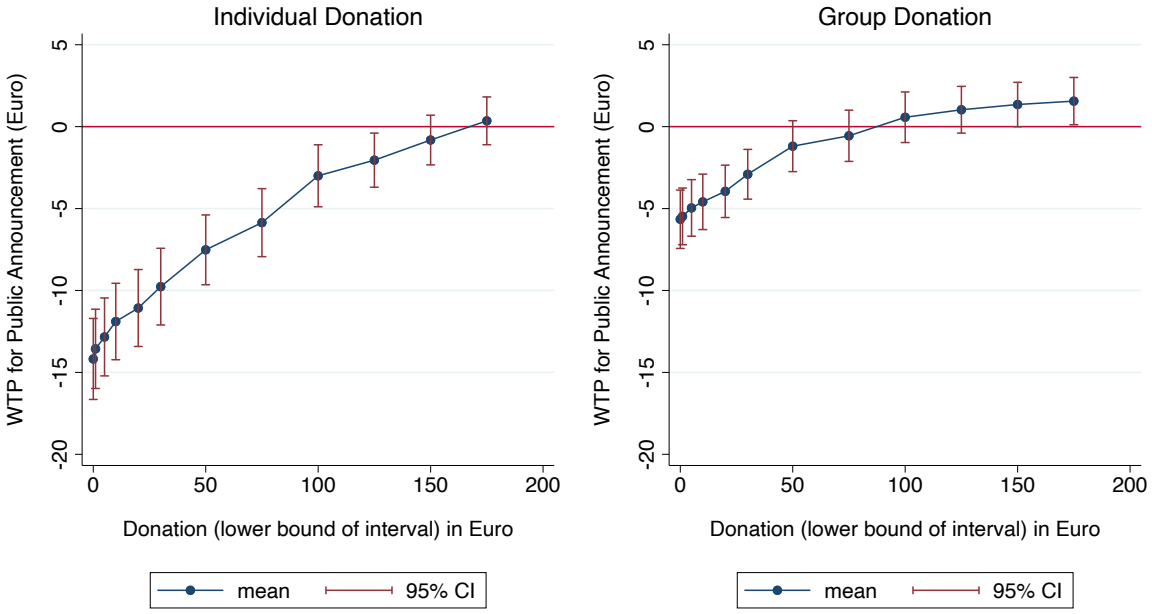
Finally, as documented in Table 2, we observe similar treatment effects and shares of participants responding to the public announcements across both groups, students of the University of Cologne and students of the University of Bonn. This indicates that the behavioral effects of group image concerns that we document in our laboratory experiment are robust across the two student samples.

**Willingness to pay for public announcements.** We now turn to our second measure of image concerns, which is the willingness to pay for announcing different donation amounts. Figure 6 displays mean willingness to pay in the individual image setting (left) and in the group image setting (right) as a function of the donation amount. As specified in Equation (5), negative values imply that participants pay to keep the donation private, i.e., express a preference for not announcing the donation. Conversely, positive WTP values imply a strict preference among participants for making the donation public, to the extent that they are willing to incur a cost for announcing it. Table 4 presents regression results that quantify the slopes of the mean willingness-to-pay curves through linear models, estimating the average marginal effect of an increase in donation amount on the willingness to pay for the public announcement of the donation.

We begin by discussing the willingness to announce group donations. On average, partici-

categorizes individuals according to their public and private donation differences in the two settings, and shows mean donation amounts per category.

[14] In each of the two settings, a mere four participants donated less in public than in private, aligning with expectations that public donations, driven by image concerns, would be higher.




*Notes:* Left panel: Willingness to pay for announcing one's own donation in the individual image setting. Right panel: Willingness to pay for announcing the donation of another group member in the group image setting.

**Figure 6:** Laboratory experiment: Mean willingness to pay for public announcements by donation amount.

pants dislike announcing low group donations and like announcing high group donations. The mean willingness to pay for announcing a zero donation, that is, when another group member chooses not to donate anything, is significantly negative at $-5.65$ euros, as confirmed by a two-sided one-sample t-test ($p < 0.001$).[15] This implies that people pay to avoid having to announce selfish behavior from other participants in their group. In comparison, the mean willingness to pay for announcing a group donation above 175 euros is significantly positive at 1.56 euros ($p < 0.05$), implying that the average participant obtains positive utility from announcing generous contributions made by members of their group. In alignment with our theoretical model of group image concerns and as predicted by Hypothesis 2, we observe a positive slope of the willingness-to-pay curve across the entire donation range. On average, for every one-euro increase in the donation amount, the willingness to pay for announcing the donation of another group member increases by 0.04 euros ($p < 0.001$), see Table 4, column (1). This indicates that participants derive positive marginal utility from publicly announcing higher group donations, consistent with the idea that utility increases monotonically with the public image of their group.

[15]The mean willingness to pay for each donation interval, along with its standard error and the results of a t-test assessing the significance of the mean against zero, is provided in Table A.2 in Online Appendix A.

| Dep. Var.: WTP for public announcement | Group image setting (1) | Individual image setting (2) | Pooled (3) |
|---|---|---|---|
| Donation amount (lower bound of interval) | 0.04*** | 0.08*** | 0.04*** |
| | (0.007) | (0.008) | (0.007) |
| Individual setting | | | -8.09*** |
| | | | (1.040) |
| Donation amount × Individual setting | | | 0.04*** |
| | | | (0.007) |
| Constant | -4.75*** | -12.84*** | -4.75*** |
| | (0.855) | (1.227) | (0.855) |
| Observations: | 3072 | 3072 | 6144 |
| Subjects: | 256 | 256 | 256 |

*Notes.* The dependent variable (WTP) can take values between −50 and 50 euros. Donation amount refers to the lower bound of the donation interval (see Table 1) for which the participant indicates her WTP. Standard errors clustered at participant level in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

**Table 4:** Laboratory experiment: Linear regressions of the willingness to pay for public announcements.

Turning to the individual image setting for comparison, we likewise note a positively sloped willingness-to-pay curve for personally announcing one's own donation. The average slope coefficient is estimated at 0.08 euros for each one-euro increase in the donation amount, see Table 4, column (2). This confirms the existence of significant *individual* image concerns in our setting, with utility being positively related to the size of a publicly revealed personal donation. The willingness-to-pay curve for announcing individual donations is largely in the negative domain, implying that participants attach mostly negative value to these announcements and pay to avoid having to make them.[16] Notably, this is not the case for the announcement of group donations, where the point estimate of willingness to pay becomes positive for donations exceeding 100 euros.[17] Both the absolute amounts that participants are willing to pay to influence the announcement of individual donations and the slope coefficient of the willingness to pay curve are significantly larger in the individual image setting than in the group image setting, see Table 4,

[16]It is only for the highest donation interval (175–200 euros) that the point estimate of mean willingness to pay turns slightly positive (0.36 euros), though this estimate is not significantly different from zero (two-sided one-sample t-test $p = 0.633$). For detail, see Table A.2 in Online Appendix A.

[17]There exist several possible explanations for why the willingness-to-pay curve for individual announcements is mostly in the negative while the curve for group announcements is not. First, revealing information about one's own donation might carry an intrinsic utility cost not associated with disclosing others' donations, affecting the willingness to announce regardless of donation size. This could mean that even though high individual donations bring a sense of pride, a baseline cost of personal disclosure nudges the overall utility curve into the negative. Alternatively, positive image utility from disclosing individual donations might only materialize at higher donation amounts, possibly due to perceptions that public donations are generally larger in the individual image setting than in the group image setting. Finally, it could be that people associate disutility with revealing donations that were selected by the computer and not by themselves, even though this should not influence the inferences that others draw about them. Ultimately, we cannot pin down the exact reason. Notice that a fixed disutility from appearing in a video conference in front of all participants cannot explain our results, because in that case, we would have observed predominantly negative amounts in the group willingness-to-pay curve as well.

column (3). Moreover, 51.95 percent of participants in the individual setting have a non-zero willingness to pay for at least one donation interval, while the corresponding percent is 31.64 in the group image setting. This aligns with our findings regarding the effect of public announcements on donations: Although announcements associating donations with the group influence fewer people and yield somewhat smaller average effects compared to individual announcements, they still achieve substantial levels of engagement. This demonstrates that concerns over group image are widespread and of substantial utility relevance for many participants.

**Further findings.** Beliefs align closely with observed behaviors, with participants anticipating higher donations in public compared to private contexts for both individual and group settings ($\Delta = 28.06$ and $\Delta = 18.30$, respectively, paired t-test $p < 0.001$), only small differences in private donations across settings ($\Delta = 2.36$, $p = 0.073$), and a stronger effect of publicity on donations in the individual setting than in the group setting ($\Delta = 9.76$, $p < 0.001$).[18] Participants' beliefs are near identical with regard to donations made by ingroup and those made by outgroup members. For a detailed overview of beliefs, we provide histograms in Online Appendix A.4.

Our exploratory analyses of questionnaire items yield the following noteworthy results. Details are in Online Appendix A.6. First, participants' questionnaire responses regarding the importance of either themselves or their entire group being perceived as prosocial significantly predict variations in donations in the expected directions, suggesting that stated image concerns can act as proxies for actual image-driven behaviors.

Second, incentivized choices in our experiment correlate with hypothetical monetary amounts required to publicly criticize one's nation, as measured using a modified 'group loyalty' question found in the Moral Foundations Sacredness Scale (Graham and Haidt, 2012). The question inquires about how much money participants would ask for to anonymously disclose a critical view of their home country on a live television broadcast. The most stringent response—"I would definitely not do it, no matter how much money is offered"—which is given by about 10% of participants, predicts a steeper willingness-to-pay curve in our experiment, i.e., a greater willingness to pay both for avoiding the public announcement of low group do-

[18] Recall that participants report beliefs by assigning percentages to each donation interval in Table 1. To compare average beliefs between questions, we calculate subjective mean beliefs for each question by employing the lower bound of each interval as the respective donation value, weighted by the percentage points assigned to that interval. Outcomes are consistent when substituting the lower bounds with the midpoints of these intervals for the determination of subjective means.

nations and for implementing the public announcement of high group donations, as well as greater differences between public and private donations in the group setting. Given that the group affiliation referenced in this question (home country) is distinct from the groups observed in our lab experiment (university), this correlation indicates the presence of a trait in certain individuals that predisposes them to be concerned with group image, irrespective of the specific group involved. This observation aligns with recent research identifying 'groupy' types in experimental settings involving the distribution of money among members of different groups (see Kranton and Sanders, 2017; Kranton et al., 2020).

Lastly, donations in the group image setting correlate meaningfully with participants' perceptions regarding the general prosocial image of their ingroup and the outgroup. The more a participant agrees that her ingroup is considered prosocial, the more she donates in the public group condition relative to the private one. Conversely, the more a participant agrees that the outgroup is considered prosocial, the less she donates publicly as compared to privately. The first pattern resonates with the intuition that an established high public image is vulnerable to being compromised by low donations, thereby necessitating higher public contributions to sustain it. The second pattern is open to multiple interpretations: It could indicate that participants perceive more value in signaling high prosociality of the ingroup in the presence of a less altruistic outgroup, or it may reflect a characteristic mindset among 'groupy' individuals, who, while highly valuing their ingroup's image, concurrently hold less favorable views of the outgroup. Reassuringly, these correlations only manifest in the group image setting, not in the individual image setting, reaffirming their association with group image concerns rather than image concerns in general.

# 4 Studies 2–4: Experiments with Online Samples

To further test the existence of group image concerns and document their economic significance, we ran three additional experiments with samples of U.S. participants[19] recruited from the online platform Prolific.[20] The experiments were conducted in March 2023. In total, 597 people participated in the study, including 100 participants who served as a comparison group for public announcements. Each participant either participated in one experiment or was part of

[19]Country of residence and nationality = United States.

[20]Prolific Academic (`https://www.prolific.co/`) is an online panel that allows researchers to recruit participants from a variety of backgrounds for paid surveys and experiments.

the comparison group. The experiments were pre-registered at the AEA RCT registry.[21]

### 4.1 Design

The design builds upon our laboratory experiment with a few modifications. Specifically, we simplify the public announcement of actions using group affiliations, and eliminate the individual setting. These changes ensure smooth running of the experiments in an online sample.[22] Our domain-group identity pairs achieve two primary objectives. The first is to replicate our laboratory experiment in a diverse participant pool, utilizing a group identity typically associated with generosity, namely, religion. Our second objective is to investigate group image concerns in further domains. To this end, we chose domain-group pairs that are naturally and typically associated with one another in real-life, namely, patriotism-political party and intelligence-university. Performance in real-effort tasks, that we describe in detail below, serves as measures of patriotism and intelligence. Figure 7 summarizes the design of our experiments. The instructions are in Online Appendix D.

Public announcements in our online experiments are structured as follows. Should a public announcement be made, it is made both by sharing the link to a special-purpose website and by sending an email to each participant. The public announcement is made to all 597 participants of our online experiments, making sure that the announcement has some public reach. Example announcements for all the online experiments are depicted in Figure 8. Importantly, the announcement provides the donation amount or the task performance of one selected participant, for example, that of a Christian, a Democrat, or a UCLA student. The announcement, a template of which we show to the participants in the instructions, does not reveal details about the individual donor, but highlights the group identity of the participant and compares the donation or the task performance to the average in the comparison group, see below.

**Online Experiment 1: Generosity and Religious Affiliation.** Our first experiment replicates the group setting of the laboratory experiment with participants in the U.S. based on their religious affiliation as the relevant group identity. Panel a) of Figure 7 depicts the structure of the experiment. Specifically, we invite to the experiment only those who stated a

[21] See `https://www.socialscienceregistry.org/trials/11027`.

[22] Our primary objective in these experiments is to explore group image concerns across different group identities and domains, rather than benchmark group image concerns against individual image concerns. Additionally, eliciting individual image concerns in an online sample presents distinct challenges. For example, a video conference with all participants is not feasible and may be undesirable pertaining to online platform rules.

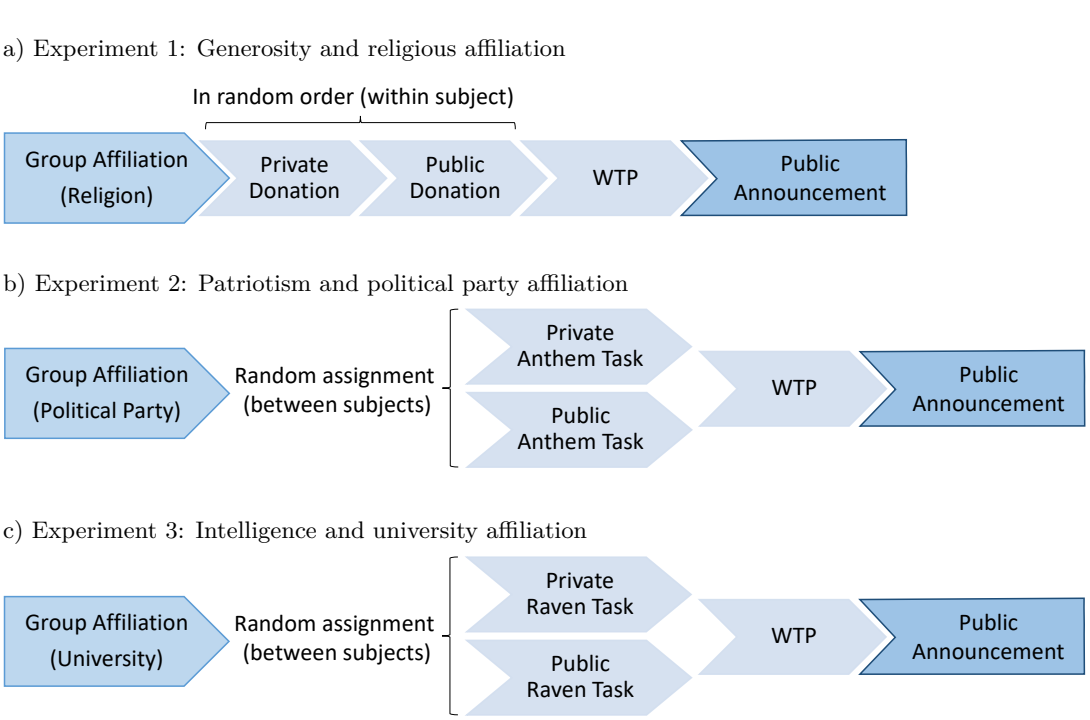



**Figure 7:** Timelines of online experiments.


*Notes.* Specific group affiliations (Christian, Democrat, UCLA student) shown in the figure are illustrative examples drawn from the range of affiliations in the study. In the experiments, participants saw messages tailored to their own group affiliation.

**Figure 8:** Public announcements in online experiments.

religious affiliation with Christianity, Islam, or Judaism, or who identified as non-religious on the platform.[23] In addition to this recruitment restriction, we invoke participants' religious group identity at the beginning of the experiment by asking them to state their religious affiliation, followed by the information that they are part of a group according to this selection and that they are making decisions on behalf of their group.[24]

Participants go through the exact same decisions as in the group image setting of the laboratory experiment, meaning that they all make a group donation between $0 and $200 once

[23] Additionally, we write the study description on Prolific as follows: "This study can only be taken by individuals who have one of the following religious affiliations: Christian, Jewish, Muslim, Non Religious (e.g., Agnostic, Atheist, No Religion). Please do NOT participate in this study if this does not apply to you."

[24] Those who select "None of the above" when asked about their religious affiliation are reminded of the study's participation criteria, and are directed out of the study without participating.

under the private scenario and once under the public scenario, and provide their willingness to pay between \$0 and \$50 for the public disclosure or non-disclosure of donations made by other group members in the name of the group. Feeding America, a domestic hunger-relief organization, and one of the largest and most respected charities in the United States, serves as the recipient for donations. Using the same implementation probabilities as in our laboratory experiment (see Figure 3, panel b), a public donation has a 90 percent probability of being publicly announced if it is realized. With the remaining 10 percent probability, the willingness to pay of another group member determines whether the donation is publicly announced.

At the end of the experiment, one participant and one donation decision –private or public– is randomly chosen with equal probability for realization. The donated amount is transferred to the charity, while the donor is paid out the remainder of the endowment.

**Online Experiment 2: Patriotism and Political Party Affiliation.** The second experiment explores group image concerns with respect to patriotism, and utilizes U.S. political party affiliation, specifically Democrat or Republican, as a group identity. To do so, we prescreen participants based on information about their U.S. party affiliation in their Prolific profile, allowing 100 Democrats and 100 Republicans to participate. In addition, we invoke participants' political group identity at the beginning of the experiment by asking them to state their political party affiliation, followed by the information that they are part of a group according to this selection and that they are making decisions on behalf of their group.[25]

Patriotism is considered a virtue in the U.S. and is of significant importance in the political discourse regardless of party affiliation, indicating that both Democrats and Republicans have an interest in being viewed as patriotic (see, for instance, Huddy and Khatib, 2007). To produce signals associated with patriotism, we develop a novel real-effort task that involves identifying and correcting intentionally embedded errors –a total of 64 wording and punctuation mistakes– within the U.S. national anthem, the Star-Spangled Banner. Considering the anthem's significance in expressing identity and national pride, we expect that performance in this task, measured by the number of errors found, holds significant image value in relation to patriotism.

Performance in the real-effort anthem task comprises our central outcome measure. In a between-subjects design, half the participants are assigned to the private treatment and are

[25]Participants who select "Independent" or "Other" are reminded of the study's participation criteria and then directed out of the study without participating.

informed that their individual performance will not be disclosed to other participants, while the other half is assigned to the public treatment and are informed that one randomly selected individual's performance will be publicly announced on behalf of their group to all participants in our online samples, see Figure 7, panel b).

All participants provide their willingness to pay for the public announcement of the performances of another group member. To elicit this willingness to pay, we bracket the range of performances into nine intervals, ranging from 0 (no mistakes found) to 64 (all mistakes found). For each of the intervals, participants provide their willingness to pay between \$0 and \$50 for either announcing or keeping private a performance that falls within it.

**Online Experiment 3: Intelligence and University Affiliation.** In our third experiment, we study group image concerns with respect to intelligence. We recruit students enrolled at a university or college as participants, with their university affiliation serving as their group identity. Only U.S. participants who are currently studying at a U.S. institution are eligible to participate. At the beginning of the experiment, we request participants to disclose the name of their university, after which we inform them that, for the purposes of this study, they are acting as a member of the group of students of that university.

To generate public signals associated with intelligence, we ask participants to solve 30 matrix completion tasks provided by Matzen, Benz and Dixon (2010), that are similar to Raven's Progressive Matrices. We use a mixture of easy to hard tasks. All participants work on the same tasks in the same order. At the beginning of the experiment and before treatments are introduced, participants also complete six tasks as "training tasks."

Raven's Progressive Matrices is a validated measure of general cognitive ability, and has been extensively used in the past (Raven, 2000). We expect participants to associate performance on such tasks with a measure of intelligence. Since signals about intelligence are highly ego-relevant for most people (see, e.g., Zimmermann, 2020), they are particularly appropriate for our study. Given that one of the most important attributes associated with higher education is intelligence, we expect students to have group image concerns regarding the public disclosure of test scores that may inform on the intelligence of their university.

We employ a between-subjects design to implement our private and public treatments. Before working on the matrix completion tasks, half of the participants are informed that their individual performance will remain private. Meanwhile, the other half is informed that one in-

dividual's performance, randomly selected, will be publicly announced on behalf of their group to all participants in our online samples. Subsequently, all participants provide their willingness to pay for the public announcement of other group members' performances. For this, we divide the range of performances into eight intervals, spanning from 0 to 30. For each of the intervals, participants provide their willingness to pay between \$0 and \$50 for either announcing or for keeping private the performance of another group member.

**Post-experimental questionnaire for all online experiments.** At the end of each experiment, participants complete a short questionnaire. They indicate how strongly they identify with the group affiliation relevant to the experiment using a four item scale; very strongly, strongly, weakly, and very weakly. They also rate, on a scale from 0 to 100 degrees, how warm or cold they feel toward their own group as well as toward other groups' participating in the experiment.[26] The remainder of the questionnaire gathered information on participants' educational background and their religious, political, and university affiliations depending on the experiment.[27] This allows us to examine how participants in the three convenience samples differ with respect to their educational background and their group affiliations. The questionnaire specific to each experiment is included as part of the experimental instructions in Online Appendix D. An overview of the responses to questionnaire items is in Online Appendix B.

**Comparison group.** To establish a reference point against which we could compare our participants' donations and performance, we collected private donation and performance data from 100 randomly selected U.S. participants without specific group affiliations before conducting the online experiments. Participants in the actual experiments were informed about the average donation or task performance in this reference group. We use these averages as benchmarks for comparing the selected participant's donation or performance when making public announcements, see Figure 8. Apart from generating public benchmarks, the choices and performances of participants in the comparison group are not subject to further analysis.

[26] In Experiments 1 and 2, we list all the relevant groups and ask participants to give a rating for each group separately. This method is not feasible in Experiment 3 with a potentially very large list of entries, therefore, participants give two ratings, one for their own institution and one for someone from another institution.

[27] In Experiment 1, where we elicit their religious affiliation at the beginning, questionnaire items included participants' educational background, their university affiliation if applicable, and their political affiliation. In a similar vein, in Experiments 2 and 3, questionnaire items included participants' religious affiliation, and either their university affiliation (Experiment 2) or political affiliation (Experiment 3).

### 4.2 Primary outcome measures

Following our central Predictions 1 and 2 (see the theoretical framework in Section 2), our primary outcomes measures are the donations and task performances observed across private and public treatments as well as participants' willingness to pay for publicly announcing donations and achievements of other group members. Our hypotheses are analogous to the laboratory experiment, namely:

**Hypothesis 1'** (Group image concerns I)**.** *Donations and achievements in the real-effort tasks are higher in public group treatments than in private group treatments.*

**Hypothesis 2'** (Group image concerns II)**.** *The willingness to pay for publicly announcing the donations or achievements of other group members increases with the size of their donations or achievements.*

We construct individual willingness-to-pay curves and test Hypothesis 2' using the same method as for the data of the laboratory experiment. For detail on this method, see Section 3.2.

### 4.3 Results

First, we observe that across all three experiments, the majority of participants reported either strong or very strong identification with the invoked group identities.[28] This suggests that the group identities we use are indeed significant and meaningful to participants.

Our main result from the online experiments is that group image concerns are significant and widespread across diverse domains and group identities. In the first experiment, which explores group image concerns related to generosity and religion, we strongly corroborate the results of our laboratory experiment, confirming their robustness using a different group identity and sample. This is true regarding both, the behavioral response to group-level announcements and the willingness to pay for making such announcements. In the second and third experiments, although we do not observe significant effects of group announcements on actual task achievements, the willingness-to-pay curves reveal substantial group image concerns for patriotism in relation to political party affiliation and intelligence in relation to university affiliation. All in all, our online experiments thus confirm the widespread existence and relevance of group image concerns.

[28] For detail, see Figure B.4 in Online Appendix B.

| | | Mean Donation | | | Participants with ΔDon ≠ 0 | |
|---|---|---|---|---|---|---|
| Group Affiliation | N | Private | Public | ΔDon | Share percent | ΔDon\|ΔDon ≠ 0 |
| Christian | 43 | 106.53 | 111.30 | 4.77 | 20.9 | 22.78 |
| | | (10.33) | (10.51) | (3.36) | | (15.26) |
| Jewish | 2 | 35.00 | 100.00 | 65.00 | 50.0 | 130.00 |
| | | (15.00) | (50.00) | (65.00) | | (.) |
| Muslim | 1 | 150.00 | 150.00 | 0.00 | 0.0 | |
| | | (.) | (.) | (.) | | |
| Non-Religious | 53 | 81.72 | 89.64 | 7.92 | 18.9 | 42.00 |
| | | (8.19) | (8.52) | (2.92) | | (10.14) |
| Pooled | 99 | 92.24 | 99.87 | 7.63 | 20.2 | 37.75 |
| | | (6.44) | (6.67) | (2.48) | | (9.83) |

*Notes.* ΔDon = public donation - private donation. ΔDon ≠ 0 refers to participants with a non-zero difference between the public and private donations and ΔDon|(ΔDon ≠ 0) to the mean donation difference among these participants. Standard errors of the mean in parentheses.

**Table 5:** Online experiment 1: Summary statistics of donation decisions.

**Online Experiment 1: Generosity and Religious Affiliation.** Ninety-nine participants across four religious affiliations (Christian, Jewish, Muslim, and Non-Religious) took part in the experiment. The mean age is 38.52 years with a standard deviation of 13.92, and roughly half of them, 50.5 percent, are female.

*Donations.* Table 5 reports mean private and public group donations per religious affiliation and in the pooled data. The public group donation is on average 7.63 dollars higher than the private group donation (two-sided one-sample t-test $p = 0.003$). Similar to the laboratory experiment, this difference is driven by a sizeable minority of participants. While there is no publicity effect in donations for 79.8 percent of the participants, for the remaining 20.2 percent, their public donation is on average 37.75 dollars ($p = 0.001$) higher than their private donation.[29] This conditional treatment effect is remarkably similar in size to that of the laboratory experiment (36.76 euros), see Table 2. Our sample consists mainly of Christians and people identifying as non-religious, comprising 43 and 54 percent of participants, respectively. The non-religious group shows a slightly larger average treatment effect (7.92 vs. 4.77) and conditional treatment effect (42.00 vs. 22.79) than Christians, but these differences are not statistically significant.

*Willingness to pay for public announcement.* Panel a) of Figure 9 displays mean willingness to pay for publicly announcing group donations as a function of the donation amount. In

[29] Among these 20 participants, 17 participants have a higher public than private donation, while three participants have a lower public than private donation. Complete histograms comparing private and public donations are in Figure B.1 in Online Appendix B.

| Dep. Var.: WTP for public announcement | Experiment 1 (1) | Experiment 2 (2) | Experiment 3 (3) |
|---|---|---|---|
| Donation amount (lower bound of interval) | 0.115*** | | |
| | (0.019) | | |
| Number of mistakes found (lower bound of interval) | | 0.380*** | |
| | | (0.035) | |
| Number of points in matrix tasks (lower bound of interval) | | | 1.031*** |
| | | | (0.075) |
| Constant | -6.054*** | -5.664*** | -10.559*** |
| | (2.273) | (1.434) | (1.381) |
| Observations: | 1188 | 1782 | 1600 |
| Subjects: | 99 | 198 | 200 |

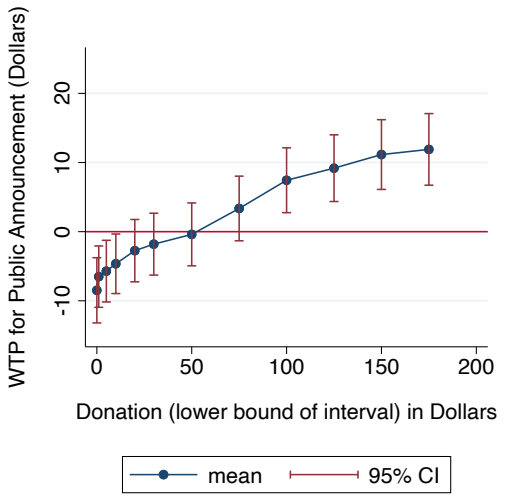
*Notes.* The table shows regression estimates for the willingness to pay for public announcements concerning another group member's donation (Online experiment 1) or performance (Online experiments 2 and 3), modeled as a linear function of that donation or performance. The dependent variable (WTP) can take values between -50 and 50 US dollars. Standard errors clustered at subject level in parantheses. * $p < .1$, ** $p < .05$, *** $p < .01$

**Table 6:** Online experiments 1-3. Regressions estimates of the willingness to pay for public announcements.

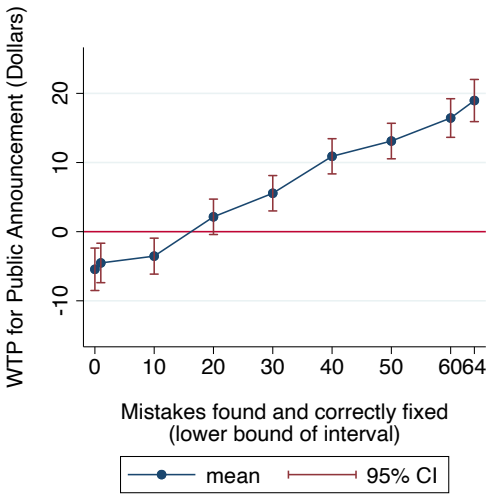
line with the results of our laboratory experiment, participants are willing to pay significantly positive amounts to *avoid* the public announcement of low group donations and to *ensure* the public announcement of high group donations. At the low and high ends of the donation range, participants are willing to pay on average 8.49 dollars (two-sided one-sample t-test $p = 0.001$) to avoid the public announcement of a donation of 0 dollars, and 11.90 dollars ($p < 0.001$) to ensure the public announcement of a donation of more than 175 dollars.[30] In line with our predictions, the willingness to pay for public announcement is monotonically increasing over the donation range. Table 6 column (1) shows regression estimates of willingness to pay as a linear function of the donation amount. The estimated slope coefficient is 0.12 ($p < 0.001$), meaning that on average, a 1 dollar increase in the donation amount increases the willingness to pay for public announcement by 12 cents. This slope coefficient as well as the average amounts participants are willing to pay are somewhat larger than in our laboratory setting. We also observe a higher share of participants with a non-zero willingness to pay for one or more donation intervals in the online sample compared to the laboratory sample (80.8 versus 32.5 percent). This may indicate a higher relevance of religious group affiliation compared to university affiliation, or perhaps a stronger concern for the type of public announcement used for the online sample compared to that used for the laboratory sample. Since many aspects change between the two samples, we cannot pin down the exact reason.

[30]The mean willingness to pay for each donation interval, along with its standard error and the results of a t-test assessing the significance of the mean against zero, is provided in Table B.3 in Online Appendix B.

a) Experiment 1: Generosity and religious affiliation




b) Experiment 2: Patriotism and party affiliation




c) Experiment 3: Intelligence and university affiliation

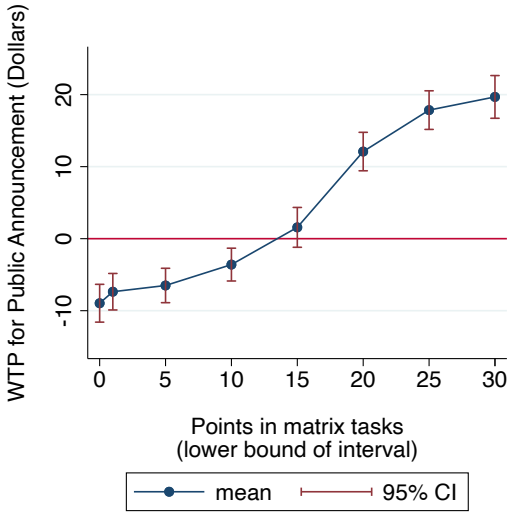



**Figure 9:** Online experiments: Mean willingness to pay for public announcement of the donation or performance of other group members.

**Online Experiment 2: Patriotism and Political Party Affiliation.** A total of 198 participants took part in the experiment, evenly split between Democrats and Republicans. Participants are roughly evenly distributed between the private group treatment (50 Democrats and 52 Republicans) and the public group treatment (49 Democrats and 47 Republicans). The mean age is 42.07 with a standard deviation of 14.46, and exactly half are female.

*Performance in the anthem task.* Table 7 presents mean performance and time invested in the anthem task by treatment and group affiliation. On average, we see an increase in the number of mistakes found (2.32) and the time invested (19.20 seconds) in the public treatment

| | N | | Mean performance in anthem task | | | Mean time invested (seconds) | | |
|---|---|---|---|---|---|---|---|---|
| Group Affiliation | Private | Public | Private | Public | ΔPerformance | Private | Public | ΔTime |
| Democrat | 50 | 49 | 26.46 | 26.84 | 0.38 | 410.55 | 422.22 | 11.67 |
| | | | (1.90) | (2.05) | (2.80) | (35.50) | (37.33) | (51.49) |
| Republican | 52 | 47 | 28.37 | 32.79 | 4.42 | 495.44 | 525.99 | 30.55 |
| | | | (1.84) | (2.12) | (2.79) | (41.50) | (52.01) | (65.95) |
| Pooled | 102 | 96 | 27.43 | 29.75 | 2.32 | 453.83 | 473.02 | 19.19 |
| | | | (1.32) | (1.50) | (1.99) | (27.58) | (32.08) | (42.15) |

*Notes.* Performance denotes the number of mistakes that were accurately corrected out of 64 in the anthem task. Time invested denotes time spent on the anthem task. ΔPerformance = public performance − private performance. ΔTime = public time - private time. Standard errors of the mean for each treatment group and the standard error of the difference in means, calculated using a two-sided two-sample t-test, in parentheses.

**Table 7:** Online experiment 2: Performance and time invested in the anthem task by treatment and group affiliation.

relative to the private one. Answer attempts paint a similar picture.[31] While these effects are in the predicted direction, they are not statistically significant. Republicans seem to have a more substantial effect on performance compared to Democrats (4.42 vs. 0.38), however, the treatment effect for Republicans is also not significant (two-sided two-sample t-test $p = 0.117$).

*Willingness to pay for public announcement.* Figure 9, panel b), displays mean willingness to pay for the public announcement of other group members' performance in the anthem task as a function of the number of mistakes found. This measure provides compelling evidence for substantial group image concerns linked to political party affiliation in the context of patriotism. At the lower end of the performance scale, participants, on average, are willing to pay 5.44 dollars each (two-sided one-sample t-test $p = 0.001$) to prevent the public announcement of another Republican or Democrat finding no mistakes in the national anthem. Conversely, to ensure a flawless score to be publicly announced on behalf of the group, participants are willing to pay an average of 18.97 dollars ($p < 0.001$).[32] The mean willingness-to-pay curve is monotonically upward sloping with an estimated linear slope coefficient of 0.38 ($p < 0.001$), see Table 6 column (2). Democrats and Republicans exhibit nearly identical and largely overlapping willingness-to-

[31] Complete histograms of the number of mistakes found in the private and public treatments are in Figure B.2 in Online Appendix B. Table B.1 in Online Appendix B shows regression estimates of the effect of being in the public treatment on the number of mistakes found, attempts at corrections, and the time invested in the task, with and without demographic controls. Regarding attempts at corrections, on average, participants made 39.56 changes to the text in the private treatment and 42.04 changes in the public treatment. The size of the difference between the two, 2.48, is similar to the difference in the number of correctly solved mistakes, 2.32. Controlling for gender and age give quantitatively similar results.

[32] The mean willingness to pay for each performance interval, along with its standard error and the results of a t-test assessing the significance of the mean against zero, is provided in Table B.4 in Online Appendix B.

pay curves.[33] Further, 86 percent of Republicans and 88 percent of Democrats have a non-zero willingness to pay for one or more performance intervals.

**Online Experiment 3: Intelligence and University Affiliation.** A total of 200 students, 103 in the Private treatment and 97 in the Public treatment, took part in the experiment. The mean age is 28.45 with a standard deviation of 10.22, and exactly half of the participants are female. 197 participants provide unambiguous university affiliations.[34] Participants come from a diverse array of 141 institutions, ranging from prominent research universities such as Purdue, Texas A&M, and UCLA, to smaller teaching-oriented universities such as Western Governors University and Lewis University. The full list is in Table B.6 in Online Appendix B.

*Performance in the matrix completion task.* Table 8 presents an overview of the average number of correctly solved matrix tasks and the average total time invested in the tasks, segmented by treatment and university ranking. Participants correctly solve on average 18.90 and 18.45 tasks in the private and public treatments, respectively. The performance in both conditions is thus nearly identical ($\Delta$Performance $= -0.45$ tasks correctly solved, two-sided two-sample t-test $p = 0.664$) and similar to that of the comparison group who solved 18 tasks on average. The total time spent is also similar across the two treatments ($\Delta$Time $= -19.22$ seconds, two-sided two-sample t-test $p = 0.817$). In line with expectations, participants from higher-ranked universities tend to exhibit slightly higher performances in both treatments. Overall, the possibility of having one's score being publicly announced on behalf of the group does not significantly influence performance or effort in the matrix tasks. The results are similar when controlling for gender, age, university ranking and points in the training tasks.[35]

*Willingness to pay for public announcement.* Panel c) of Figure 9 displays mean willingness to pay for the public announcement of other group member's performance in the matrix tasks as a function of the number of correct answers. The willingness-to-pay curve is monotonically

[33]The most notable difference occurs at the upper end of the performance range, with Democrats willing to pay an average of 20.64 dollars and Republicans 17.29 dollars for publishing a flawless score. The difference of 3.34 dollars is not significant (two-sided two-sample t-test $p = 0.2838$). The same holds true for all other intervals of the curve, where the differences in mean willingness to pay between the two groups are even smaller. Similarly, in a linear regression, the average slope coefficients are estimated at 0.41 ($p < 0.001$) for Democrats and 0.35 ($p < 0.001$) for Republicans. The difference between these coefficients, assessed through an interaction term in a linear regression model, does not reach statistical significance ($p = 0.426$).

[34]The remaining three participants mentioned "ivt," "WG," and "VU" as their university names, which we could not link to a specific institution.

[35]Complete histograms of the number of correctly solved tasks in the private and public treatments are in Figure B.3 in Online Appendix B. Table B.2 in Online Appendix B shows regression estimates of the effect of being in the public treatment on the number of correctly solved tasks and the total time invested in the tasks, with and without controls.

| WSJ/THE | N | | Mean performance in matrix tasks | | | Mean time invested (seconds) | | |
|---|---|---|---|---|---|---|---|---|
| ranking | Private | Public | Private | Public | ΔPerformance | Private | Public | ΔTime |
| Top 50 | 8 | 6 | 21.50 | 22.17 | 0.67 | 1125.99 | 1189.37 | 63.38 |
| | | | (1.74) | (2.10) | (2.71) | (241.10) | (200.56) | (329.32) |
| 51-100 | 9 | 11 | 19.89 | 17.73 | -2.16 | 1157.79 | 964.79 | -193.00 |
| | | | (2.42) | (2.37) | (3.41) | (280.00) | (217.64) | (349.04) |
| 101-200 | 15 | 11 | 18.53 | 15.27 | -3.26 | 1058.57 | 1166.12 | 107.55 |
| | | | (2.04) | (2.72) | (3.33) | (186.66) | (228.41) | (292.78) |
| 201-300 | 14 | 15 | 21.36 | 16.40 | -4.96 | 1157.53 | 1011.21 | -146.32 |
| | | | (1.71) | (2.12) | (2.75) | (179.35) | (124.14) | (215.62) |
| >300 | 26 | 23 | 17.27 | 17.78 | 0.51 | 1175.72 | 1051.10 | -124.61 |
| | | | (1.50) | (1.77) | (2.30) | (117.87) | (121.83) | (169.81) |
| unranked | 29 | 30 | 18.86 | 20.37 | 1.50 | 872.22 | 983.05 | 110.83 |
| | | | (1.08) | (1.20) | (1.62) | (74.49) | (92.83) | (119.51) |
| Pooled | 103 | 97 | 18.90 | 18.45 | -0.45 | 1057.33 | 1038.11 | -19.22 |
| | | | (0.67) | (0.79) | (1.03) | (59.69) | (57.65) | (83.14) |

*Notes.* Performance denotes the number (= points achieved) of correctly solved matrix tasks out of 30. Time invested denotes total time spent on matrix tasks. ΔPerformance = public performance − private performance. ΔTime = public time - private time. WSJ/THE ranking = ranking of the participant's university according to 2022 Wall Street Journal/Times Higher Education U.S. ranking (`https://www.timeshighereducation.com/rankings/united-states/2022`). Pooled data includes three participants with ambiguous university acronyms, who are not included in the ranking data. Standard errors of the mean for each treatment group and the standard error of the difference in means, calculated using a two-sided two-sample t-test, are in parentheses.

**Table 8:** Online experiment 3: Performance and time invested in matrix tasks by treatment and university ranking.

increasing throughout the performance range. On the lower end, participants are willing to pay on average 8.97 dollars (two-sided one-sample t-test $p < 0.001$) to prevent a score of zero from being publicly announced on behalf of their group. On the upper end, participants are willing to pay on average 19.68 dollars ($p < 0.001$) to have a perfect score being published.[36] In a linear regression, see Table 6 column (3), the average slope coefficient is estimated at 1.03 dollars ($p < 0.001$), that is, a one dollar increase in the willingness to pay for public announcement for every additional task that is correctly solved. Further, 90 percent of participants have a non-zero willingness to pay for one or more performance intervals. In sum, the willingness-to-pay results support that participants hold significant and sizeable image concerns linked to intelligence associated with their university.

## 4.4 Discussion

**Missing impact of the public treatment on achievements in the intelligence and knowledge tasks.** Across all three online experiments, we observe substantial and statisti-

[36]The mean willingness to pay for each performance interval, along with its standard error and the results of a t-test assessing the significance of the mean against zero, is detailed in Table B.5 in Online Appendix B.

cally significant group image concerns, as indicated by the willingness to pay for the public disclosure of other group members' donations and task achievements (see Figure 9). However, when examining individual output measures, we find statistically significant effects of the public treatment solely in the donation setting of the first experiment. In contrast, individual achievements in the real-effort tasks of experiments 2 and 3 do not show higher averages in treatments where one's performance may be made public in the name of the group compared to treatments where performance remains undisclosed.

We believe that the main reason for this finding is that achievements in the real-effort tasks of experiments 2 and 3 are difficult for participants to adjust. The high output levels observed in the private treatments suggest that achievement in these tasks is inherently valuable to participants, leading them to provide close to their maximum ability even without additional incentives. This implies that an increase in achievement is hard to observe in the public treatment, even if participants care strongly about the public group signal.

In addition to this likely main reason, there are two further potential reasons for why we observe output differences in the donation setting but not in the real-effort tasks. One is that the former uses a within-subject design, while the latter use a between-subjects design. This difference might affect how individuals condition their behavior to treatments. A second, and likely more important reason, is that in experiments 2 and 3, the signaling value of higher achievement is contingent on being randomly selected as the group representative, with a probability of 1/99, whereas effort costs materialize with certainty. Consequently, the marginal benefit of exerting greater effort is likely small compared to its marginal cost. This is different in the donation setting, where both the benefit and the cost of a donation are conditional on being chosen as the donor, and thus, accrue with the same probability. Hence, in the donation task, group image concerns may impart a relative marginal benefit high enough to observe a meaningful effect size, while in the real-effort tasks, the effect size is too small to be observed with our sample size.[37]

All in all, given the strong evidence for group image concerns that emerges from our mea-

[37] Our sample sizes for experiments 1 to 3 were determined based on the contributions of the comparison group. As outlined in the preregistration, our design has 80 percent power to detect a statistically significant difference of 4.80 dollars between the public and private donations in experiment 1, a difference of 6.1 mistakes between the public and private treatments in the anthem task of experiment 2, and a difference of 2.9 correctly solved tasks between the public and private treatments in the matrix completion tasks of experiment 3. While we observe a sufficiently large donation difference in the donation setting, the treatment differences observed in the other two experiments are substantially smaller than the preregistered minimum detectable effect sizes. Clearly, detecting smaller effects requires substantially more participants.

sure of willingness-to-pay, we caution against interpreting the absence of treatment effects on individual achievements in the real-effort tasks as a sign that participants do not have group image concerns in these domains. Instead, general intelligence and knowledge of the national anthem appear to be areas where individuals are concerned with how their group is perceived by others. However, unlike donations, which can be easily adjusted based on whether they are made public or private, it is much harder for individuals to change or enhance their displayed intelligence or knowledge in response to whether it will be publicly known, making behavioral effects more difficult to observe.

**Reference points in willingness-to-pay curves.** A noteworthy feature of the willingness-to-pay curves in all three online experiments is that it switches from negative to positive around the average donation or performance, respectively, of the comparison group, see Figure 9. More specifically, in the donation task, the average donation of the comparison group is \$90, and the willingness-to-pay curve becomes positive for donations falling into the \$75–\$100 interval. In the anthem task, the average number of mistakes the comparison group found is 26, and the willingness-to-pay curve becomes positive for performances in the 20–30 range. In the matrix task, the average number of correct answers in the comparison group is 18, and the willingness-to-pay curve becomes positive for performances in the 15–20 range.

The comparison group average was communicated to all participants at the beginning of the instructions and served as a salient reference point in the public announcements of donations and performances, see Figure 8. The fact that the zero crossings of the willingness-to-pay curves correspond to this reference point indicates that being perceived as surpassing the reference group yields positive image utility, whereas falling below this group incurs negative image utility. In addition, the shape of the curves in the three settings appears to be quite different. This suggests differences in how the group image utility function operates in the different domains. Our design does not lend itself to testing such differences, and we leave this to future work.

**Online vs. laboratory willingness-to-pay curves.** The willingness-to-pay curves observed in the online settings also distinguish themselves from those in the laboratory experiment. First, the online experiments feature steeper willingness-to-pay curves, as evidenced by the estimated slope coefficients (compare Table 4 with Table 6), alongside larger absolute payment amounts. Second, these curves predominantly reside in the positive domain, indicating a stronger dispo-

sition towards paying for positive group signals.

While pinpointing the precise reasons for these variances is challenging due to numerous differences between the laboratory and online settings, three potential explanations emerge: One is that the group identities represented in the online settings might hold greater significance for participants, which would imply higher (marginal) utility attached to the image of those groups and thus, a steeper slope of the willingness-to-pay curve. As a second factor, online public announcements do not necessitate making announcements personally in a videoconference. The absence of the need to appear in front of a large audience, while retaining the informational content about group characteristics, could lead to an upward shift in the willingness-to-pay curve, pushing it further into the positive domain. Finally, online announcements promise a wider reach, extending to all 597 study participants, including those in the comparison group. The impact of a larger audience size on the perceived value of the signal is intuitive; a more extensive reach can influence the perceptions of a greater number of people regarding the group's attributes, which in turn should amplify the willingness to pay. All of the above dynamics cohesively align with our understanding of group image concerns.

# 5 Conclusion

This paper is the first to propose and systematically investigate the existence of group image concerns, showing that individuals change their behavior and are willing to incur personal costs to cultivate a positive image of their groups. We have designed a portable experimental method to identify and quantify group image concerns, and applied it to one laboratory and three online experiments to measure group image concerns in three distinct domains. Our findings suggest that group image concerns are an important driver of individual behavior and utility across various domains and group identities, ranging from charitable behavior among religious group affiliations to displays of patriotism among political groups. While responses to group publicity are heterogeneous, meaning that not all of our participants reveal such concerns, the percentage of those who do is large: In the laboratory experiment, about a third of participants demonstrate concerns about group image, while in our online experiments this percentage rises to as high as ninety percent.

This is just the start of comprehensively understanding, and formally analyzing group image concerns. As a result, our paper leaves many questions open. One significant question is

how group image concerns influence behavior in field settings. Certain field settings share the characteristics of our experiments that individual identities remain hidden while group identities are observed. For example, in surveys and opinion polls, results are often published at the group level (e.g., responses from Republicans versus Democrats), keeping individual identities confidential. Our experiments suggest that if individuals harbor group image concerns, their responses in these settings will be influenced by a desire to positively represent their group. This sheds new light on documented social desirability biases in surveys and opinion polls, suggesting that they may be partly driven by group image concerns. In other field settings, isolating the effects of group image concerns on behavior is more challenging because both individual and potential group identities are observed simultaneously, making it difficult to pinpoint publicity effects to one or the other. However, even in these contexts, group identities often stand out more than individual identities due to conspicuous markers such as religious attire or club uniforms like football jerseys. When observers primarily rely on these visible group-related markers to interpret individual actions, it is likely that the publicity effects on behavior are driven more by group image concerns than individual image concerns. Investing the role of group image concerns in the field by manipulating the salience of group identities in public settings presents an interesting avenue for future research.

We have examined various group identities—university affiliations, religious affiliations, and political affiliations—and explored different domains—generosity, patriotism, and intelligence—where individuals might exhibit group image concerns. A natural question arising from our study is which domain is most critical for a specific group. For instance, religious groups may prioritize their image concerning generosity, academic groups may focus more on intelligence, and political groups might emphasize patriotism. Our experiments have been tailored to study one domain for each group, but our portable method provides a flexible tool for assessing the importance of different domains across groups. By measuring behavioral changes and willingness-to-pay curves for distinct domains within a single group, one could uncover which aspects they value most. Additionally, our method could allow for the construction of metrics to gauge the importance of various groups to an individual. This would involve having individuals respond to willingness-to-pay measures across different domains for each group they belong to, offering a comprehensive view of their group affiliations and priorities.

In addition to being a source of desirable behavior, group image concerns may also provide

a mechanism through which group norms are formed and maintained. Adjustment of one's own behavior to enhance the group's image rests on the judgment of what good group image entails. Individuals may turn to group norms to make this inference. Behaviors may thus align with perceived group norms in a self-reinforcing manner; if conforming to group norms is perceived as a positive representation of the group, in settings with salient group identities, group members would behave in accordance with the group norms in order to be a valuable, worthy, or good representative of their group. Universality of a distinct behavior type among group members would reinforce that behavior as a defining feature of that group. Across groups, whether the endogenous alignment of individual behaviors with group norms leads to socially desirable outcomes will vary, and in some instances, clearly undesirable outcomes may obtain, such as in the 'acting White' phenomenon first documented by Fordham and Ogbu (1986). Further, in societies strongly fragmented along political, ethnic or religious lines, group norms would become stickier and conformity to them stronger due to the strength of group identities (Suhay, 2015). This may also explain the emergence of preference falsification (Kuran, 1987) and pluralistic ignorance in the society: When individuals overestimate the extent to which others share their beliefs or behaviors, and are willing to uphold a good group image as per group norms, they may behave in ways that go against their personal convictions or preferences (Bursztyn, González and Yanagizawa-Drott, 2020). Understanding the complex interplay between group image concerns, group norms, and other group-related preferences such as ingroup favoritism—as well as the heterogeneity and robustness of these relationships—is crucial for future research.

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# Online Appendices

## A Supplementary data: Laboratory Experiment

### A.1 Treatment effects on behavior: Histograms

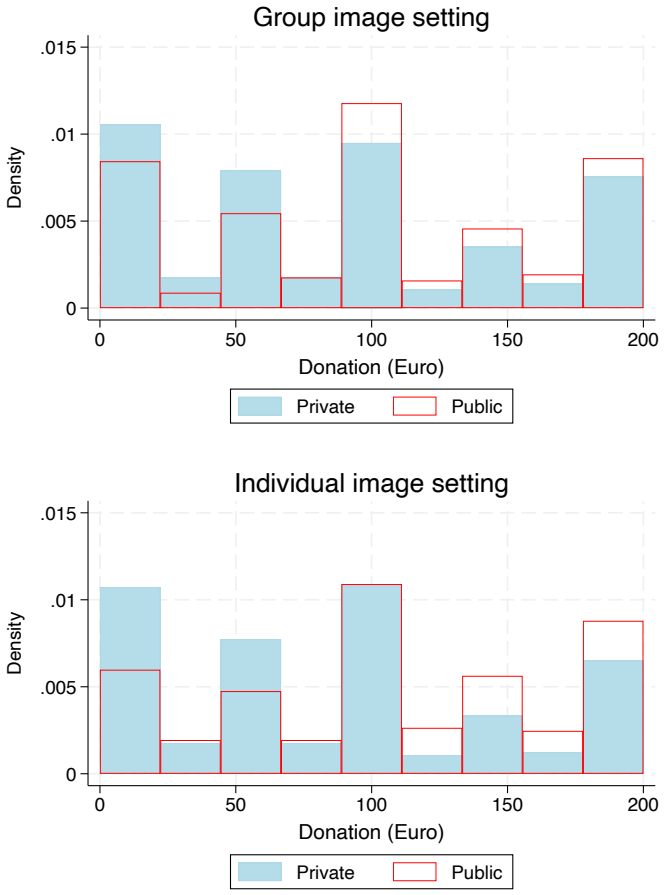


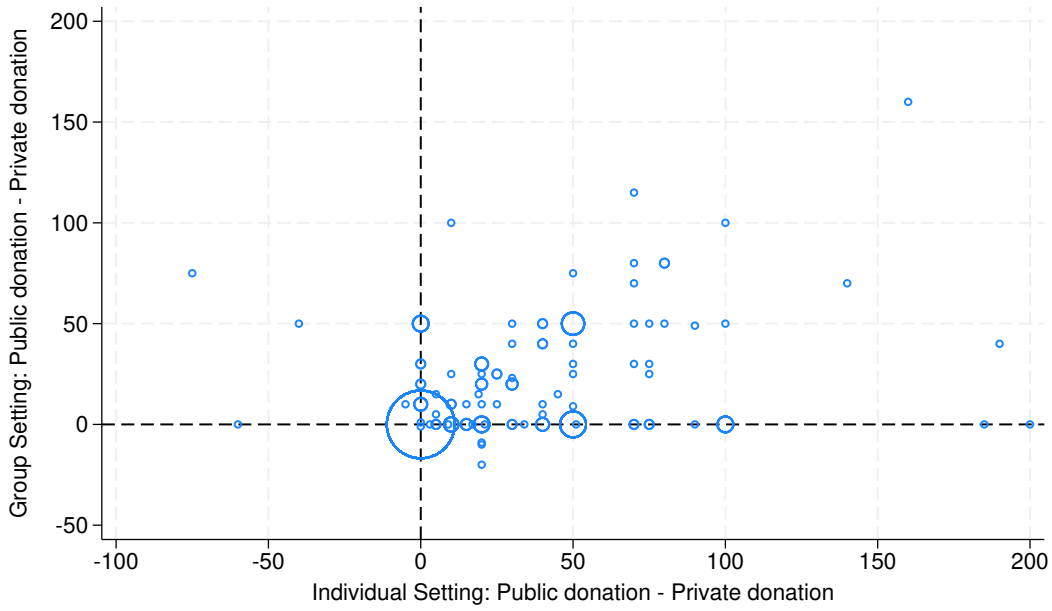

**Figure A.1:** Laboratory Experiment: Histograms of donations ($N = 256$).

## A.2 Within-subject publicity effects

| | | Mean Donation | | | |
|---|---|---|---|---|---|
| | | Individual image setting | | Group image setting | |
| Type | N (Percent) | Private | Public | Private | Public |
| No difference | 109 (42.6) | 110.28 (6.838) | 110.28 (6.838) | 111.70 (6.922) | 111.70 (6.922) |
| Difference only in individual setting | 58 (22.7) | 62.60 (6.924) | 108.90 (8.086) | 75.97 (8.390) | 75.97 (8.390) |
| Difference only in group setting | 16 (6.3) | 101.19 (16.018) | 101.19 (16.018) | 85.50 (16.576) | 113.00 (16.021) |
| Difference in both settings | 73 (28.5) | 62.60 (5.774) | 106.29 (6.060) | 63.27 (5.715) | 102.34 (6.059) |

*Notes.* 'No difference' refers to participants whose private and public donations are identical given a setting (donations may differ across settings). 'Difference' indicates that a participant's private and public donations differ in a particular setting. Standard errors of the mean in parentheses.

**Table A.1:** Laboratory experiment: Categorization of participants according to whether there is a difference between a participant's private and public donations in a given setting




*Notes.* Marker sizes represent the number of participants. A marker at the origin $(0, 0)$ implies that a participant's donation is the same across all settings and scenarios. Markers on the $y = 0$ line show unchanged donations in the group image setting, while those on the $x = 0$ line show unchanged donations in the individual image setting. Markers in the quadrant where $x > 0$ and $y > 0$ reveal increased donations in both settings when made public.

**Figure A.2:** Laboratory experiment: Scatter plot illustrating the relationship between individual donation differences across settings.

## A.3 Willingness to pay for publicity: Means and t-tests by donation interval

a) Group Image Setting

| | WTP for public announcement (euros) | | | mean WTP $\neq 0$ | |
|---|---|---|---|---|---|
| Donation of other group member (euros) | mean | s.e.m. | 95% CI | t-value | p-value |
| 0 | -5.65 | (0.91) | [-7.44, -3.86] | -6.22 | $< 0.001$ |
| 1-4 | -5.48 | (0.88) | [-7.22, -3.74] | -6.20 | $< 0.001$ |
| 5-9 | -4.96 | (0.88) | [-6.69, -3.23] | -5.64 | $< 0.001$ |
| 10-19 | -4.59 | (0.86) | [-6.29, -2.89] | -5.31 | $< 0.001$ |
| 20-29 | -3.95 | (0.81) | [-5.55, -2.34] | -4.85 | $< 0.001$ |
| 30-49 | -2.91 | (0.77) | [-4.43, -1.38] | -3.75 | $< 0.001$ |
| 50-74 | -1.19 | (0.79) | [-2.75, 0.37] | -1.50 | 0.134 |
| 75-99 | -0.56 | (0.80) | [-2.13, 1.01] | -0.70 | 0.484 |
| 100-124 | 0.57 | (0.79) | [-0.98, 2.13] | 0.73 | 0.729 |
| 125-149 | 1.03 | (0.73) | [-0.40, 2.46] | 1.42 | 0.158 |
| 150-174 | 1.35 | (0.69) | [-0.01, 2.71] | 1.96 | 0.052 |
| 175-200 | 1.56 | (0.74) | [0.11, 3.01] | 2.12 | 0.035 |

b) Individual Image Setting

| | WTP for public announcement (euros) | | | mean WTP $\neq 0$ | |
|---|---|---|---|---|---|
| Random computer donation (euros) | mean | s.e.m. | 95% CI | t-value | p-value |
| 0 | -14.18 | (1.26) | [-16.66, -11.70] | -11.25 | $< 0.001$ |
| 1-4 | -13.56 | (1.23) | [-15.99, -11.13] | -10.99 | $< 0.001$ |
| 5-9 | -12.84 | (1.21) | [-15.23, -10.45] | -10.58 | $< 0.001$ |
| 10-19 | -11.89 | (1.19) | [-14.24, -9.55] | -9.99 | $< 0.001$ |
| 20-29 | -11.07 | (1.20) | [-13.43, -8.71] | -9.24 | $< 0.001$ |
| 30-49 | -9.77 | (1.19) | [-12.12, -7.41] | -8.18 | $< 0.001$ |
| 50-74 | -7.52 | (1.09) | [-9.66, -5.38] | -6.92 | $< 0.001$ |
| 75-99 | -5.86 | (1.06) | [-7.95, -3.77] | -5.53 | $< 0.001$ |
| 100-124 | -3.00 | (0.96) | [-4.90, -1.10] | -3.11 | 0.002 |
| 125-149 | -2.05 | (0.84) | [-3.71, -0.39] | -2.43 | 0.016 |
| 150-174 | -0.82 | (0.77) | [-2.34, 0.71] | -1.06 | 0.292 |
| 175-200 | 0.36 | (0.74) | [-1.11, 1.82] | 0.48 | 0.633 |

*Notes.* Standard error of the mean in parentheses. t- and p-values refer to results of a two-sided one-sample t-test. The means and their 95 percent confidence interval are plotted in Figure 6, where the right panel shows group donation WTP and the left panel individual donation WTP.

**Table A.2:** Laboratory experiment: Mean willingness to pay for public announcement by donation interval.

## A.4 Beliefs

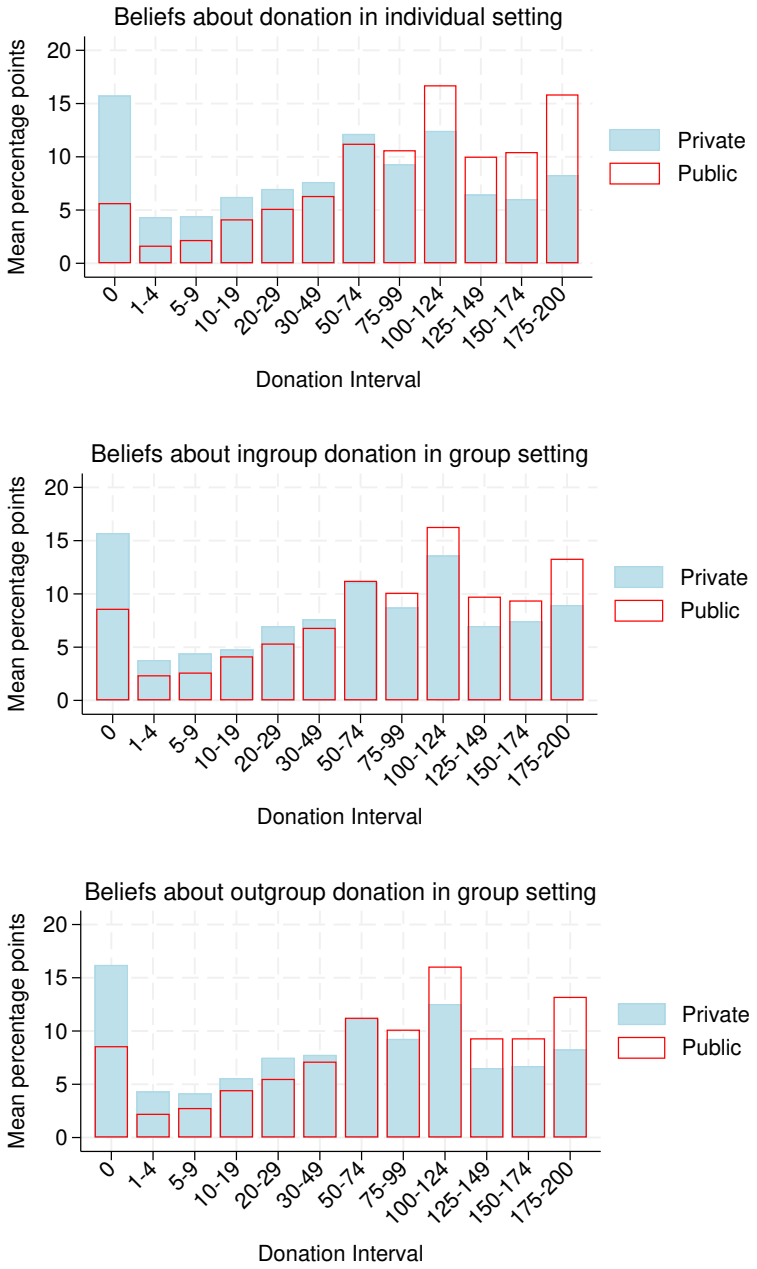



**Figure A.3:** Laboratory experiment: Beliefs (percentage points assigned to different donation intervals) regarding private and public donations in the individual image setting and the group image setting.

## A.5 Questionnaire items: Overview of responses

### Charity Ratings

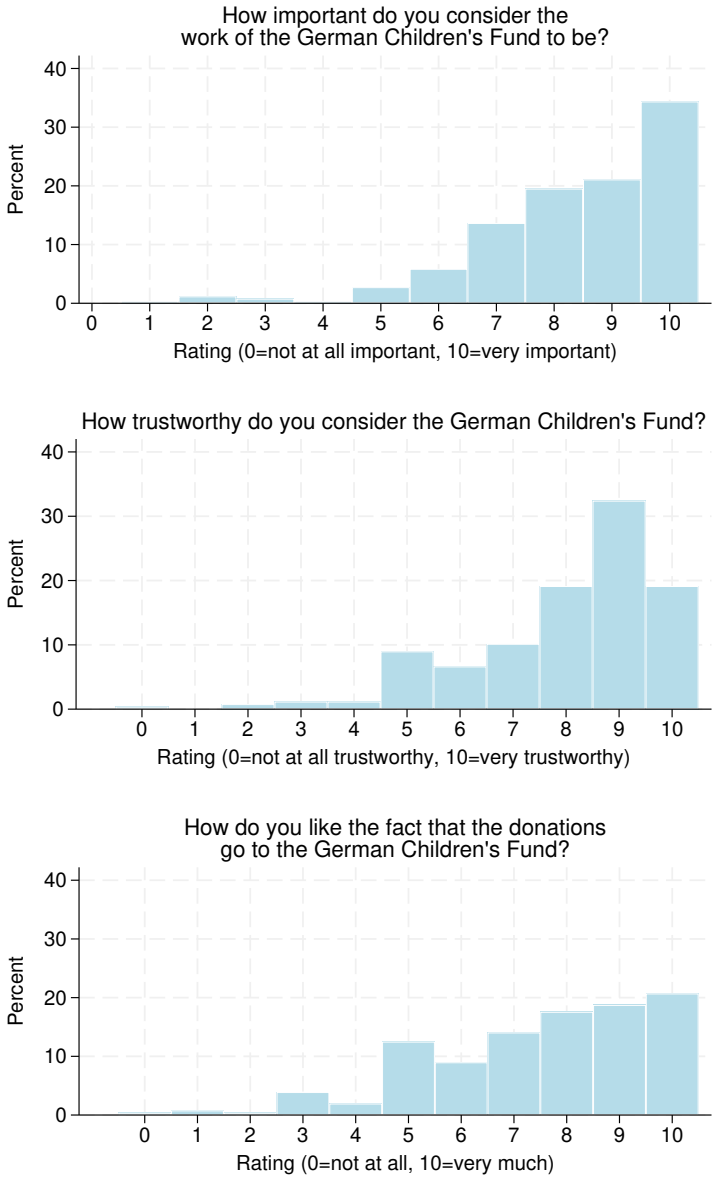



**Figure A.4:** Laboratory experiment: Charity ratings

**Group loyalty question (adapted from Haidt, 2012; Graham and Haidt, 2012)**

Question asked "How much would someone have to pay you to do the following?" Variant 1: "Say something critical about your home country (which you believe to be true) while anonymously tuned into a live television broadcast of your home country." Variant 2: "Say something critical about your home country (which you believe to be true) while anonymously tuned into a live television broadcast of a foreign country."

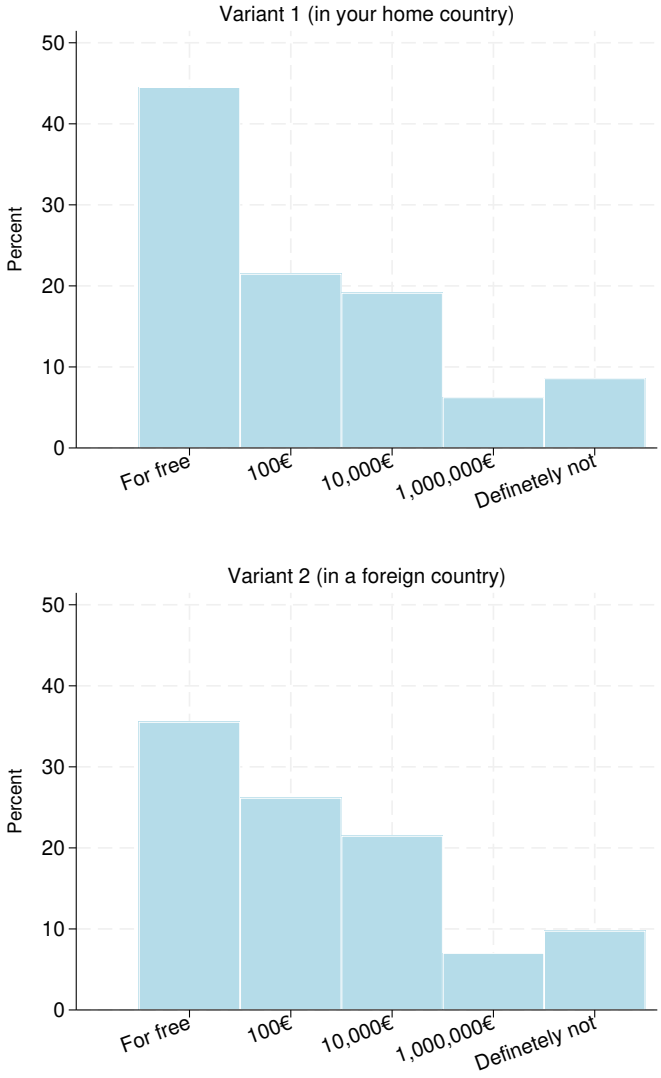
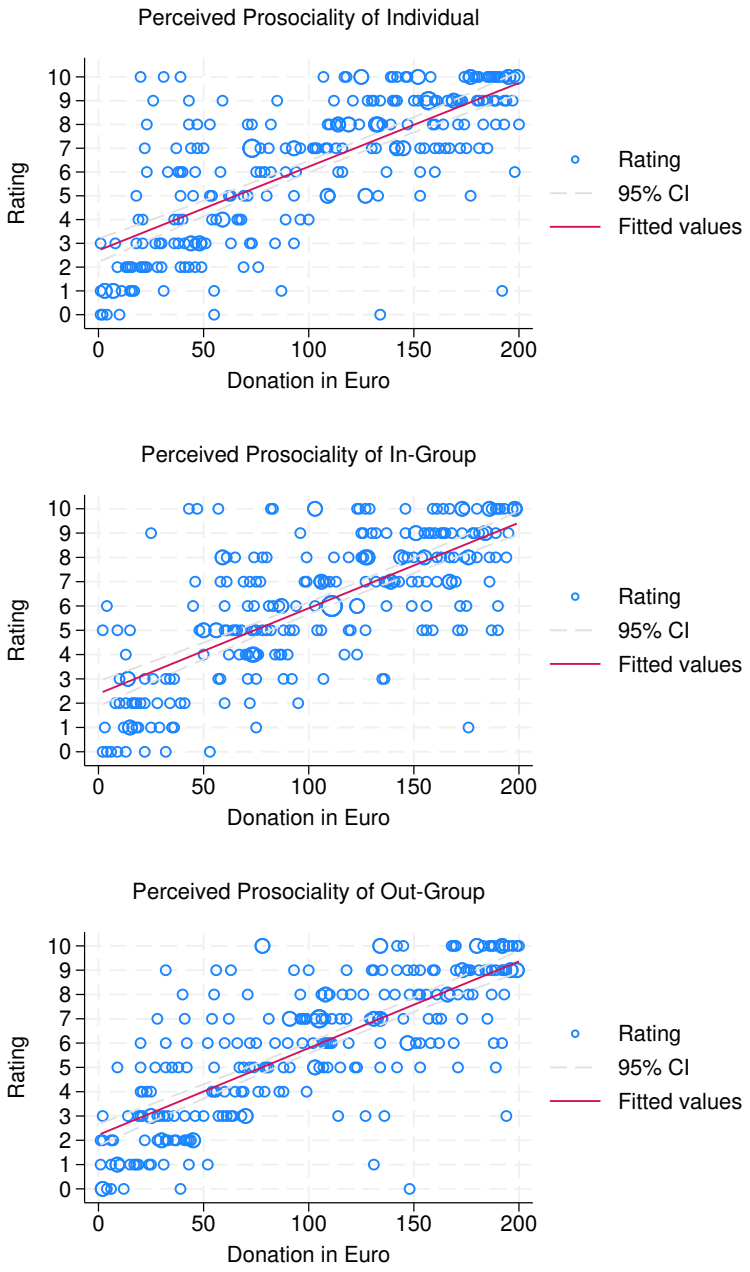



**Figure A.5:** Laboratory experiment: Histogram of answers to 'group loyalty' question

## Prosociality Ratings by Donation




*Notes.* Marker sizes represent the number of participants. Donation amount for each question was i.i.d. randomly generated by the computer.

**Figure A.6:** Laboratory experiment: Rating of the prosociality of individuals and groups conditional on observing a donation amount.

**Importance of Individual and Group Image**

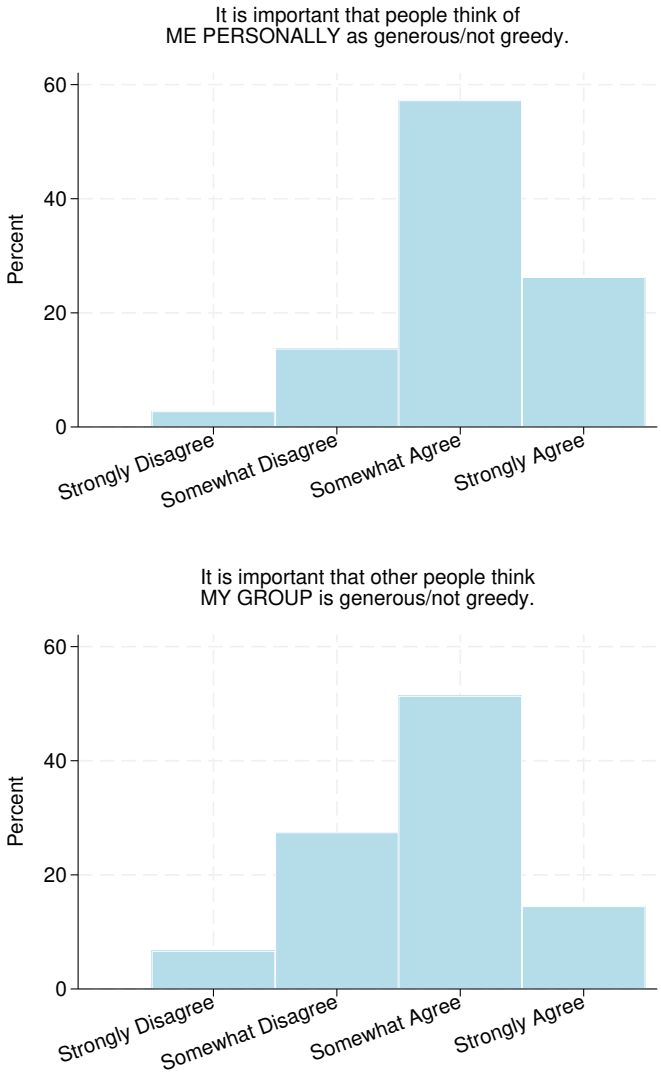
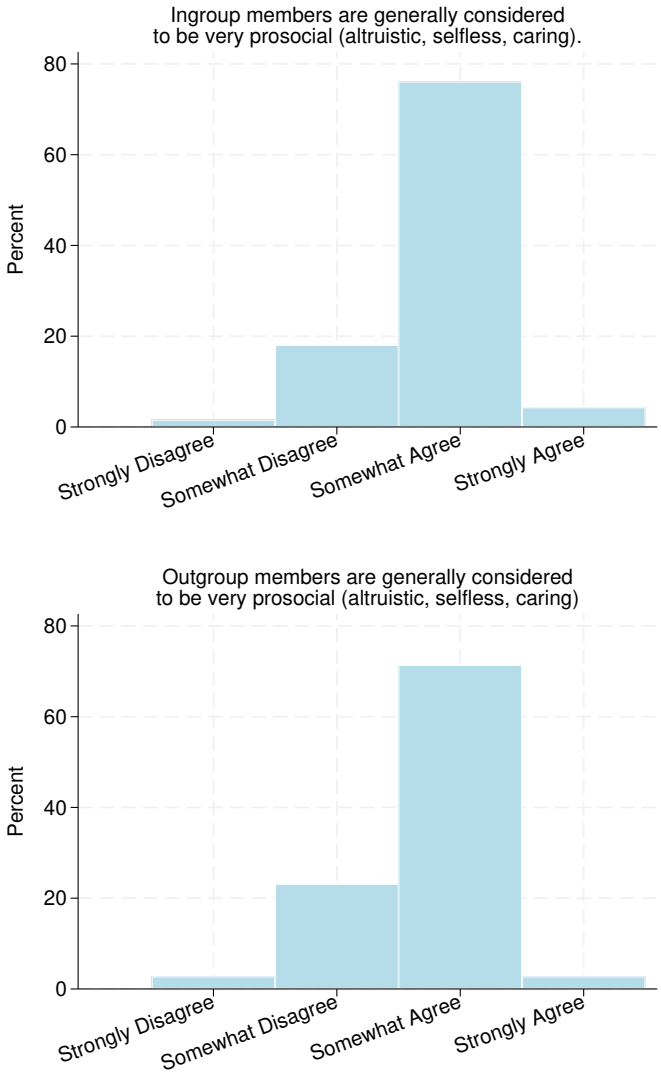



**Figure A.7:** Laboratory experiment: Histograms of stated importance of individual and group image

## Perceptions of ingroup and outgroup image




*Notes.* Questionnaire items inquired about the perceived image of students from the University of Cologne and the University of Bonn, respectively. For the purposes of this graph, responses were coded as 'ingroup' for participants affiliated with the respective university, and as 'outgroup' for participants affiliated with the other university.

**Figure A.8:** Laboratory experiment: Perceptions of ingroup and outgroup image

**Rankings of different groups**

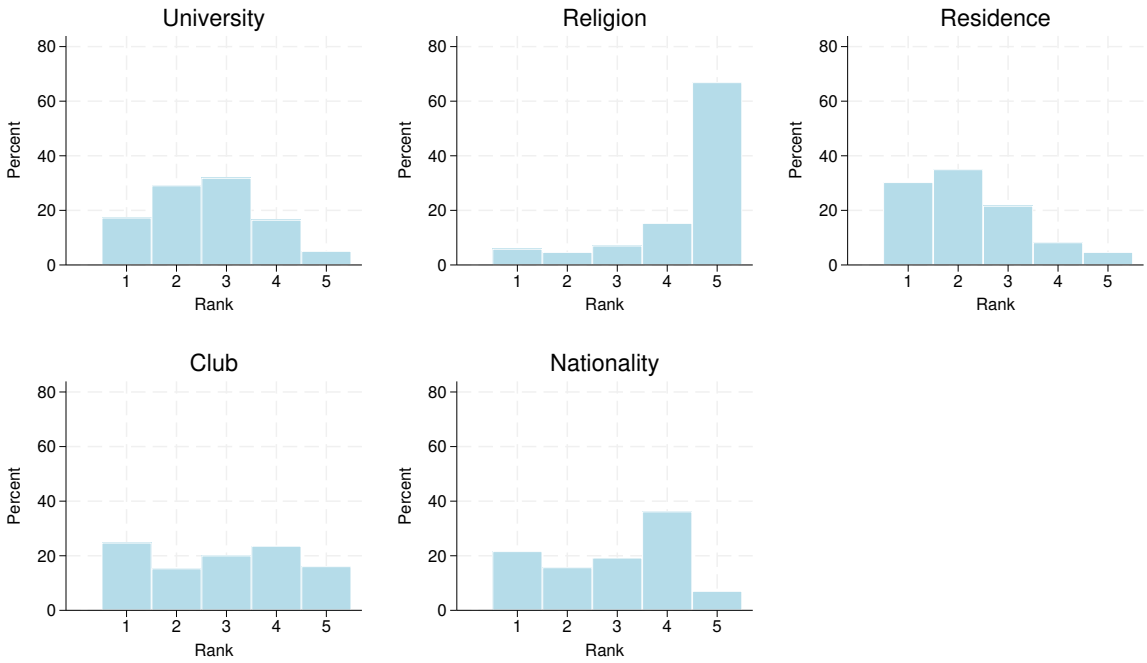



**Figure A.9:** Laboratory experiment: Rankings of different groups

## A.6 Correlations of questionnaire items with experimental group image measures

Below, we highlight noteworthy correlations between responses to the questionnaire and choices made during the experiment, as referenced in the main text. The exact wording of questionnaire items is provided in Appendix C.3.

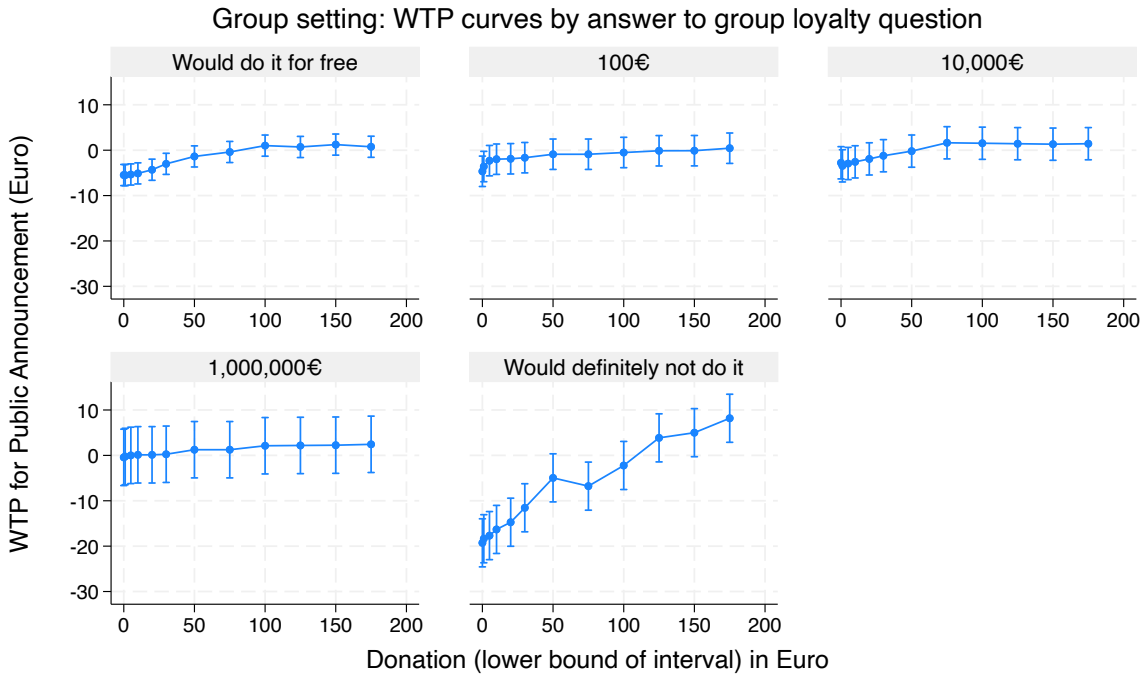
**Stated importance of individual and group image.** We asked participants on a 4-point scale how much they agree with statements "It is important to me that other people think my group is generous/not greedy" and "It is important to me that other people think of me personally as generous/not greedy". Treating these responses as continuous variables (ranging from 1 to 4) in a joint regression analysis on the difference between public and private donations, we observe distinct effects. Specifically, a higher agreement with the statement regarding the importance of group image is linked to a significantly larger difference in donations in the group image setting ($\beta = 4.98$, $se = 2.25$, $p = 0.028$), whereas this association is not significant in the individual image setting ($\beta = -2.93$, $se = 3.39$, $p = 0.389$). Conversely, stronger agreement with the statement concerning the importance of individual image significantly predicts a larger difference in donations in the individual image setting ($\beta = 7.70$, $se = 3.75$, $p = 0.041$), but not in the group image setting ($\beta = 2.20$, $se = 2.49$, $p = 0.377$). In other words, stated image concerns for the relevant case (individual image or group image) meaningfully correlate with the observed effects of publicity on donation behaviors in the experiment.

**Group loyalty question (adapted from Haidt, 2007, 2012; Graham and Haidt, 2012).** The question asks participants how much money it would hypothetically take them to "say something critical about your home country (which you believe to be true) while anonymously tuned into a live television broadcast." Participants can choose among responses ranging from 'I would do it for free', through monetary amounts of '100 euros', '10,000 euros', '1,000,000 euros', to 'I would definitely not do it, no matter how much money is offered'. Following Haidt (2007, 2012), we let each participant respond to two variants of this question: one mentioning "a live television broadcast *in your home country*" and another referencing "a live television broadcast *in a foreign country*." In the following, we report on correlations of experimental choices with answers to the first variant of the question, but note that correlations with answers

to the second variant are qualitatively similar. Note that the question is most closely related to our willingness-to-pay measure of group image concerns, as it also probes the monetary value participants associate with disclosing potentially image-damaging information about their ingroup.

We observe that responses to the question significantly correlate with decisions in the group image setting but not in the individual image setting of our experiment, highlighting its tie to group image concerns rather than individual image concerns. In particular, opting for the most stringent refusal in the group loyalty question—'I would definitely not do it, no matter how much money is offered'—predicts a pronounced sensitivity to publicity in the group image setting, both with regard to the willingness to pay for public announcements of group donations and with regard to the difference between public and private donations. Figure A.10 shows mean willingness to pay for group donations, broken down by subgroups based on their answer to the group loyalty question. The subgroup stating that they would not say something critical about their home country in a television broadcast, no matter how much money is offered, shows a significantly steeper willingness-to-pay curve than all other groups, as well as a significantly higher willingness to pay both for avoiding the public announcement of low group donations and for implementing the public announcement of high group donations. Looking at differences between public and private donations, as shown in the OLS regressions in Table A.3, paints a similar picture: Responding 'I would definitely not do it, no matter how much money is offered' on the group loyalty question is associated with a significantly higher publicity effect on donations in the group image setting, but not in the individual image setting.

**Perceptions of ingroup and outgroup image.** Perceptions about the perceived prosociality of groups involved in the experiment were measured by asking participants how much they agree that students from the University of Cologne or those of the University of Bonn, respectively, are generally considered as very prosocial. Answers were given on a 4-point scale, from strongly disagree to strongly agree. In Table A.4 we jointly regress both items (as continuous variables) on the difference between public and private donations. Column (1) shows results for donations in the group image setting. We find that the more a participant believes her ingroup to be perceived as prosocial, the more she donates in the public group condition relative to the private one. Conversely, the more a participant believes the outgroup to be perceived as prosocial, the *less* she donates publicly as compared to privately. Column (2) presents findings for




*Notes.* Graphs refer to the first variant of the group loyalty question, which says "a live television broadcast in your home country." Using the second variant (saying "a live television broadcast of a foreign country") yields similar results.

**Figure A.10:** Laboratory experiment: Mean willingness to pay (with 95% CI) for public announcements of group donations, separated by subgroups based on response to group loyalty question in the questionnaire.

the individual image setting. Despite the effects trending similarly to those in the group image setting, the coefficients are smaller and not statistically significant, suggesting that responses to these questionnaire items have stronger bearing on group-related donations than on individual donations.

| Dep. Var.: | $\Delta$Don$_i$ = Public donation$_i$ - Private donation$_i$ | |
|---|---|---|
| Setting: | Group image setting | Individual image setting |
| | (1) | (2) |
| Answer to group loyalty question | | |
| = 100€ | -1.50 | 1.77 |
| | (3.949) | (5.967) |
| = 10,000€ | 5.35 | 1.70 |
| | (4.109) | (6.209) |
| = 1,000,000€ | 2.34 | -8.46 |
| | (6.422) | (9.704) |
| = Would definitely not do it | 14.21** | -0.04 |
| | (5.602) | (8.464) |
| Constant (Would do it for free) | 10.79*** | 22.77*** |
| | (2.253) | (3.404) |
| Observations: | 256 | 256 |
| Subjects: | 256 | 256 |

*Notes.* OLS regressions of categorical variable 'answer to group loyalty question' (variant 1: "television broadcast in your home country") on $\Delta$Don$_i$ = Public donation$_i$ - Private donation$_i$. Standard errors in parantheses. * $p < .1$, ** $p < .05$, *** $p < .01$.

**Table A.3:** Laboratory experiment: Association between responses to group loyalty question in the questionnaire and the difference between public and private donations.

| Dep. Var.: | $\Delta$Don$_i$ = Public donation$_i$ - Private donation$_i$ | |
|---|---|---|
| Setting: | Group setting | Individual setting |
| | (1) | (2) |
| Agreement with "ingroup very prosocial" | 11.48*** | 3.97 |
| | (4.002) | (6.039) |
| Agreement with "outgroup very prosocial" | -8.56** | -7.26 |
| | (3.700) | (5.583) |
| Constant | 3.87 | 31.52** |
| | (8.878) | (13.395) |
| Observations: | 255 | 255 |
| Subjects: | 255 | 255 |

*Notes.* OLS regressions of the level of agreement with statement that ingroup is generally perceived as very prosocial and with the statement that outgroup is generally perceived as very prosocial on $\Delta$Don$_i$ = Public donation$_i$ - Private donation$_i$. Standard errors in parantheses. * $p < .1$, ** $p < .05$, *** $p < .01$.

**Table A.4:** Laboratory experiment: Association between questionnaire items regarding beliefs about the perceived prosociality of in- and outgroups and the difference between public and private donations.

# B Supplementary data: Online Experiments

## B.1 Treatment effects on behavior: Histograms

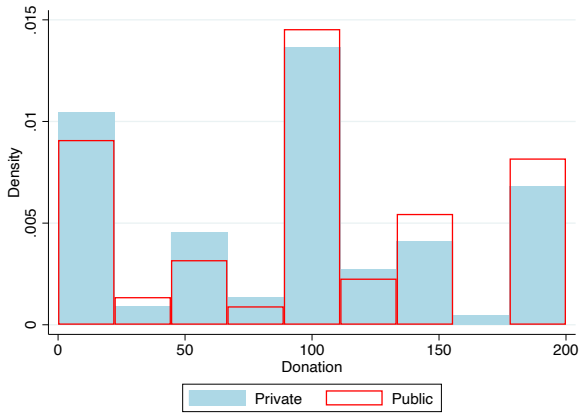



**Figure B.1:** Online experiment 1: Histogram of donations ($N = 99$).

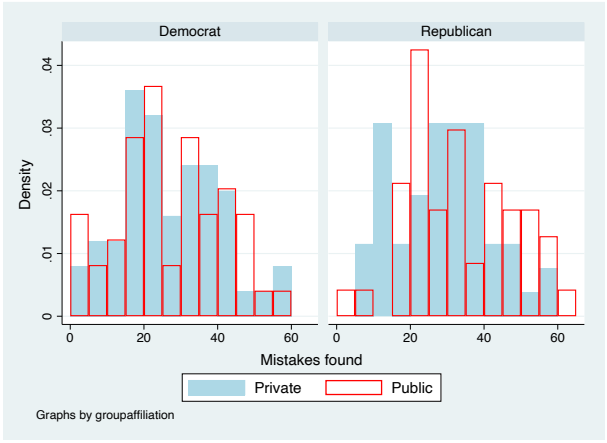



**Figure B.2:** Online experiment 2: Histogram of mistakes found in the anthem task ($N = 198$).

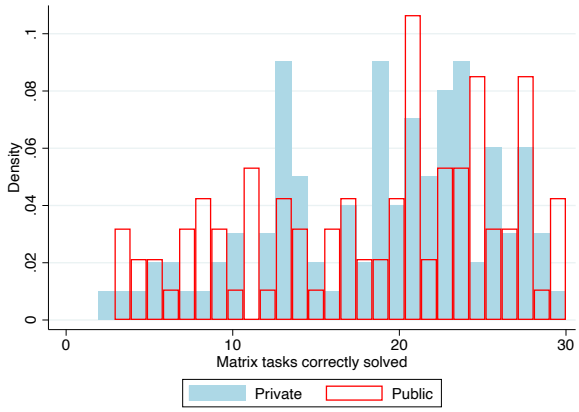



**Figure B.3:** Online experiment 3: Histogram of correctly solved matrix tasks ($N = 200$).

## B.2 Treatment effects on behavior: Regressions (Experiments 2 and 3)

| Data: | Experiment 2: Patriotism and U.S. party affiliation | | | | | |
|---|---|---|---|---|---|---|
| Dep. var.: | Mistakes corrected | | Attempts at corrections | | Time invested (in sec) | |
| Model: | OLS | OLS | OLS | OLS | OLS | OLS |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Public | 2.32 | 2.48 | 2.48 | 2.74 | 19.20 | 22.89 |
| | (1.99) | (1.97) | (2.17) | (2.12) | (42.30) | (40.66) |
| Constant | 27.43*** | 20.04*** | 39.56*** | 28.79*** | 453.83*** | 165.43** |
| | (1.32) | (2.90) | (1.46) | (3.11) | (27.59) | (64.81) |
| Controls | No | Yes | No | Yes | No | Yes |
| Observations: | 198 | 198 | 198 | 198 | 198 | 198 |
| Participants: | 198 | 198 | 198 | 198 | 198 | 198 |

*Notes.* Table shows regression estimates of the effect of being in the public treatment (Public = 1) on observable performance in the anthem task. Control variables in columns (2), (4) and (6) are sex defined at birth (binary) and age (continuous). Robust standard errors in parentheses. * $p < .1$, ** $p < .05$, *** $p < .01$

**Table B.1:** Online experiment 2: Linear regressions of treatment on different performance measures.

| Data: | Experiment 3: Intelligence and university affiliation | | | | | |
|---|---|---|---|---|---|---|
| Dependent variable: | Number of correctly solved tasks | | | Time invested (in sec) | | |
| Model: | OLS | OLS | OLS | OLS | OLS | OLS |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Public | -0.45 | -0.10 | -0.17 | -19.22 | -8.23 | -3.86 |
| | (1.04) | (0.75) | (0.75) | (82.98) | (79.87) | (79.66) |
| Performance in training round | | 4.21*** | 4.17*** | | 133.91*** | 130.11*** |
| | | (0.25) | (0.26) | | (29.99) | (30.93) |
| Constant | 18.90*** | 4.84*** | 6.77*** | 1057.33*** | 610.11*** | 513.98*** |
| | (0.67) | (1.08) | (1.59) | (59.70) | (107.92) | (166.84) |
| Controls | No | No | Yes | No | No | Yes |
| Observations: | 200 | 200 | 200 | 200 | 200 | 200 |
| Participants: | 200 | 200 | 200 | 200 | 200 | 200 |

*Notes.* Table shows regression estimates of the effect of being in the public treatment (Public = 1) on observable performance in the matrix tasks. Control variables in columns (2), (4) and (6) are sex defined at birth (binary) and age (continuous). Performance in training round is the number of correctly solved tasks (0-6) in the training round. Robust standard errors in parentheses. $^{*}$ $p < .1$, $^{**}$ $p < .05$, $^{***}$ $p < .01$

**Table B.2:** Online experiment 3: Linear regressions of treatment on different performance measures.

## B.3 Willingness to pay: Means and t-tests by donation and performance interval

| | WTP for public announcement (US$) | | | mean WTP $\neq 0$ | |
|---|---|---|---|---|---|
| Donation of other group member (US$) | mean | s.e.m. | 95% CI | t-value | p-value |
| 0 | -8.49 | (2.41) | [-13.20, -3.77] | -3.53 | 0.001 |
| 1-4 | -6.51 | (2.26) | [-10.94, -2.07] | -2.87 | 0.005 |
| 5-9 | -5.71 | (2.28) | [-10.17, -1.25] | -2.51 | 0.014 |
| 10-19 | -4.65 | (2.20) | [-8.95, -0.34] | -2.12 | 0.037 |
| 20-29 | -2.75 | (2.30) | [-7.26, 1.76] | -1.20 | 0.235 |
| 30-49 | -1.81 | (2.28) | [-6.28, 2.67] | -0.79 | 0.430 |
| 50-74 | -0.39 | (2.32) | [-4.95, 4.16] | -0.17 | 0.866 |
| 75-99 | 3.35 | (2.39) | [-1.32, 8.03] | 1.41 | 0.163 |
| 100-124 | 7.43 | (2.39) | [2.75, 12.12] | 3.11 | 0.002 |
| 125-149 | 9.18 | (2.46) | [4.36, 14.01] | 3.73 | $< 0.001$ |
| 150-174 | 11.15 | (2.57) | [6.11, 16.20] | 4.33 | $< 0.001$ |
| 175-200 | 11.90 | (2.64) | [6.72, 17.08] | 4.51 | $< 0.001$ |

*Notes.* Standard error of the mean in parentheses. t- and p-values refer to results of a two-sided one-sample t-test. The means and their 95 percent confidence interval are plotted in Figure 9, panel a).

**Table B.3:** Online experiment 1: Mean willingness to pay for public announcement by donation interval.

| | WTP for public announcement (US$) | | | mean WTP $\neq 0$ | |
|---|---|---|---|---|---|
| Number of mistakes found by other group member | mean | s.e.m. | 95% CI | t-value | p-value |
| 0 | -5.44 | (1.57) | [-8.51, -2.38] | -3.48 | 0.001 |
| 1-9 | -4.53 | (1.46) | [-7.38, -1.67] | -3.11 | 0.002 |
| 10-19 | -3.54 | (1.33) | [-6.14, -0.94] | -2.67 | 0.008 |
| 20-29 | 2.15 | (1.31) | [-0.42, 4.71] | 1.64 | 0.102 |
| 30-39 | 5.56 | (1.31) | [2.99, 8.11] | 4.26 | $< 0.001$ |
| 40-49 | 10.90 | (1.30) | [8.36, 13.44] | 8.40 | $< 0.001$ |
| 50-59 | 13.11 | (1.31) | [10.54, 15.67] | 10.01 | $< 0.001$ |
| 60-63 | 16.43 | (1.42) | [13.64, 19.23] | 11.54 | $< 0.001$ |
| 64 (all) | 18.97 | (1.56) | [15.92, 22.02] | 12.19 | $< 0.001$ |

*Notes.* Standard error of the mean in parentheses. t- and p-values refer to results of a two-sided one-sample t-test. The means and their 95 percent confidence interval are plotted in Figure 9, panel b).

**Table B.4:** Online experiment 2: Mean willingness to pay for public announcement by performance interval.

| | WTP for public announcement (US$) | | | mean WTP $\neq 0$ | |
|---|---|---|---|---|---|
| Number of matrix tasks solved by other group member | mean | s.e.m. | 95% CI | t-value | p-value |
| 0 | -8.97 | (1.34) | [-11.59, -6.34] | -6.70 | $< 0.001$ |
| 1-4 | -7.37 | (1.29) | [-9.90, -4.83] | -5.70 | $< 0.001$ |
| 5-9 | -6.50 | (1.22) | [-8.89, -4.11] | -5.33 | $< 0.001$ |
| 10-14 | -3.60 | (1.16) | [-5.88, -1.32] | -3.10 | 0.002 |
| 15-19 | 1.57 | (1.41) | [-1.20, 4.34] | 1.11 | 0.267 |
| 20-24 | 12.10 | (1.36) | [9.43, 14.76] | 8.88 | $< 0.001$ |
| 25-29 | 17.85 | (1.37) | [15.17, 20.53] | 13.05 | $< 0.001$ |
| 30 (all) | 19.68 | (1.51) | [16.72, 22.65] | 13.01 | $< 0.001$ |

*Notes.* Standard error of the mean in parentheses. t- and p-values refer to results of a two-sided one-sample t-test. The means and their 95 percent confidence interval are plotted in Figure 9, panel c).

**Table B.5:** Online experiment 3: Mean willingness to pay for public announcement by performance interval.

## B.4 Intelligence and university affiliation: List of universities

**Table B.6:** Online experiment 3: List of university affiliations in experiment

| University Affiliation | N | University Affiliation | N |
|---|---|---|---|
| Albany State University | 1 | Saint Irenaeus House of Orthodox Studies | 1 |
| American River College | 1 | Saint Louis University | 1 |
| American University | 1 | Sam Houston State University | 2 |
| Appalachian State University | 1 | San Diego Christian College | 1 |
| Arizona State University | 5 | San Diego Mesa College | 1 |
| Augusta University | 1 | San Diego State University | 2 |
| Baker College | 1 | San Jose State University | 4 |
| Berklee College of Music | 1 | Seattle University | 1 |
| Brigham Young University | 1 | Seton Hill University | 1 |
| Bryant University | 1 | Sinclair Community College | 1 |
| California State University, Dominguez Hills | 1 | Southern Adventist University | 1 |
| California State University, Northridge | 2 | Southern Maine Community College | 1 |
| Cecil College | 1 | Southern New Hampshire University | 3 |
| Colorado University | 1 | Springfield Technical Community College | 1 |
| Community College of Baltimore County | 2 | St. Bonaventure University | 1 |
| Coppin State University | 1 | SUNY Oneonta | 1 |
| CUNY Baruch College | 2 | SUNY Upstate Medical University | 1 |
| CUNY School of Professional Studies | 1 | Surry Community College | 1 |
| De Anza College | 1 | Temple University | 2 |
| DePaul University | 2 | Texas A&M University | 2 |
| Drexel University | 1 | Texas Tech University | 2 |
| East Carolina University | 1 | Texas Woman's University | 1 |
| East Mississippi Community College | 1 | Thomas Jefferson University | 1 |
| Eastern University | 1 | Troy University | 1 |
| Elon University | 1 | Unity College | 1 |
| Ferris State University | 1 | University at Buffalo (UB), SUNY | 1 |
| Florida A&M University | 1 | University of Arizona | 1 |
| Florida Atlantic University | 1 | University of California, Los Angeles | 2 |
| Florida International University | 1 | University of California, Merced | 1 |
| Fordham University | 1 | University of California, San Diego | 4 |
| George Mason University | 1 | University of Central Florida | 1 |
| Georgia Institute of Technology | 2 | University of Colorado Denver | 1 |
| Georgia Northwestern Technical College | 1 | University of Connecticut | 2 |
| Georgia State University | 3 | University of Findlay | 1 |
| Governors State University | 1 | University of Florida | 1 |
| Grand Canyon University | 1 | University of Hawaii West Oahu | 1 |
| Hillsdale College | 1 | University of Houston | 2 |
| Houston Christian University (HBU) | 1 | University of Illinois at Chicago | 3 |

Continued on next page

**Table B.6 – continued from previous page**

| University Affiliation | N | University Affiliation | N |
|---|---|---|---|
| Howard University | 1 | University of Iowa | 1 |
| Hunter College, CUNY | 1 | University of Kentucky | 2 |
| Independence University | 1 | University of Maryland | 4 |
| Iowa State University | 1 | University of Massachusetts Amherst | 3 |
| Kennesaw State University | 1 | University of Minnesota, Twin Cities | 1 |
| Lake Erie College of Osteopathic Medicine | 1 | University of Nevada, Reno | 1 |
| Lebanese American University | 1 | University of North Carolina at Chapel Hill | 2 |
| Lewis University | 1 | University of Pennsylvania | 1 |
| Loyola University Maryland | 1 | University of Phoenix | 1 |
| Madonna University | 1 | University of Rhode Island | 1 |
| Marshall University | 1 | University of Rochester | 1 |
| Michigan State University | 1 | University of South Florida | 5 |
| Middle Tennessee State University | 1 | University of St. Thomas - Minnesota | 1 |
| Mississippi State University | 1 | University of Texas at Arlington | 1 |
| Montgomery County Community College | 2 | University of Texas at Austin | 3 |
| National University | 1 | University of Texas at Dallas | 3 |
| New Mexico Highlands University | 1 | University of Texas at San Antonio | 1 |
| New Mexico State University | 1 | University of Texas Rio Grande Valley | 1 |
| North Carolina State University | 3 | University of the Cumberlands | 1 |
| Northern Virginia Community College | 1 | University of Washington | 1 |
| Northwest-Shoals Community College | 1 | University of Washington, Bothell | 1 |
| Northwestern University | 1 | University of Wisconsin-La Crosse | 1 |
| Ohio State University | 2 | Virginia Commonwealth University | 1 |
| Oregon State University | 1 | Wake Technical Community College | 1 |
| Palm Beach State College | 1 | Washington State University | 1 |
| Pennsylvania State University | 1 | Washington State University | 1 |
| Pierce College | 1 | Wesleyan University | 1 |
| Prince George's Community College | 1 | West Liberty University | 1 |
| Purdue University | 1 | Western Carolina University | 1 |
| Queens College, CUNY | 3 | Western Governors University | 6 |
| Rogers State University | 1 | Western Washington University | 1 |
| Rutgers University | 3 | Missing (unclear abbreviation) | 3 |
| Rutgers University-Newark | 1 | **Total** | **200** |

## B.5 Questionnaire items: Overview of responses

### Strength of identification with groups

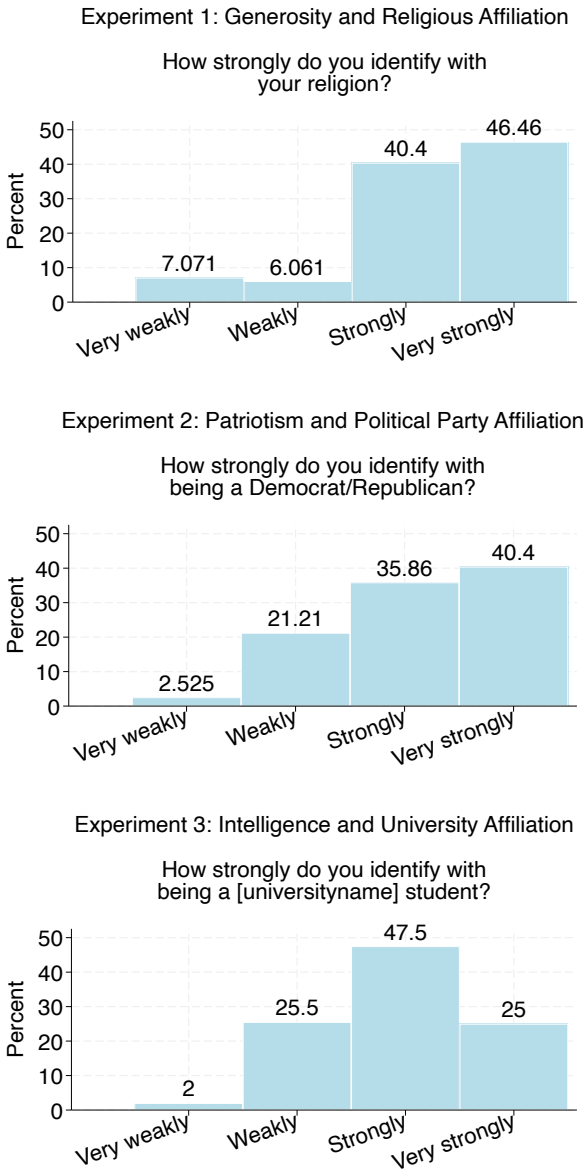
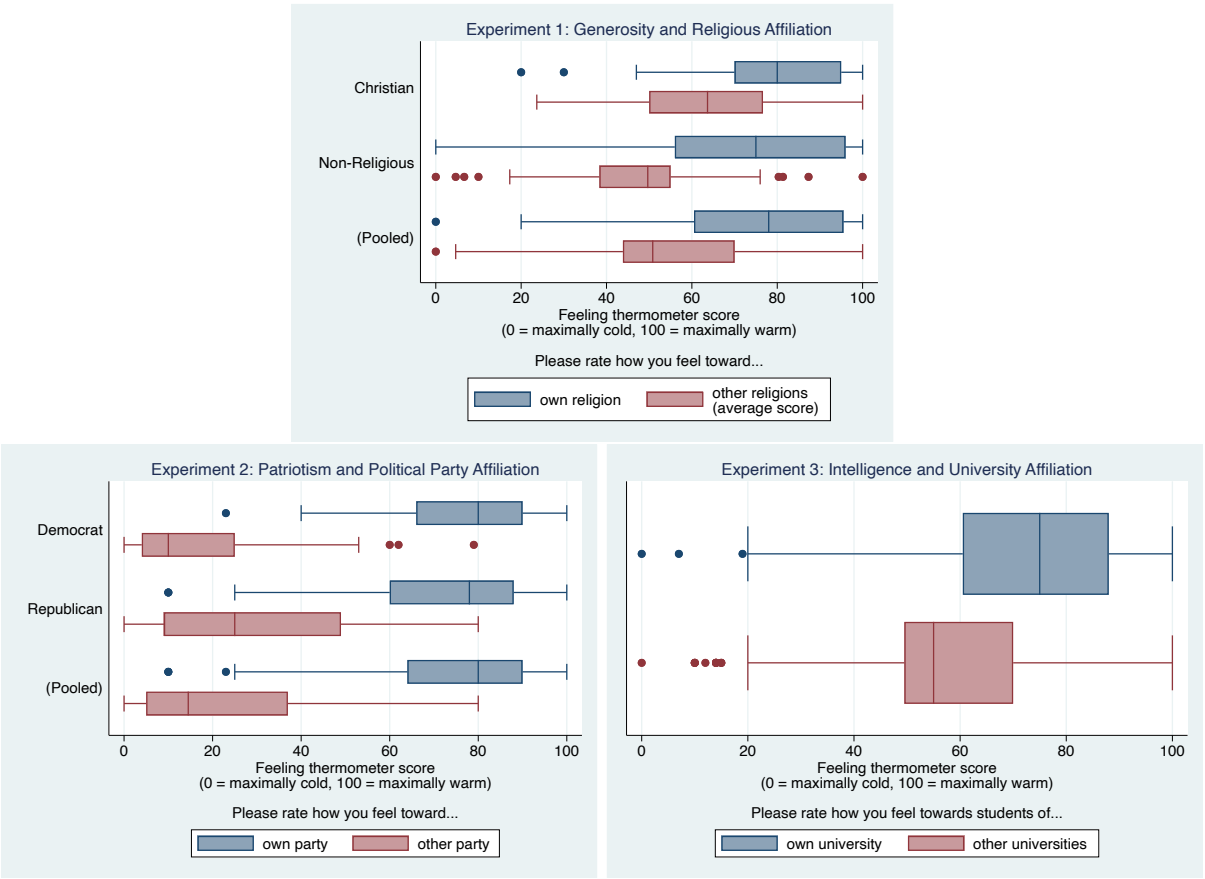



**Figure B.4:** Online experiments 1–3: Histograms of the reported strength of identification with religion (Experiment 1, $N = 99$), political party (Experiment 2, $N = 198$), or university (Experiment 3, $N = 200$).

## Feeling thermometer questions: Ingroup vs. Outgroup




*Notes.* Box plots depict the median, 25th and 75th percentile (box), lower and upper adjacent value (whisker), and outside values (dots). For legibility, and due to too few observations, the plot for Experiment 1 excludes responses from participants identifying as Jewish ($N = 2$) and Muslim ($N = 1$).

**Figure B.5:** Online experiments 1−3: Box plots of feeling thermometer questions.

# C Instructions and Questionnaire: Laboratory Experiment (translated from German original)

Original German instructions in full length available here: https://tinyurl.com/5t3smpsy

## C.1 Individual image setting [in random order with group image setting]

Below, you will find an overview of the structure of the first [second] decision situation. Please read the information carefully.

**Number of participants**

About 40 students are participating in today's experiment.

**The decision situation**

Each participant must decide how much money he or she wants to **individually** donate to the German Children's Fund.

Each participant in the experiment will be provided with 200 euros. Each participant then decides independently how much of this money he or she wants to individually donate to the German Children's Fund, and how much he or she wants to keep for herself.

After all participants have made a donation decision, one participant will be randomly selected. The donation decision of this participant will then be realized: A donation will be made to the German Children's Fund according to the participant's decision. The remaining amount of money (200 euros minus the donation) will be paid out to the participant.

Note that only one donation will be realized from all participants. Only one participant will receive the money that he or she did not donate; everyone else will receive a fixed payment of 10 euros. Each participant has an equal chance of being selected as the donor.

The donation of the selected participant is either private (scenario 1) or public (scenario 2).

**Scenario 1: Private donation.** There is a 50% chance that the individual donation of the selected participant will be private. This means that no one except the donor will learn the actual amount of the realized donation. Additionally, no one except the donor will learn who was selected to make the donation.

**Scenario 2: Public donation.** There is a 50% chance that the individual donation of the selected participant will be public. This means that the selected participant will be asked to announce their donation at the end

of the experiment in a videoconference attended by all participants. This way, everyone will know who was selected to make the donation and how much this person donated to the German Children's Fund.

Below, you can view a video that shows an example of the public announcement of the donation required in scenario 2. Note that the selected participant must publicly announce their first name and their individual donation on camera, for everyone to see.

{Example Video. The video features a female student (not participating in the experiment) demonstrating a public announcement of an individual donation during the video conference. The student has her camera on, with her face visible, and reads the following text out loud: "I am [first name]. I was selected to make the donation. My donation to the German Children's Fund is X euros."}

**Your task**

We are going to ask you to answer 3 questions on the following pages.

Question 1: If the donation is private (scenario 1) and you are selected as the donor, how much money do you want to donate to the German Children's Fund?

Question 2: If the donation is public (scenario 2) and you are selected as the donor, how much money do you want to donate to the German Children's Fund?

Question 3: If the donation is public (scenario 2) and you are selected as the donor, under what circumstances are you willing to announce your donation on camera, and under what circumstances would you prefer not to?

**Your payout**

- Each participant will receive a fixed compensation of 10 euros.
- If you are selected as the donor, you will receive, in addition to the fixed compensation, the amount you did not donate in the selected scenario (200 euros minus donation).
- In the case of scenario 2 (public donation), the computer may select a donation amount for you instead of you choosing it yourself. In this case, you will receive money that you can invest to influence the probability of having to announce the donation chosen by the computer.

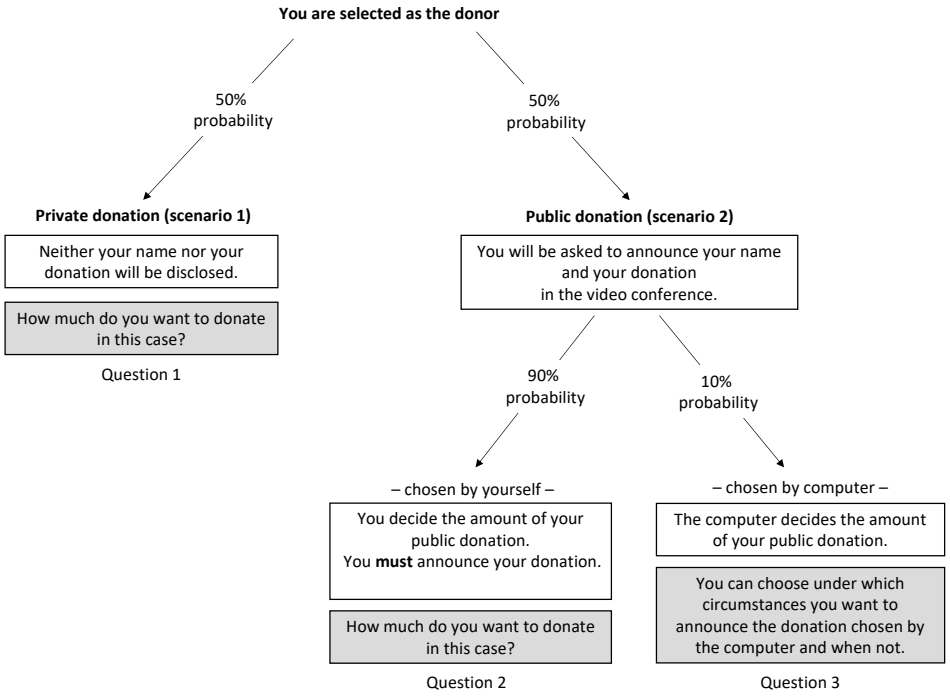
You will find more detailed information about the possible payouts on the following pages.

[**New page**]

## Further Instructions: Your donation

If you are selected as the donor, you will individually donate an amount between 0 and 200 euros to the German Children's Fund. Money that you do not donate will be paid out to you.*

Your donation can vary depending on the situation. The diagram below explains the possible scenarios:




- If you are selected as the donor, there is a 50% chance that your donation will be private. This means that neither your name nor your donation amount will be disclosed. No one but you will know that you were selected as the donor or how much you donated. We are going to ask you how much you want to donate in this event (Question 1).
- If you are selected as the donor, there is a 50% chance that your donation will be public. This means that you will be asked to announce your name and your donation during the videoconference. This way, everyone will know that you were selected as the donor and how much you donated to the German Children's Fund.
  - If your donation is public, you **must** announce your donation with a high probability (90%). In this situation, you can choose the donation amount yourself. We are going to ask you how much you want to donate in this event (Question 2).
  - With a small probability of 10%, it will not be you who decides the amount of your public donation, but the computer. The computer will randomly select an amount between 0 and 200 euros. If the

computer selects your donation, you can decide whether you want to announce the donation or not. We are going to ask you under what circumstances you want to announce the donation chosen by the computer and when you prefer not to (Question 3).*

Please note that in the case of a public announcement, the other participants will not know whether the donation you announce was chosen by you or by the computer. However, the other participants will know that there is a 90% chance that you chose the donation yourself.

*In the exceptional event that the computer selects a donation for you, the unspent money which is not donated will not be paid out to you. In this particular case, you will receive a different payout instead. More details will be provided later in the specific explanations for Question 3.

## [Choices]

## [Private donation] (in random order with public donation)

### Question 1: Your private donation

If you are selected as the donor, there is a 50% chance that your donation will be private. This means that no one except you will know that you were selected as the donor and how much you chose to donate.

**How much money would you like to donate to the German Children's Fund in this case?** The money that you do not donate (200 euros minus the donation) will be paid out to you.

If I am selected as the donor and my donation is private, I would like to donate the following amount:

[ ] €

[private_individual_donation]

(Please enter an amount between 0 and 200 euros).

Please note:

- If you are selected as the donor, there is a 50% chance that your donation will be private.
- The donation you enter on this page determines the amount donated to the German Children's Fund as well as the amount of your additional payout (200 euros minus the donation) for the case that your donation is private (scenario 1). In the case of this event, your decision on this page will be automatically implemented.
- Your decision on this page DOES NOT APPLY if the donation is public (scenario 2). If the donation is public, a different donation amount chosen on another page will apply.
- The donation you enter on this page will remain private in any event. The amount you enter here will not be disclosed to the other participants under any circumstances. The donation you enter here will ONLY

be realized if the donation is private (scenario 1) and you are selected as the donor. In the case of this event, NO ONE except you will know the amount of your donation. Additionally, no one but you will know that you were selected as the donor.

## [Public donation] (in random order with private donation)

### Question 2: Your public donation

If you are selected as the donor, there is a 50% chance that your donation will be public. This means that you will be asked to announce your name and your donation during the video conference. Everyone will then know that you were selected as the donor and how much you donated to the German Children's Fund.

If your donation is public, you **must** announce your donation with a high probability (90%). In this case, you can choose the donation amount yourself.

**How much money would you like to donate to the German Children's Fund in this case?** Money that you do not donate (200 euros minus the donation) will be paid out to you.

If I am selected as the donor and my donation is public, I would like to donate the following amount:

[ ] €

[public_individual_donation]

(Please enter an amount between 0 and 200 euros).

Please note:

- If you are selected as the donor, there is a 50% chance that your donation will be public.
- The donation you enter on this page determines the amount donated to the German Children's Fund as well as the amount of your additional payout (200 euros minus the donation) for the case that you are required to announce your self-chosen donation in the videoconference. In the case of this event, your decision on this page will be automatically implemented. You will then be asked to announce the amount entered here along with your name on camera during the videoconference.
- Your decision on this page DOES NOT APPLY if the donation is private (scenario 1). If the donation is private, a different donation amount chosen on another page will apply.
- The donation you enter on this page may need to be announced by you in a videoconference at the end of the experiment. The donation you enter here will ONLY be realized if the donation is public (scenario 2) and you are selected as the donor. In the case of this event, we will ask you to announce the donation you have chosen here in a videoconference. This way, everyone will know that you were selected as the donor and how much you donated to the German Children's Fund.

Below you can once again view the example video for the public announcement of the donation. In case you have to announce your donation, you will have to publicly announce your first name and your donation on camera, for everyone to see.

{Example video}

## [WTP for public announcements]

### Question 3: Under what circumstances are you willing to publicly announce your donation?

If you are selected as the donor and the donation is public (scenario 2), there is a high probability (90%) that you will be asked to announce your self-selected public donation. In the case of this event, you must announce your donation. In other words: In this case, you cannot avoid having to announce your donation in the videoconference.

**With a small probability of 10%, however, it will not be you who decides the amount of your public donation, but the computer.** The computer will randomly select an amount between 0 and 200 euros. If the computer selects the donation, you cannot influence the donation amount. However, you can influence whether or not you will have to announce the donation selected by the computer.

Please note that the other participants will not know whether the donation you announce was chosen by the computer or by you.

**Your task**

We are going to show you 12 different intervals where the donation chosen by the computer might fall:

| **Donation chosen by the computer** | |
|---|---|
| Interval 1 | 0 € |
| Interval 2 | 1-4 € |
| Interval 3 | 5-9 € |
| Interval 4 | 10-19 € |
| Interval 5 | 20-29 € |
| Interval 6 | 30-49 € |
| Interval 7 | 50-74 € |
| Interval 8 | 75-99 € |
| Interval 9 | 100-124 € |
| Interval 10 | 125-149 € |
| Interval 11 | 150-174 € |
| Interval 12 | 175-200 € |

For each of these 12 intervals, we are going to ask you to answer two questions:

1. If the donation chosen by the computer falls within this interval (e.g., 5–9 euros), would you like to announce it as your own donation in the videoconference? You have two options:
    - Yes, I would like to announce the donation in this case.
    - No, I want the donation to remain private in this case.
2. If the donation chosen by the computer falls within this interval (e.g., 5–9 euros), how much money are you willing to spend to ensure that your preference regarding the announcement of the donation will be implemented? You can invest up to 50 euros in this question. The more money you invest, the higher will be the probability that your preference ('Yes, announce' or 'No, keep private') will be implemented.

**Your payout**

In the event that the computer selects a donation for you, the unspent money which is not donated will not be paid out to you. Instead, you will be awarded an extra sum of 50 euros in addition to your fixed compensation of 10 euros. You can invest this money to influence the probability of you having to announce the donation chosen by the computer during the video conference. Money you do not invest will be paid out to you.

Please note that the donation chosen by the computer will in any case be paid to the German Children's Fund. This applies regardless of whether you announce the donation or not.

**Announcing the donation during the video conference**

The following applies to the announcement of the donation during the video conference:

- If you announce a donation during the video conference, you may not say or otherwise imply whether you chose the donation amount yourself or if the computer chose it. We are very strict in enforcing this rule: if you violate it, you will not receive any payment.
- Since the other participants know that there is a 90% chance that you have chosen the donation yourself, they will most likely assume that the announced donation—regardless of the amount—is your own. Therefore, you should make your choices as if the donation chosen by the computer was your own donation.
- In the event that you will not have to announce the donation chosen by the computer, no one will learn the donation amount or that you have been selected to make the donation. This case is therefore identical to the case of a private donation (scenario 1). The other participants cannot distinguish whether the absence of an announcement is the result of a private donation (scenario 1) or the result of an unannounced computer donation.

[**WTP: Step 1**]

## Question 3 a) - Do you want to announce the donation chosen by the computer, yes or no?

If the computer selects a donation amount, it will randomly select an amount between 0 and 200 euros. Below are 12 different intervals where the donation selected by the computer might fall.

For each of these intervals, please indicate whether you prefer to announce the donation selected by the computer in the video conference ('Yes') or whether you prefer the donation to remain private ('No').

| **Donation chosen for you by the computer** | **Do you want to announce this donation?** | |
|---|---|---|
| Interval 1: 0 € | ◯ Yes | ◯ No |
| Interval 2: 1-4 € | ◯ Yes | ◯ No |
| Interval 3: 5-9 € | ◯ Yes | ◯ No |
| Interval 4: 10-19 € | ◯ Yes | ◯ No |
| Interval 5: 20-29 € | ◯ Yes | ◯ No |
| Interval 6: 30-49 € | ◯ Yes | ◯ No |
| Interval 7: 50-74 € | ◯ Yes | ◯ No |
| Interval 8: 75-99 € | ◯ Yes | ◯ No |
| Interval 9: 100-124 € | ◯ Yes | ◯ No |
| Interval 10: 125-149 € | ◯ Yes | ◯ No |
| Interval 11: 150-174 € | ◯ Yes | ◯ No |
| Interval 12: 175-200 € | ◯ Yes | ◯ No |

We will take your selection on this page into account as follows: Once we know which interval the donation chosen by the computer falls into, your choice for this interval will be implemented with a probability between 50% and 100%. On the next page, you will have the opportunity to invest up to 50 euros to increase the probability that your choice will be implemented from 50% to up to 100%. The more money you invest, the higher the probability that your choice will be implemented.

Please note: It is in your best interest to carefully and honestly indicate on this page whether you want to announce a donation in the respective interval or not. If you make a wrong selection, whether intentionally or unintentionally, you will increase the likelihood of an outcome that you may actually want to avoid.

[**WTP: Step 2**]

## Question 3 b) - How much money are you willing to spent to ensure that your choice is implemented?

You can now invest up to 50 euros for each of the specified intervals to increase the probability that your preference regarding a possible announcement of the donation will be implemented.

Below is a detailed description of how your investment affects the probability of you having to make an announcement as well as your payout. **Here are the key points:**

- **You can invest up to 50 euros for each interval. For every euro you invest, you increase the probability that your preference regarding the announcement of the donation will be implemented by exactly 1 percentage point.** If you invest 0 euros, your preference for that interval will be implemented with a 50% probability. This gives you a fifty-fifty chance of announcing the donation only if you prefer to do so. If you invest 50 euros (i.e., all your money), your preference will be implemented with a 100% probability. In other words, by investing the full 50 euros, you can guarantee that your preference regarding the announcement of a donation in this interval will be implemented. If you invest less, there may be an outcome that you want to avoid. However, you will also keep more of your money.
- **You should choose your investment as follows: How much money are you willing to spend in order to ensure your preference is implemented?** The more important it is to you that your preference is actually implemented— i.e., the more important it is to you that you announce the donation chosen by the computer only if you prefer to do so—the more money you should invest. If you don't care whether you have to announce a certain donation or not, then you shouldn't invest anything.
- **You should make your investment decision for each donation interval individually.** It might be more important to you that your selection is implemented in one interval than in another. In this case, you should invest more in the interval that matters more to you.

Please choose your investment now:
After you have entered your investment, the computer will display the resulting probability (50-100%) below the input field, indicating how likely it is that your preference regarding the announcement of the donation will be implemented.

| **Donation interval** | **Your preference** | **How much (0 - 50 euros) are you willing to invest?** |
|---|---|---|
| Interval 1: 0 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 2: 1-4 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 3: 5-9 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 4: 10-19 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 5: 20-29 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 6: 30-49 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 7: 50-74 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 8: 75-99 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 9: 100-124 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 10: 125-149 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 11: 150-174 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 12: 175-200 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |

We have a procedure in place to ensure that answering this question carefully and honestly is in your best interest. You can review the exact rules below to verify that it is truly in your best interest to answer this question honestly.

Detailed description of how your answers affect the probability of you having to announce the donation chosen by the computer:

- If you are drawn as the donor and the donation is public, there is a 10% chance that the computer will select a donation for you. The following rules apply in the case of this event.
- The computer randomly selects a donation between 0 and 200 Euro. This donation falls into one of the 12 intervals shown above (0 Euro, 1-4 Euro, ..., 175-200 Euro). Once we know which interval the donation falls into, we will determine based on your choice on the previous page whether you prefer to announce or not announce the donation.
- With a 50 percent chance, your preference for the valid interval will be implemented irrespective of how much you invested. In this case, you will be asked to announce the donation if and only if you indicated that you wish to do so for a donation falling into that interval. Irrespective of your investment, you will be paid a bonus of 50 euros in this case.
- Otherwise, also with a 50 percent chance, your investment will affect the probability that your preference will be implemented:
  - A random number x between 0 and 50 euros is drawn.
  - If your investment is smaller than the random number x, your preference will not be implemented. In this case, you will be asked to announce the donation precisely when you selected 'No, I want the donation to remain private'. Conversely, if you selected 'Yes, I would like to announce the donation', you will not be asked to announce it. Irrespective of your investment, you will be paid a bonus of 50 euros in this case.
  - If your investment is at least as high as the random number x, your preference will be implemented. In this case, you will be asked to announce the donation if and only if you have indicated that you wish to do so. Otherwise, the donation will remain private, as per your selection. You will receive a bonus of 50 euros minus the random number x, i.e. 50 minus x euros.

## [End of choices]

## [Beliefs]

### How do you think the other participants decided in the private scenario?

Thank you, you have answered all 3 main questions for decision situation 1 [2].

Finally, we would like to know your beliefs regarding the donation behavior of the other participants.

Let's start with the **private donation**: Suppose you have to guess the private donation of another randomly selected participant in today's experiment. How much do you think this donation is?

Below are different intervals in which the donation can fall. You need to distribute 100 percentage points across these intervals. Please allocate the 100 points according to how likely you think it is that the donation falls into each interval.

To distribute the points accurately, it is easiest to think about what percentage of participants would make a particular donation. For example, if you believe that 10% of the participants will donate between 5-9 euros, you should assign 10 points to that interval. If you believe that 80% of the participants will donate between 5-9 euros, assign 80 points to that interval, and so on.

You can win money with your answer: The better you estimate the donation behavior of the other participants, the higher is your chance of receiving an additional bonus payout of 20 euros!*

| **Donation interval** | **How likely is it that the private donation chosen by another participant falls within this interval? (0-100 points)** |
|---|---|
| Interval 1: 0 € |  (0-100 points) |
| Interval 2: 1-4 € |  (0-100 points) |
| Interval 3: 5-9 € |  (0-100 points) |
| Interval 4: 10-19 € |  (0-100 points) |
| Interval 5: 20-29 € |  (0-100 points) |
| Interval 6: 30-49 € |  (0-100 points) |
| Interval 7: 50-74 € |  (0-100 points) |
| Interval 8: 75-99 € |  (0-100 points) |
| Interval 9: 100-124 € |  (0-100 points) |
| Interval 10: 125-149 € |  (0-100 points) |
| Interval 11: 150-174 € |  (0-100 points) |
| Interval 12: 175-200 € |  (0-100 points) |

*One participant will be randomly drawn from all participants in today's experiment. This participant can receive a bonus payment of 20 euros for this question. The more accurate the participant's estimation, the higher their chance of receiving the bonus payment.

**We have set up a procedure to ensures that your chances of winning the bonus payment is maximized if you provide your honest estimate of how likely the different donation amounts are.** You can read the exact rules below to verify that it is truly in your best interest to provide your honest estimate.

Detailed description of how your answers affect the likelihood of receiving the bonus payment:

- At the end of today's experiment, one participant will be randomly drawn. This participant can win a bonus payment of 20 euros.
- The probability that the selected participant will receive the bonus payment depends on how accurately the participant estimates the actual donation behavior of another randomly drawn participant in today's experiment:
  - First, it is determined in which interval the donation of the other participant falls. This interval receives 100 result points. The other intervals receive 0 result points.
  - In each interval, the difference between the result points and the estimated points of the selected participant is calculated and squared (squared error). The sum of all squared errors (across all intervals) is then calculated. This sum lies between 0 (no error/perfect match) and 20,000 (maximum error/no match at all).
  - A random number x between 0 and 20,000 is drawn.
  - If the sum of the squared errors is less than the random number x, the participant wins the bonus payment of 20 euros.
  - If the sum of the squared errors is greater than or equal to the random number x, the participant will not receive the bonus payment.

## [New page]

## How do you think the other participants decided in the public scenario?

Thank you.

Now, please answer the same question for the case of a **public donation**: Suppose you have to guess the public donation of another randomly selected participant in today's experiment. How much do you think this donation is?

[...]

**[End of beliefs]**

**[End of individual setting]**

## C.2 Group image setting [in random order with individual image setting]

Below, you will find an overview of the structure of the first [second] decision situation. Please read the information carefully.

**Your group affiliation**

Two groups participate in this experiment:

- Group 1: Students of the University of Cologne
- Group 2: Students of the University of Bonn

You are a member of Group 1: Students of the University of Cologne [Group 2: Students of the University of Bonn]. There are about 20 participants in each group. In total, there are about 40 students participating in this experiment.

**The decision situation**

Each participant must decide how much money he or she wants to donate **on behalf of his or her entire group** (students of the University of Cologne/students of the University of Bonn) to the German Children's Fund.

Each group member will be provided with 200 euros. Each group member then decides independently how much of this money he or she would like to donate to the German Children's Fund on behalf of his or her group, and how much of this money he or she would like to keep for herself.

After all participants have made a donation decision, one group, and from that group one group member will be randomly selected. The donation decision of this **'group donor'** will then be realized on behalf of the entire group: The **'group donation'** selected in this way will go to the German Children's Fund, and the group donor receives the rest of the money (200 euros minus the donation).

Note that only one group and from this group only one donation will be realized. Only one group member (the group donor) will receive the money that he or she did not donate, everyone else will receive a fixed payment of 10 euros. Each group member has an equal chance of being selected as the group donor.

The group donation of the selected group is either private (scenario 1) or public (scenario 2).

**Scenario 1: Private group donation.** There is a 50% chance that the group donation will be private. This means that no one except the group donor will learn the actual amount of the realized donation. Additionally,

no one except the group donor will learn which group was selected to make the donation.

**Scenario 2: Public group donation.** There is a 50% chance that the group donation will be public. This means that the selected group will be asked to announce their group's donation at the end of the experiment in a videoconference attended by all participants. This way, everyone will know which group was selected to make the donation and how much this group donated to the German Children's Fund.

The **'group spokesperson'**: In the case of scenario 2 (public group donation), the group donation will not be announced by the group donor. Instead, another group member will be randomly selected as the 'group spokesperson'. This group spokesperson will have to publicly announce the group donation during the video conference. Each group member has an equal chance of being selected as the group spokesperson.

Below, you can view a video that shows an example of the public announcement of the group donation in the case of scenario 2. Note that the group spokesperson must publicly announce the name of the group and the group's donation on camera, for everyone to see. Also note that neither the name of the group donor nor the name of the group spokesperson is announced. Only the group will be announced.

{Example Video. The video features a female student (not participating in the experiment) demonstrating a public announcement of a group donation during the video conference. The student has her camera on, with her face visible, and reads the following text out loud: "I am a student of [group name]. Our group was selected to make the donation. Our donation to the German Children's Fund is X euros."}

Note that in the case of scenario 2 (public group donation), two members of the selected group are drawn at random: (1) The group donor whose donation is realized. (2) The group spokesperson who must publicly announce the group donation. You may be selected for either one role or the other. Note, however, that you can never be selected for both roles at the same time. The group donor and group spokesperson will be drawn only after all participants have made their donation decisions.

**Your task**

We are going to ask you to answer 3 questions on the following pages.

Question 1: If the group donation is private (scenario 1) and you are drawn as the group donor: How much money do you want to donate to the German Children's Fund?

Question 2: If the group donation is public (scenario 2) and you are drawn as the group donor: How much money do you want to donate to the German Children's Fund?

Question 3: If the group donation is public (scenario 2) and you are drawn as the group spokesperson: under

what circumstances are you willing to announce the group donation on camera, and under what circumstances would you prefer not to?

**Your payment**

- Each participant will receive a fixed compensation of 10 euros.
- If you are drawn as the group donor, you will receive, in addition to the fixed compensation, the amount you did not donate in the selected scenario (200 euros minus donation).
- If you are drawn as the group spokesperson, you will receive money that you can invest to influence the probability of having to announce the group donation.

You will find more detailed information about the possible payouts on the following pages.

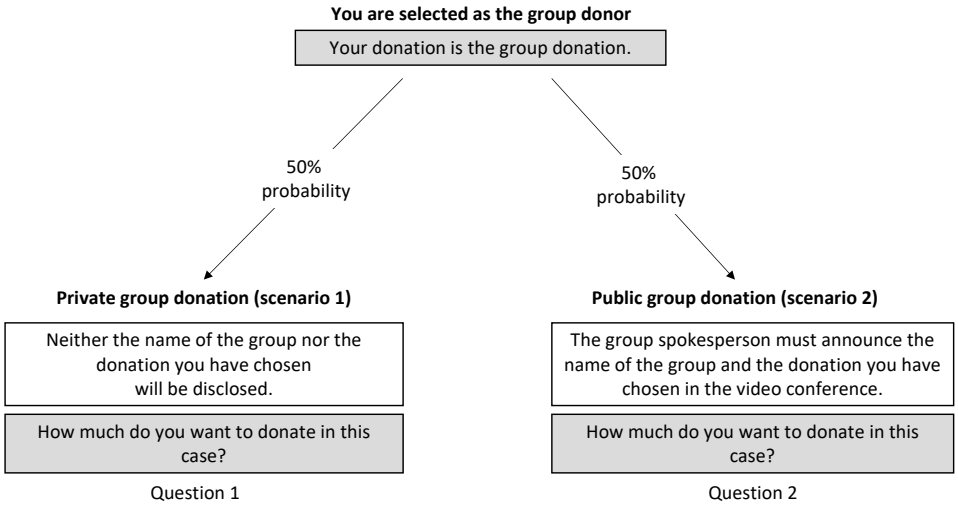
## [New page]

## Further Instructions: The group donation

**Possible role 1: Group donor**

If you are selected as the group donor, you will donate an amount between 0 and 200 euros to the German Children's Fund **on behalf of your entire group**. Money that you do not donate will be paid out to you.

Your donation can vary depending on the situation. The diagram below explains the possible scenarios:



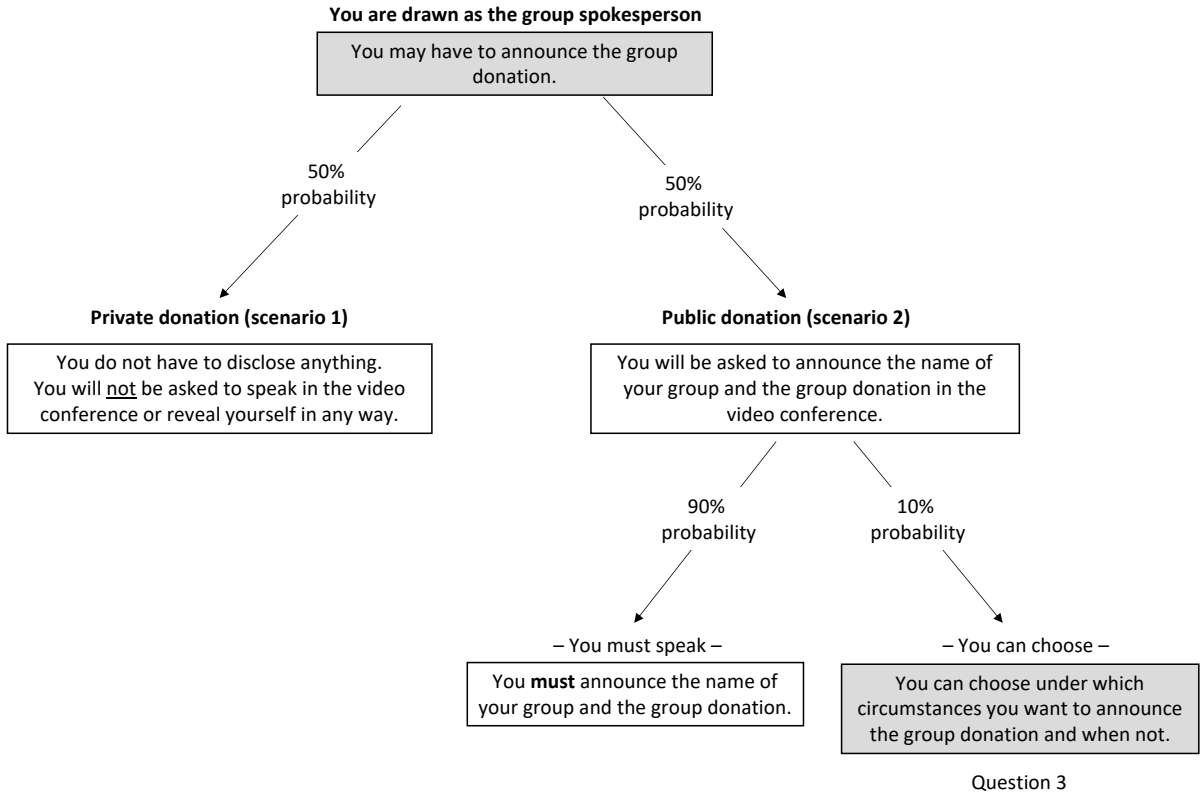

- If you are selected as the group donor, there is a 50% chance that the donation you make on behalf of your entire group will be private. This means that neither the name of the group nor the size of the donation will be disclosed. No one but you will know that your group has been selected or how much your group donation is. We are going to ask you how much you want to donate in this event (Question 1).

- If you are selected as the group donor, there is a 50% chance that the donation you make on behalf of your entire group will be public. This means that the spokesperson of your group will be asked to announce the name of your group and the donation during the videoconference. This way, everyone will know that it is your group making the donation and the amount being donated. We are going to ask you how much you want to donate in this event (Question 2).

**Possible role 2: Group spokesperson**

If you are selected as the group spokesperson, you will be asked to announce the group donation on camera in the event of a public donation (scenario 2).

Whether you need to speak in the videoconference depends on which scenario occurs. The diagram below explains the possible scenarios:




- The group donation is private with a 50% chance. In this case, you do not have to announce anything. You will not be asked to speak in the videoconference or reveal yourself in any way. As a result, no one will learn that your group was selected or the amount of the group donation.
- The group donation is public with a 50% chance. In this case, you will be asked to announce the name of your group and the group donation chosen by the group donor in the videoconference.
  - If the group donation is public, you **must** announce the donation with a high probability (90%). This means that you cannot avoid having to speak in the videoconference.
  - With a small probability of 10%, however, you can decide whether you want to announce the group

donation or not. We are going to ask you under what circumstances you want to announce the group donation chosen by the group donor and when you prefer not to (Question 3).

## [Choices]

## [Private group donation] (in random order with public group donation)

### Question 1 - Private group donation

If you are selected as the group donor, you will donate an amount between 0 and 200 euros to the German Children's Fund **on behalf of your entire group**.

There is a 50% chance that the group donation you make on behalf of your entire group will be private. This means that no one but you will know that your group has been selected and how much your group donation is.

**How much money would you like to donate to the German Children's Fund in this case?** The money that you do not donate (200 euros minus the donation) will be paid out to you.

If I am selected as the group donor and the group donation is private, I would like to donate the following amount:

[ ] €

[private_group_donation]

(Please enter an amount between 0 and 200 euros).

Please note:

- If you are selected as the group donor, there is a 50% chance that your group donation will be private.
- The donation you enter on this page determines the amount donated to the German Children's Fund as well as the amount of your additional payout (200 euros minus the donation) for the case that the group donation is private (scenario 1). In the case of this event, your decision on this page will be automatically implemented.
- Your decision on this page DOES NOT APPLY if the group donation is public (scenario 2). If the group donation is public, a different donation amount chosen on another page will apply.
- The donation you enter on this page will remain private in any event. The amount you enter here will not be disclosed to the other participants under any circumstances. The donation you enter here will ONLY be realized if the group donation is private (scenario 1) and you are selected as the group donor. In the case of this event, NO ONE except you will know the amount of your donation. Additionally, no one but you will know that your group was selected to make the donation.

## [Public group donation] (in random order with private group donation)

### Question 2 - Public group donation

If you are selected as the group donor, you will donate an amount between 0 and 200 euros to the German Children's Fund **on behalf of your entire group**.

There is a 50% chance that the group donation you make on behalf of your entire group will be public. This means that the spokesperson of your group will be asked to announce the name of your group and the donation you have chosen in the videoconference. This way, everyone will know that it is your group making the donation and the amount being donated.

**How much money would you like to donate to the German Children's Fund in this case?** The money that you do not donate (200 euros minus the donation) will be paid out to you.

If I am selected as the group donor and the group donation is public, I would like to donate the following amount:

[ ] €

[public_group_donation]

(Please enter an amount between 0 and 200 euros).

Please note:

- If you are selected as the group donor, there is a 50% chance that your group donation will be public.
- The donation you enter on this page determines the amount donated to the German Children's Fund as well as the amount of your additional payout (200 euros minus the donation) for the case that the group donation you have chosen will have to be announced in the videoconference. In the case of this event, your decision on this page will be automatically implemented. The group spokesperson will then be asked to announce the amount entered here along with the name of your group on camera during the videoconference.
- Your decision on this page DOES NOT APPLY if the group donation is private (scenario 1). If the group donation is private, a different donation amount chosen on another page will apply.
- The donation you enter on this page may need to be announced by the group spokesperson in a videoconference at the end of the experiment. The donation you enter here will ONLY be realized if the group donation is public (scenario 2) and you are selected as the group donor. In the case of this event, we will ask the group spokesperson to announce the donation you have chosen here in a videoconference. This way, everyone will know that your group was selected to make the donation and how much you donated on behalf of your group to the German Children's Fund.

Below you can once again view the example video for the public announcement of the group donation. Note that the group spokesperson will have to publicly announce the name of the group and the group donation on camera, for everyone to see. Also note that neither the name of the group donor nor the name of the group spokesperson is announced. Only the group will be announced.

{Example Video}

## [WTP for public announcements]

## Question 3: Under what circumstances are you willing to publicly announce the group donation?

If you are selected as the group spokesperson, we will ask you to announce the group donation on camera in the event of a public donation (scenario 2).

In the case of this event, there is a high probability (90%) that you must announce the donation. In this case, you cannot avoid speaking in the videoconference.

With a small probability (10%), however, you can choose whether or not to announce the group donation. On the following two pages, we will ask you under which circumstances you want to announce the group donation chosen by the group donor and when you prefer not to.

**Your task**

We are going to show you 12 different intervals where the donation chosen by the group donor might fall:

| **Donation chosen by group donor** | |
|---|---|
| Interval 1 | 0 € |
| Interval 2 | 1-4 € |
| Interval 3 | 5-9 € |
| Interval 4 | 10-19 € |
| Interval 5 | 20-29 € |
| Interval 6 | 30-49 € |
| Interval 7 | 50-74 € |
| Interval 8 | 75-99 € |
| Interval 9 | 100-124 € |
| Interval 10 | 125-149 € |
| Interval 11 | 150-174 € |
| Interval 12 | 175-200 € |

For each of these 12 intervals, we are going to ask you to answer two questions:

1. If the donation chosen by the group donor falls within this interval (e.g., 5–9 euros), would you like to announce it in the videoconference? You have two options:
    - Yes, I would like to announce the group donation in this case.
    - No, I want the group donation to remain private in this case.
2. If the donation chosen by the group donor falls within this interval (e.g., 5–9 euros), how much money are you willing to spend to ensure that your preference regarding the announcement of the donation will be implemented? You can invest up to 50 euros in this question. The more money you invest, the higher will be the probability that your preference ('Yes, announce' or 'No, keep private') will be implemented.

**Your payment**

In the event that you can choose whether or not to announce the donation, you will be awarded an additional sum of 50 euros in addition to your fixed compensation of 10 euros. You can invest this money to influence the probability of you having to announce the donation chosen by the group in the video conference. Money you do not invest will be paid out to you.

Please note that the donation chosen by the group donor will in any case be paid to the German Children's Fund. This applies regardless of whether you announce the donation or not.

**Announcing the donation during the video conference**

The following applies to the announcement of the donation during the video conference:

- In the event that you will <u>not</u> have to announce the donation chosen by the group donor, no one will learn the donation amount or that you have been selected as the group spokesperson. This case is therefore identical to the case of a private group donation (scenario 1). The other participants cannot distinguish whether the absence of an announcement is the result of a private group donation (scenario 1) or the result of an unannounced public group donation.

## [WTP: Step 1]

## Question 3 a) - Do you want to announce the group donation chosen by the group donor, yes or no?

Below are 12 different intervals where the donation selected by the group donor might fall.

For each of these intervals, please indicate whether you prefer to announce the group donation selected by the group donor in the video conference ('Yes') or whether you prefer the donation to remain private ('No').

| **Donation chosen by group donor** | **Do you want to announce this donation?** | |
|---|---|---|
| Interval 1: 0 € | ◯ Yes | ◯ No |
| Interval 2: 1-4 € | ◯ Yes | ◯ No |
| Interval 3: 5-9 € | ◯ Yes | ◯ No |
| Interval 4: 10-19 € | ◯ Yes | ◯ No |
| Interval 5: 20-29 € | ◯ Yes | ◯ No |
| Interval 6: 30-49 € | ◯ Yes | ◯ No |
| Interval 7: 50-74 € | ◯ Yes | ◯ No |
| Interval 8: 75-99 € | ◯ Yes | ◯ No |
| Interval 9: 100-124 € | ◯ Yes | ◯ No |
| Interval 10: 125-149 € | ◯ Yes | ◯ No |
| Interval 11: 150-174 € | ◯ Yes | ◯ No |
| Interval 12: 175-200 € | ◯ Yes | ◯ No |

We will take your selection on this page into account as follows: Once we know which interval the donation chosen by the group donor falls into, your choice for this interval will be implemented with a probability between 50% and 100%. On the next page, you will have the opportunity to invest up to 50 euros to increase the probability that your choice will be implemented from 50% to up to 100%. The more money you invest, the higher the probability that your choice will be implemented.

Please note: It is in your best interest to carefully and honestly indicate on this page whether you want to announce a group donation in the respective interval or not. If you make a wrong selection, whether intentionally or unintentionally, you will increase the likelihood of an outcome that you may actually want to avoid.

## [WTP: Step 2]

## Question 3 b) - How much money are you willing to spent to ensure that your choice is implemented?

You can now invest up to 50 euros for each of the specified intervals to increase the probability that your preference regarding a possible announcement of the group donation will be implemented.

Below is a detailed description of how your investment affects the probability of you having to make an announcement as well as your payout. **Here are the key points:**

- **You can invest up to 50 euros for each interval. For every euro you invest, you increase the probability that your preference regarding the announcement of the donation will be implemented by exactly 1 percentage point.** If you invest 0 euros, your preference for that interval will be implemented with a 50% probability. This gives you a fifty-fifty chance of announcing the group donation only if you prefer to do so. If you invest 50 euros (i.e., all your money), your preference will be implemented with a 100% probability. In other words, by investing the full 50 euros, you can guarantee

that your preference regarding the announcement of a group donation in this interval will be implemented. If you invest less, there may be an outcome that you want to avoid. However, you will also keep more of your money.

- **You should choose your investment as follows: How much money are you willing to spend in order to ensure your preference is implemented?** The more important it is to you that your preference is actually implemented— i.e., the more important it is to you that you announce the donation chosen by the group donor only if you prefer to do so—the more money you should invest. If you don't care whether you have to announce a certain group donation or not, then you shouldn't invest anything.
- **You should make your investment decision for each donation interval individually.** It might be more important to you that your selection is implemented in one interval than in another. In this case, you should invest more in the interval that matters more to you.

Please choose your investment now:

After you have entered your investment, the computer will display the resulting probability (50-100%) below the input field, indicating how likely it is that your preference regarding the announcement of the donation will be implemented.

| **Donation interval** | **Your selection** | **How much (0 - 50 euros) are you willing to invest?** |
|---|---|---|
| Interval 1: 0 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 2: 1-4 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 3: 5-9 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 4: 10-19 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 5: 20-29 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 6: 30-49 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 7: 50-74 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 8: 75-99 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 9: 100-124 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 10: 125-149 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 11: 150-174 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |
| Interval 12: 175-200 € | Yes, publicly announce. / No, do NOT publicly announce | (0-50€) |

We have a procedure in place to ensure that answering this question carefully and honestly is in your best interest. You can review the exact rules below to verify that it is truly in your best interest to answer this question honestly.

Detailed description of how your answers affect the probability of you having to announce the donation chosen by the group donor:

- If you are drawn as the group spokesperson and the donation is public, there is a 10% chance that you can choose whether or not to announce the group donation. The following rules apply in the case of this event.
- Once we know which of the 12 intervals shown above (0 Euro, 1-4 Euro, ..., 175-200 Euro) the group donation falls into, we will determine based on your choice on the previous page whether you prefer to announce or not announce the donation.
- With a 50 percent chance, your preference for the valid interval will be implemented irrespective of how much you invested. In this case, you will be asked to announce the group donation if and only if you indicated that you wish to do so for a donation falling into that interval. Irrespective of your investment, you will be paid a bonus of 50 euros in this case.
- Otherwise, also with a 50 percent chance, your investment will affect the probability that your preference will be implemented:
  - A random number x between 0 and 50 euros is drawn.
  - If your investment is smaller than the random number x, your preference will not be implemented. In this case, you will be asked to announce the group donation precisely when you selected 'No, I want the group donation to remain private'. Conversely, if you selected 'Yes, I would like to announce the group donation', you will not be asked to announce it. Irrespective of your investment, you will be paid a bonus of 50 euros in this case.
  - If your investment is at least as high as the random number x, your preference will be implemented. In this case, you will be asked to announce the group donation if and only if you have indicated that you wish to do so. Otherwise, the group donation will remain private, as per your selection. You will receive a bonus of 50 euros minus the random number x, i.e. 50 minus x euros.

## [End of choices]

## [Beliefs]

## How do you think the other members of your group decided in the private scenario?

Thank you, you have answered all 3 main questions for decision situation 1 [2].

Finally, we would like to know your beliefs regarding the donation behavior of the other members of your group (students of the University of Cologne [University of Bonn]).

Let's start with the **private group donation**: Suppose you have to guess the private group donation of another

randomly selected member of your group. How much do you think this donation is?

Below are different intervals in which the donation can fall. You need to distribute 100 percentage points across these intervals. Please allocate the 100 points according to how likely you think it is that the donation falls into each interval.

[...]

**[New page]**

### How do you think the other members of your group decided in the public scenario?

Thank you.

Now, please answer the same question for the case of a **public group donation**: Suppose you have to guess the public group donation of another randomly selected member of your group. How much do you think this donation is?

[...]

**[New page]**

### How do you think the members of the other group decided in the private scenario?

Thank you.

We would now like to ask you the same questions regarding theother group (students of the University of Bonn [University of Cologne]).

Let's start again with the **private group donation**: Suppose you have to guess the private group donation of randomly selected member of the other group. How much do you think this donation is?
[...]

**[New page]**

### How do you think the members of the other group decided in the public scenario?

Thank you.

And what about the **public group donation** in the other group?

Suppose you have to guess the public group donation of randomly selected member of the other group. How much do you think this donation is?
[...]

**[End of beliefs]**

**[End of group setting]**

## C.3 Questionnaire [identical for all participants]

### [Effect of Public Donation on Perceived Prosociality of Individual/Group]

Suppose you learn that a participant in this experiment has donated [random value] euros to the German Children's Fund. On a scale from 0 to 10, how prosocial would you rank this person? By 'prosocial' we mean altruistic, selfless, caring.
(0 = not at all prosocial, 10 = exceptionally prosocial)
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Suppose you learn that your group donated [random value] euros to the German Children's Fund during the group donation in this experiment. On a scale from 0 to 10, how prosocial would you rank your group? By 'prosocial' we mean altruistic, selfless, caring.
(0 = not at all prosocial, 10 = exceptionally prosocial)
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Suppose you learn that the other group donated [random value] euros to the German Children's Fund during the group donation in this experiment. On a scale from 0 to 10, how prosocial would you rank the other group? By 'prosocial' we mean altruistic, selfless, caring.
(0 = not at all prosocial, 10 = exceptionally prosocial)
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

### [Charity Rating]

How important do you consider the work of the German Children's Fund to be?
(0 = not at all important, 10 = very important)
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

How trustworthy do you consider the German Children's Fund?

(0 = not at all trustworthy, 10 = very trustworthy)

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

How much do you like the fact that the donations go to the German Children's Fund (and not to another organization)?

(0 = not at all, 10 = very much)

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

## [Group Loyalty Questions, adapted from Haidt (2007, 2012)]

How much would someone have to pay you to do the following? Assume that you would be paid in secret and that you would not have to fear any social, legal, or other consequences harmful for you in performing the action.

Say something critical about your home country (which you believe to be true) while anonymously tuned into a live television broadcast of your home country.

☐ I would do it for free.

☐ I would do it for 100 euros.

☐ I would do it for 10,000 euros.

☐ I would do it for 1,000,000 euros.

☐ I would definitely not do it, no matter how much money is offered.

Say something critical about your home country (which you believe to be true) while anonymously tuned into a live television broadcast of another country.

☐ I would do it for free.

☐ I would do it for 100 euros.

☐ I would do it for 10,000 euros.

☐ I would do it for 1,000,000 euros.

☐ I would definitely not do it, no matter how much money is offered.

## [Allocation Game]

The following task is payout relevant. Your answers may affect the payout of you and other participants.
On the following 4 pages we will show you 4 different situations. In each of the 4 situations we will ask you to decide on a distribution of money between yourself and two other participants of this experiment.

**Additional payouts**

The task is relevant for payout. One participant in today's experiment will be drawn at the end and one of the

money distributions chosen by that participant will be paid out in full. If you are drawn, one of the money distributions you choose on the following pages will be realized and paid out.
On the next page, you start making your decisions for Situation 1.

**Distribution of money - Situation 1**

In situation 1, you distribute money between yourself and two other members of your group.
You have to choose between two money distributions:

Option A:
You will receive 10 euros.
Participant A (from your group) receives 10 euros.
Participant B (from your group) receives 10 euros.

Option B:
You will receive X euros.
Participant A (from your group) receives X euros.
Participant B (from your group) receives 0 euros.

For 'X' (option B), the computer randomly draws a number between 0 and 15 euros.
The amount X will be drawn only after your decision. You have to decide from which amount X you want to choose option B.

What is the minimum amount X that you must choose option B?
Please select the desired minimum amount using the slider.

-1 10

If you select '-1' (slider on the far left), you always select option A, regardless of what number X the computer draws.

**Distribution of money - Situation 2**

In situation 2, you distribute money between yourself, one member of your group (participant A), and one member of the other group (participant B).
You have to choose between two money distributions:

Option A:
You will receive 10 euros.
Participant A (from your group) receives 10 euros.

Participant B (from the other group) receives 10 euros.

Option B:

You will receive X euros.

Participant A (from your group) receives X euros.

Participant B (from the other group) receives 0 euros.

For 'X' (option B), the computer randomly draws a number between 0 and 15 euros.

The amount X will be drawn only after your decision. You have to decide from which amount X you want to choose option B.

What is the minimum amount X that you must choose option B?

Please select the desired minimum amount using the slider.

-1  10

If you select '-1' (slider on the far left), you always select option A, regardless of what number X the computer draws.

**Distribution of money - Situation 3**

In situation 3, you distribute money between yourself, one member of the other group (participant A), and one member of your group (participant B).

Please note that situation 3 is different from situation 2 (participants A and B have switched)!

You have to choose between two money distributions:

Option A:

You will receive 10 euros.

Participant A (from the other group) receives 10 euros.

Participant B (from your group) receives 10 euros.

Option B:

You will receive X euros.

Participant A (from the other group) receives X euros.

Participant B (from your group) receives 0 euros.

For 'X' (option B), the computer randomly draws a number between 0 and 15 euros.

The amount X will be drawn only after your decision. You have to decide from which amount X you want to choose option B.

What is the minimum amount X that you must choose option B?

Please select the desired minimum amount using the slider.

-1  10

If you select '-1' (slider on the far left), you always select option A, regardless of what number X the computer draws.

**Distribution of money - Situation 4**

In situation 1, you distribute money between yourself and two members of the other group.

You have to choose between two money distributions:

Option A:

You will receive 10 euros.

Participant A (from the other group) receives 10 euros.

Participant B (from the other group) receives 10 euros.

Option B:

You will receive X euros.

Participant A (from the other group) receives X euros.

Participant B (from the other group) receives 0 euros.

For 'X' (option B), the computer randomly draws a number between 0 and 15 euros.

The amount X will be drawn only after your decision. You have to decide from which amount X you want to choose option B.

What is the minimum amount X that you must choose option B?

Please select the desired minimum amount using the slider.

-1  10

If you select '-1' (slider on the far left), you always select option A, regardless of what number X the computer draws.

## [Group Ranking]

Below you can see a list of different group affiliations. You can change the order of the groups by dragging and dropping. Please sort the displayed group affiliations according to how important the affiliation to each group is

to you. At the top should be the group affiliation that is most important to you or with which you identify most strongly. Then the group affiliation that is second-most important to you, and so on.

1. My university or the students of my university
2. My club (e.g. sports club)
3. My home country or nationality
4. My religion
5. My current place of residence

If there is a group affiliation that is more important to you than all of the above groups, please enter it here. If there is no such group, please leave the field empty.

[most_important_group]

## [Image Value of Prosociality and Group Stereotypes]

Please rate the following statements according to whether you (tend to) agree or (tend to) disagree with them.

Students at the University of Bonn are generally considered to be very prosocial (altruistic, selfless, caring).

☐ Strongly Agree

☐ Somewhat Agree

☐ Somewhat Disagree

☐ Strongly Disagree

It is important to me that other people think my group is generous/not greedy.

☐ Strongly Agree

☐ Somewhat Agree

☐ Somewhat Disagree

☐ Strongly Disagree

It is important to me that other people think of me personally as a generous/non-greedy person.

☐ Strongly Agree

☐ Somewhat Agree

☐ Somewhat Disagree

☐ Strongly Disagree

Students at the University of Cologne are generally considered to be very prosocial (altruistic, selfless, caring).

☐ Strongly Agree

☐ Somewhat Agree

☐ Somewhat Disagree

☐ Strongly Disagree

## [Demographics]

Please enter your sex defined at birth.

☐ male

☐ female

Please select the gender you identify with.

☐ male

☐ female

☐ non-binary

Please enter your age.

[age]

Please enter your average monthly income.

[income]

Are you currently enrolled as a student?

☐ Yes

☐ No

If you are currently enrolled as a student, please enter the university where you are enrolled.

[uni_name]

If you are currently enrolled as a student, please enter your degree program.

[study_field]

If you have any comments on the experiment or other comments, suggestions, proposals, ... please enter them here.

[comments]

# D Instructions and Questionnaire: Online Experiments (English original)

## D.1 Experiment 1: Generosity and Religious Affiliation

### [Welcome]

**Welcome**

This survey is hosted by: {University of Cologne logo}

Your participation in this survey is entirely voluntary. You may refuse to take part in the research or exit the survey at any time. No personally identifiable information will be stored with or linked to the data from the survey.

If you choose to participate, we ask you to please complete the survey in one sitting. **The survey should take approximately 15 minutes to complete, but you may take up to 56 minutes in total.**

**We assure you that all information given to you in the course of this survey is factually true.** This includes any information you might receive about the possible implications and consequences of your answers and decisions.

If you have any questions about this project or if you have a survey-related problem, you may contact us with a direct message on Prolific.

To participate, please provide your unique Prolific participant number and tick all the boxes below.

*To proceed, please enter your unique Prolific participant ID in the field below.
[Prolific_ID]

*To proceed, please tick all of the following boxes.
☐ I have read all the information above and voluntarily consent to participate in this survey.
☐ I understand that all information given to me in the course of this survey is factually true.

### [Group affiliation]

**Your group**

This study can only be taken by individuals who have one of the following religious affiliations: Chris-

tian, Jewish, Muslim, Non Religious (e.g., Agnostic, Atheist, No Religion).

*What is your religious affiliation? [religious_affiliation]

☐ Christian

☐ Jewish

☐ Muslim

☐ Non Religious (e.g., Agnostic, Atheist, No Religion)

☐ None of the above

If you are not comfortable revealing your religious affiliation, please exit the study now and return your submission on Prolific. To do so, close the study and under Submissions, you'll have the option to 'return' the study. This will free up your place and allow another person to participate.

**Your group [new page]**

You have selected {religious_affiliation} as your religious affiliation. In this study, you will act as a member of the group consisting of people who, like you, are {religious_affiliation}.

## [Task description]

**Task**

In this study, you will decide how much of $200 you wish to donate to Feeding America on behalf of your group, that is, the {religious_affiliation}. To this end, we provide you with a budget of $200, from which you can donate anything between $0 and $200. You can find information on Feeding America in the box below.

| |
|---|
| Feeding America is the nation's largest domestic hunger-relief organization. Thanks to donations and support from businesses, government organizations, and individuals, the Feeding America network of food banks, pantries, and meal programs serve virtually every community in the United States — 40 million people, including 12 million children and 7 million seniors. Feeding America is consistently highly rated by Charity Navigator and the Better Business Bureau. According to Charity Navigator, this charity's score is 97.87, earning it a 4-Star rating (maximum rating). Donors can "Give with Confidence" to this charity. If you wish to find out more about Feeding America, you can click on this link: https://www.feedingamerica.org/ (opens in a new window). |

Consequences of your decision:

For every 300 people who participate in this study, we will randomly select 1 participant and realize the donation on behalf of their group. This means that:

- We will donate the amount chosen by the participant to Feeding America.

- The rest of the money ($200 minus donation) will be paid out to the selected participant as a bonus payment (on top of the regular reward for this study).

The group affiliation of the randomly selected donor, as well as their donation, may be publicly announced to everyone participating in this study. We will inform on the details of this on the next screen.

*Please tick the following box to proceed.
☐ I have read the above instructions and wish to proceed.

In order to proceed, please answer the following control questions. You can only proceed if you answer all questions correctly.

*What happens if your donation is realized?

☐ The amount I enter will be donated to Feeding America. I will receive the rest of the money ($200 minus the donation) as a bonus payment.

☐ I will receive $200 as a bonus payment.

☐ $200 will be donated to Feeding America.

## [Information on public announcement]

**Your donation may be published on behalf of your group**

If your donation is realized, your donation may be publicly announced on behalf of your group, the {religious_affiliation}.

As to whether this happens, there are two possible scenarios: the Private Scenario and the Public Scenario:

**Private Scenario**
In the Private Scenario, your donation as well as your group affiliation ({religious_affiliation}) will be kept private.

**Public Scenario**
In the Public Scenario, your donation may be publicly announced on behalf of your group (the {religious_affiliation}) to all participants of this study.

If your donation is publicly announced, the public announcement will look like the picture below. We will compare your donation to the average donation of 100 participants from an earlier study consisting of individuals from all over the U.S. In that study, participants donated $90 on average.

We asked a {religious_affiliation} and 100 randomly selected U.S. Americans to donate to Feeding America from a $200 budget.

**The {religious_affiliation} donated $X.**

("X" will be replaced with your donation)

The average U.S. American donated $90.

The public announcement will be made automatically with a 90% chance. With a 10% chance, another participant with the same group affiliation as you will decide whether the donation is publicly announced on behalf of your group. All 600 participants in this study will receive a link to a website where the public announcement can be found. In addition, the information will also be sent to all participants via a Prolific message. If your donation is publicly announced, it will be the only donation that is publicly announced on behalf of your group.

On the following screens you will make a donation choice for each scenario separately. At the end of this study, only one of the two scenarios (Private Scenario or Public Scenario) will be randomly drawn for payout. The randomly drawn scenario determines which of the two donations (private donation or public donation) is realized and whether the realized donation is publicly announced to everyone participating in this study (Public Scenario) or whether it remains secret (Private Scenario).

At this time, it is important to know that if your donation is realized and the Public Scenario drawn for payout, many people from all over the U.S. – both from your group and from other groups – may see how much you, as a {religious_affiliation}, have donated to Feeding America.

*Please tick the following box to proceed.

☐ I have read the above instructions and wish to proceed.

In order to proceed, please answer the following control questions. You can only proceed if you answer all questions correctly.

*What happens if your donation is realized and the Public Scenario is drawn for payout?

☐ The donation I decide to make for the Public Scenario will be realized and this donation publicly announced on behalf of my group, the {religious_affiliation}.

☐ The donation I decide to make for the Private Scenario will be realized and this donation publicly announced on behalf of my group, the {religious_affiliation}.

☐ The donation I decide to make for the Public Scenario will be realized. My donation as well as my group affiliation will be kept private.

## [Donation decisions]

**Scenarios**

On the following screens, you will make your donation choices for the Private Scenario and the Public Scenario. You will make your choice for each scenario on a separate screen. Remember that only one of the two scenarios will be randomly drawn to be relevant at the end of the study.

**Private Scenario** [new page, in random order with Public Scenario]

How much do you want to donate in the Private Scenario? Recall that if your donation is realized and this scenario is drawn for payout:

- The amount you enter will be donated to Feeding America.
- The remaining money ($200 minus your donation) will be paid out to you as a bonus payment.
- Your donation as well as your religious affiliation will remain private. That is, no one will learn your religious affiliation or how much you donated.

*My donation:

$ ☐

[private_donation]

Please enter an amount between $0 and $200. Only whole dollar amounts (no decimals) can be entered.

**Public Scenario** [new page, in random order with Private Scenario]

How much do you want to donate in the Public Scenario? Recall that if your donation is realized and this scenario is drawn for payout:

- The amount you enter will be donated to Feeding America.
- The remaining money ($200 minus your donation) will be paid out to you as a bonus payment.
- Your donation and religious affiliation ({religious_affiliation}) may be publicly announced on behalf of your group to all participants of this study.

*My donation:

$ ☐

[public_donation]

Please enter an amount between $0 and $200. Only whole dollar amounts (no decimals) can be entered.

## [Willingness to pay for public announcement]

**Which donations do you prefer to be publicly announced on behalf of your group?**

It may happen that another participant of this study, who is also {religious_affiliation}, is drawn to publicly represent your group with their donation. Your group's public donation may then fall within any of the 12 donation intervals shown below.

In this case, you cannot influence the donation of your group. However, there is a chance* that you will decide whether the donation is publicly announced on behalf of your group to all participants (and all groups) participating in this study or kept private. *For detail, see the bottom of this screen.

To decide which donations you wish to be publicly announced on behalf of your group and which not, please answer the question below.

**Please indicate <u>for each interval</u> below:**

If the donation of another {religious_affiliation} participant falls within this interval, do you prefer that the donation is publicly announced on behalf of your group, or do you prefer that the donation is NOT publicly announced?

| | No, do NOT publicly announce the donation. | Yes, publicly announce the donation. |
|---|---|---|
| The {religious_affiliation} donated $0 | ◯ | ◯ |
| The {religious_affiliation} donated $1-$4 | ◯ | ◯ |
| The {religious_affiliation} donated $5-$9 | ◯ | ◯ |
| The {religious_affiliation} donated $10-$19 | ◯ | ◯ |
| The {religious_affiliation} donated $20-$29 | ◯ | ◯ |
| The {religious_affiliation} donated $30-$49 | ◯ | ◯ |
| The {religious_affiliation} donated $50-$74 | ◯ | ◯ |
| The {religious_affiliation} donated $75-$99 | ◯ | ◯ |
| The {religious_affiliation} donated $100-$124 | ◯ | ◯ |
| The {religious_affiliation} donated $125-$149 | ◯ | ◯ |
| The {religious_affiliation} donated $150-$174 | ◯ | ◯ |
| The {religious_affiliation} donated $175-$200 | ◯ | ◯ |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] As stated earlier, with a 90% chance, the donation of a participant selected to publicly represent his or her group will be automatically announced. With a 10% chance, however, another participant who is of the same group as the selected participant can decide whether the donation is publicly announced or kept private. The person deciding this may be you. Your selection on this screen determines which donation amounts you prefer to be publicly announced on behalf of your group and which not.

**Which donations do you prefer to be publicly announced on behalf of your group?** [new page]

Below is the selection you made regarding the public announcement of potential donations on behalf of your group, the {religious_affiliation}.

We would like to know **how important** it is to you that we implement this selection. For this, we provide you with $50 for each donation interval. You can invest these $50 to choose how important the selection you made for a given donation interval is to you. The more you invest, the more likely your selection for that interval will be implemented when it comes to whether a given donation will be publicly announced on behalf of your group. For each $1 invested, you increase the probability that your selection will be implemented by 1 percent. If you invest $50, your selection is implemented with a 100 percent probability, that is, with certainty. If you are chosen to determine the public announcement of your group's donation, you will receive a bonus payment for this task that depends on your investment decisions and will be between $0 and $50.

**The higher your investment, the more likely it becomes that a particular donation will only be publicly announced on behalf of your group if you wish for it to be publicly announced. At the same time, the higher your investment, the lower your expected bonus payment.**

We chose a procedure to ensure that honest responses to this question are in your best interest. If you wish, you can view a precise description of the procedure at the bottom of this screen.

**For each donation interval, please choose how important it is to you that your selection (announce or don't announce) will be implemented by choosing an investment between $0 (not at all important) and $50 (maximally important).**

| | | |
|---|---|---|
| The {religious_affiliation} donated $0 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $1-$4 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $5-$9 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $10-$19 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $20-$29 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $30-$49 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $50-$74 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $75-$99 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $100-$124 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $125-$149 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $150-$174 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {religious_affiliation} donated $175-$200 | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] If the donation of a participant from your group({religious_affiliation}) is drawn for public announcement, then with 10% chance, another {religious_affiliation} participant can decide whether the donation will indeed be publicly announced. Should the person deciding this be you, the following rules apply:

- Once we know which of the 12 intervals the donation falls into, we will use your previous decisions to determine whether you wish this donation to be publicly announced or not publicly announced.
- With a 50% chance, your selection for the relevant interval will be implemented regardless of your investment. In this case, regardless of your investment, your bonus payment is $50.
- Otherwise, also with a 50% chance, your investment will influence the probability of your selection being implemented as follows:
  - A random number x between $0 and $50 is drawn.
  - If your investment is smaller than the random number x, your selection will not be implemented. Instead, the opposite of your selection will be implemented. Regardless of your investment, your bonus payment is $50 in this case.
  - If your investment is at least as high as the random number x, your selection will be implemented. You will then receive a bonus payment of $50 minus the random number x, i.e., 50 minus x dollars.

## [Questionnaire]

**Demographics**

You have nearly completed the survey. Finally, please answer the following questions about yourself. Your payment from this survey is not affected by your answers to these questions.

*You have specified your religious affiliation as {religious_affiliation}. How strongly do you identify with being {religious_affiliation}?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*We would like to get your feelings toward different religious affiliations on a "feeling thermometer." A rating of zero degrees means you feel as cold and negative as possible. A rating of 100 degrees means you feel as warm and positive as possible. You would rate the group at 50 degrees if you don't feel particularly positive or negative toward the group.

- Please rate how you feel toward **Christians**.

  0  100
- Please rate how you feel toward **Jewish**.

  0  100
- Please rate how you feel toward **Muslims**.

  0  100

- Please rate how you feel toward **Non Religious (e.g. Agnostic, Atheist, No Religion)**.

  0  100

*It is important that you pay close attention and that you answer all questions carefully and conscientiously. To show that you are paying attention, please select "strongly agree" as your answer for this question. Please do not select any other answer!

☐ Strongly disagree

☐ Weakly disagree

☐ Neither agree nor disagree

☐ Very agree

☐ Strongly agree

*What is your highest level of education?

☐ Did not graduate from high school

☐ High school graduate, diploma, or equivalent (such as GED)

☐ Began college, no degree

☐ Associate's degree

☐ Bachelor's degree

☐ Postgraduate or professional degree

*Are you currently enrolled as a student at a university or college?

☐ Yes

☐ No

*[If current or past student] What is the name of the university or college at which you are studying or at which you last studied?

[uni_name]

*[If current or past student] How strongly do you identify with being a {uni_name} student?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*In politics today, do you consider yourself a Republican, a Democrat, or an Independent?

☐ Democrat

☐ Republican

☐ Independent (lean Democrat)

☐ Independent (lean Republican)

*[If Democrat or Democrat-leaning] How strongly do you identify with "being a Democrat"?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*[If Republican or Republican-leaning] How strongly do you identify with "being a Republican"?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

This is the end of the survey. Thank you for your participation. By clicking "Finish and submit survey," your participation will be registered and you will be automatically redirected back to Prolific.

## D.2 Experiment 2: Patriotism and Party Affiliation

### [Welcome]

**Welcome**

[...]

### [Group affiliation]

**Your group**

This study can only be taken by individuals who have one of the following political affiliations: Democrat, Republican.

*What is your political affiliation? [political_affiliation]

☐ Democrat

☐ Republican

☐ Independent

☐ Other

If you are not comfortable revealing your political affiliation, please exit the study now and return your submission on Prolific. To do so, close the study and under Submissions, you'll have the option to 'return' the study. This will free up your place and allow another person to participate.

**Your group [new page]**

You have selected {political_affiliation} as your political affiliation. In this study, you will act as a member of the group consisting of people who, like you, are {political_affiliation}.

## [Task description]

**Task**

In this study, your task is to find and correct intentionally included mistakes in the U.S. national anthem, "The Star-Spangled Banner". Below is an example of how to find and correct mistakes in the song "Happy Birthday".

**Example:**


Below each word, there is a blank space. Your task is to identify wrong words or spelling and correct them by writing the correct word or spelling in the blank space below the word. If a word is correct, please leave the blank space empty.

For your actual task, you will see a faulty version of the first two stanzas of the U.S. national anthem,

"The Star-Spangled Banner". The anthem contains mistakes similar to the mistakes shown in the example above. You can decide to end the task at your own convenience. Once you are ready to submit the task, click on "Submit task and proceed". The program will allow you to proceed with any number of filled or unfilled blanks.

After you have submitted the task, you will get information about the number of mistakes included in the anthem and how many of them you found and correctly fixed.

In a previous study among 100 randomly selected U.S. Americans, participants found and correctly fixed 26 mistakes on average.

The number of mistakes you find or correct will not affect your payment from this survey.

*Please tick the following box to proceed.
☐ I have read the above instructions and wish to proceed.

In order to proceed, please answer the following control questions. You can only proceed if you answer all questions correctly.

*How many mistakes does the faulty version of the national anthem contain?

☐ This information is only provided after the task.

☐ 5

☐ 10

☐ 50

## [Private treatment] (between subject)

**Your score will remain private**

On the next screen, you will begin with the task.

The number of mistakes you find and/or fix will remain private and not be revealed to other participants.

## [Public treatment] (between subject)

**Your score may be published on behalf of your group**

The number of mistakes you find in the U.S. national anthem may be publicly announced on behalf of your group ({political_affiliation}) to all participants of this study.

At the end of the study, we will randomly select one participant. The selected participant's performance on the anthem task will be used to publicly represent his or her group.

If you are selected to represent your group, the public announcement of your performance will look like the picture below. We will compare your score to the average score of 100 participants from an earlier study consisting of individuals from all over the U.S. In that study, participants found and correctly fixed 26 mistakes on average.

| |
|---|
| We asked a {political_affiliation} and 100 randomly selected U.S. Americans to find intentionally included mistakes in the U.S. national anthem, "The Star-Spangled Banner". |
| **The {political_affiliation} found X mistakes.** ("X" will be replaced by the number of mistakes that you found and correctly fixed.) |
| The average U.S. American found 26 mistakes. |

The public announcement will be made automatically with a 90% chance. With a 10% chance, another participant with the same group affiliation as you will decide whether your score is publicly announced on behalf of your group. All 600 participants in this study will receive a link to a website where the public announcement can be found. In addition, the information will also be sent to all participants via a Prolific message. If your performance is publicly announced, it will be the only performance that is publicly announced on behalf of your group.

At this time, it is important to know that if you are selected to represent your group, many people from all over the U.S. – both from your group and from other groups – may see how many mistakes you, as a {political_affiliation}, have found in the U.S. national anthem.

*On the next screen, you will begin with the task. Please tick the following box to proceed:
☐ I have read the above information and wish to begin with the task.

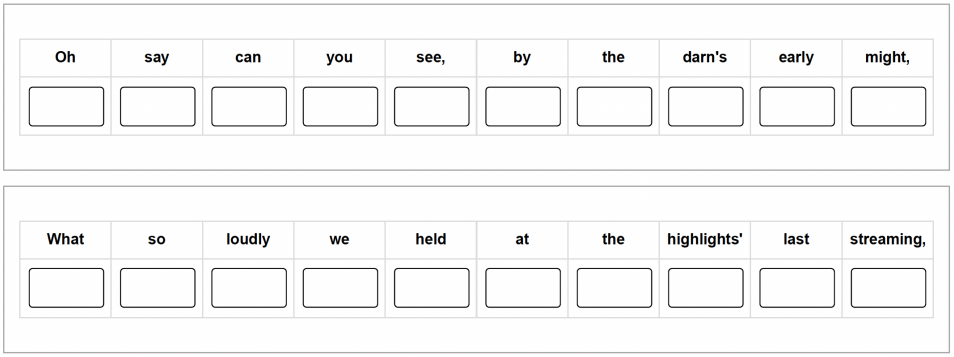
## [Work on task]

**U.S. national anthem: Find and correct mistakes**

Below is a faulty version of the first two stanzas of the U.S. national anthem, line by line. **Your task**

**is to identify wrong words or spelling and correct them by writing the correct word or spelling in the blank space below the word.** If a word is correct, please leave the blank space empty.

Once you are ready to submit the task, click on "Submit task and proceed" at the bottom of the page. The program will allow you to proceed with any number of filled or unfilled blanks.




...

**End of task: Your score** [new page]

You found and correctly fixed {anthfound} of the 64 mistakes that were included in the anthem. That is, you missed {64-anthfound} (or {round((64-anthfound)/64,2)*100}%) of the mistakes!

Based on the complete version of "The Star-Spangled Banner" with spelling and punctuation from Francis Scott Key's manuscript in the Maryland Historical Society collection, available here: https://amhistory.si.edu/starspangledbanner/the-lyrics.aspx (opens in a new window).

## [Willingness to pay for public announcement]

[Additional information for participants in private treatment (not shown to participants in public treatment)]
**Which scores do you prefer to be publicly announced on behalf of your group?**

We are running a study with the same national anthem task with another group of participants.

Different than the current one, in that study, one participant will be randomly selected, and their score on the national anthem task will be publicly announced along with their political affiliation (Republican or Democrat) to 600 other participants, including you. Those participants are informed of this.

If the performance of a participant from your group ({political_affiliation}) is publicly announced, the public announcement will look like the picture below. We will compare the score of the selected participant to the average score of 100 participants from an earlier study consisting of individuals from all over the U.S. In that study, participants found and correctly fixed 26 mistakes on average.

We asked a {political_affiliation} and 100 randomly selected U.S. Americans to find intentionally included mistakes in the U.S. national anthem, "The Star-Spangled Banner".

**The {political_affiliation} found X mistakes.**
("X" will be replaced by the number of mistakes that the selected participant found and correctly fixed.)

The average U.S. American found 26 mistakes.

The public announcement will be made automatically with a 90% chance. With a 10% chance, another {political_affiliation} participant will decide whether or not the score is publicly announced. The person deciding this may be you.

All participants (of this as well as the other study) will receive a link to a website where the public announcement can be found. In addition, the information will also be sent to all participants via a Prolific message.

Note that only the performance of one randomly selected group member will be publicly announced on behalf of the entire group.

On the following screens, we will ask you for the scores that you prefer to (not) be publicly announced on behalf of your group. Your answers to these questions will ultimately be used to determine whether or not a particular score will be used to publicly represent your group's performance on the anthem task.

*Please tick the following box to proceed:
☐ I have read the above information and wish to proceed.

[The following pages are shown to all subjects (private and public treatment)]

**Which scores do you prefer to be publicly announced on behalf of your group?**

It may happen that another participant of this study, who is also {political_affiliation}, is drawn to publicly represent your group with how well they performed on the anthem task. Your group's public score may then fall within any of the 9 intervals shown below.

In this case, you cannot influence the score of your group. However, there is a chance* that you will decide whether the score is publicly announced on behalf of your group to all participants (and all groups) participating in this study or kept private. *For detail, see the bottom of this screen.

To decide which scores you wish to be publicly announced on behalf of your group and which not, please answer the question below.

**Please indicate for each interval below:**

If the performance of another {political_affiliation} participant falls within this interval, do you prefer that this score is publicly announced on behalf of your group, or do you prefer that the score is NOT publicly announced?

| | No, do NOT publicly announce the score. | Yes, publicly announce the score. |
|---|---|---|
| The {political_affiliation} found 0 mistakes (missed all mistakes) | ◯ | ◯ |
| The {political_affiliation} found 1-9 mistakes | ◯ | ◯ |
| The {political_affiliation} found 10-19 mistakes | ◯ | ◯ |
| The {political_affiliation} found 20-29 mistakes | ◯ | ◯ |
| The {political_affiliation} found 30-39 mistakes | ◯ | ◯ |
| The {political_affiliation} found 40-49 mistakes | ◯ | ◯ |
| The {political_affiliation} found 50-59 mistakes | ◯ | ◯ |
| The {political_affiliation} found 60-63 mistakes | ◯ | ◯ |
| The {political_affiliation} found 64 mistakes (found all mistakes) | ◯ | ◯ |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] As stated earlier, with a 90% chance, the score of a participant selected to publicly represent his or her group will be automatically announced. With a 10% chance, however, another participant who is of the same group as the selected participant can decide whether the score is publicly announced or kept private. The person deciding this may be you. Your selection on this screen determines which scores you prefer to be publicly announced on behalf of your group and which not.

**Which scores do you prefer to be publicly announced on behalf of your group?** [new page]

Below is the selection you made regarding the public announcement of potential scores on behalf of your group, the {political_affiliation}.

We would like to know **how important** it is to you that we implement this selection. For this, we provide you with $50 for each interval. You can invest these $50 to choose how important the selection you made for a given interval is to you. The more you invest, the more likely your selection for that interval will be implemented when it comes to whether a given score will be publicly announced on behalf of your group. For each $1 invested, you increase the probability that your selection will be implemented by 1 percent. If you invest $50, your selection is implemented with a 100 percent probability, that is, with certainty. If you are chosen to determine the public announcement of your group's score, you will receive a bonus payment for this task that depends on your investment decisions and will be between $0 and $50.

**The higher your investment, the more likely it becomes that a particular score will only be publicly announced on behalf of your group if you wish for it to be publicly announced. At the same time, the higher your investment, the lower your expected bonus payment.**

We chose a procedure to ensure that honest responses to this question are in your best interest. If you wish, you can view a precise description of the procedure at the bottom of this screen.

**For each interval, please choose how important it is to you that your selection (announce or don't announce) will be implemented by choosing an investment between $0 (not at all important) and $50 (maximally important).**

| | | |
|---|---|---|
| The {political_affiliation} found 0 mistakes (missed all mistakes) | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 1-9 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 10-19 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 20-29 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 30-39 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 40-49 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 50-59 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 60-63 mistakes | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |
| The {political_affiliation} found 64 mistakes (found all mistakes) | Your selection: Yes, publicly announce. / No, do NOT publicly announce | Your investment: ($0-$50) |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] If the score of a participant from your group({political_affiliation}) is drawn for public announcement, then with 10% chance, another {political_affiliation} participant can decide whether the score will indeed be publicly announced. Should the person deciding this be you, the following rules apply:

- Once we know which of the 9 intervals the score falls into, we will use your previous decisions to determine whether you wish this score to be publicly announced or not publicly announced.
- With a 50% chance, your selection for the relevant interval will be implemented regardless of your investment. In this case, regardless of your investment, your bonus payment is $50.
- Otherwise, also with a 50% chance, your investment will influence the probability of your selection being implemented as follows:
  - A random number x between $0 and $50 is drawn.

- If your investment is smaller than the random number x, your selection will not be implemented. Instead, the opposite of your selection will be implemented. Regardless of your investment, your bonus payment is $50 in this case.
- If your investment is at least as high as the random number x, your selection will be implemented. You will then receive a bonus payment of $50 minus the random number x, i.e., 50 minus x dollars.

## [Questionnaire]

**Demographics**

You have nearly completed the survey. Finally, please answer the following questions about yourself. Your payment from this survey is not affected by your answers to these questions.

*You have specified your political affiliation as {political_affiliation}. How strongly do you identify with being a {political_affiliation}?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*We would like to get your feelings toward different party affiliations on a "feeling thermometer." A rating of zero degrees means you feel as cold and negative as possible. A rating of 100 degrees means you feel as warm and positive as possible. You would rate the group at 50 degrees if you don't feel particularly positive or negative toward the group.

- Please rate how you feel toward **Democrats**.

  0  100

- Please rate how you feel toward **Republicans**.

  0  100

*It is important that you pay close attention and that you answer all questions carefully and conscientiously. To show that you are paying attention, please select "strongly agree" as your answer for this question. Please do not select any other answer!

☐ Strongly disagree

☐ Weakly disagree

☐ Neither agree nor disagree

☐ Very agree

☐ Strongly agree

*What is your highest level of education?

☐ Did not graduate from high school

☐ High school graduate, diploma, or equivalent (such as GED)

☐ Began college, no degree

☐ Associate's degree

☐ Bachelor's degree

☐ Postgraduate or professional degree

*Are you currently enrolled as a student at a university or college?

☐ Yes

☐ No

*[If current or past student] What is the name of the university or college at which you are studying or at which you last studied?

[uni_name]

*[If current or past student] How strongly do you identify with being a {uni_name} student?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*What is your religious affiliation? [religious_affiliation]

☐ Christian

☐ Jewish

☐ Muslim

☐ Non Religious (e.g., Agnostic, Atheist, No Religion)

☐ Other religion or faith (please specify below)

*[If other religion or faith] If other religion or faith, please specify:

*How strongly do you identify with being {religious_affiliation}?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

This is the end of the survey. Thank you for your participation. By clicking "Finish and submit survey," your participation will be registered and you will be automatically redirected back to Prolific.

## D.3 Experiment 3: Intelligence and University Affiliation

### [Welcome]

**Welcome**

[...]

### [Group affiliation]

**Student status**

This study can only be taken by individuals who are currently enrolled as a student in a U.S. university.

*Are you currently enrolled as a student in a U.S. university?

☐ Yes

☐ No

**Your university** [new page]

*What is the name of the university you are enrolled in?

[uni_name]

We will refer to your university using this name. You may use a shortname (e.g. "UMass Amherst" instead of "University of Massachussets Amherst") if that is how your university is commonly referred to. The name is restricted tobe at maximum 50 characters long.

If you are not comfortable revealing your university affiliation, please exit the study now and return your submission on Prolific. To do so, close the study and under Submissions, you'll have the option to 'return' the study. This will free up your place and allow another person to participate.

**Your group [new page]**

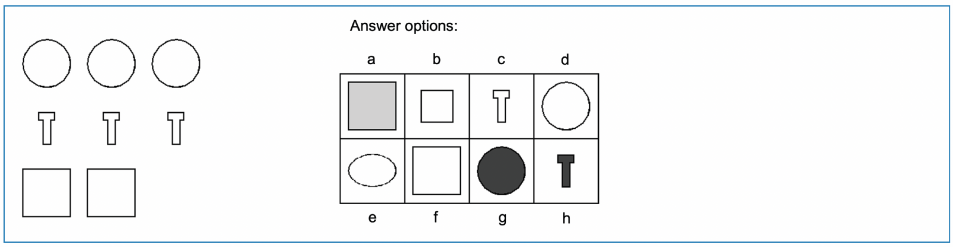
You have entered {uni_name} as your university. In this study, you will act as a member of the group consisting of people who, like you, are {uni_name} students.

## [Task description]

**Task**

In this study, you will solve tasks similar to those that are used to measure general intelligence in adults. Below you see an example task.

**Example:**




The image on the left shows a pattern with a blank piece. Your task is to select one of the answers on the right that logically fills in the blank piece. State your answer by entering the letter next to the piece. There is always exactly one correct answer.

In the above example, the correct answer is "f".

In total, there will be 30 tasks, that is, 30 images that you will be asked to complete. For each correctly completed image, you receive one point. Wrong answers will not earn you any points. You will be informed about your score after you have completed all 30 tasks.

In a previous study among 100 randomly selected U.S. Americans, participants solved 18 tasks correctly

on average.

The number of solved tasks or points achieved will not affect your payment from this survey.

Training tasks:
Before you begin with the actual tasks, there will be 6 training tasks. Your performance on these 6 training tasks will not affect your score.

*Please tick the following box to proceed.
☐ I have read the above instructions and wish to proceed.

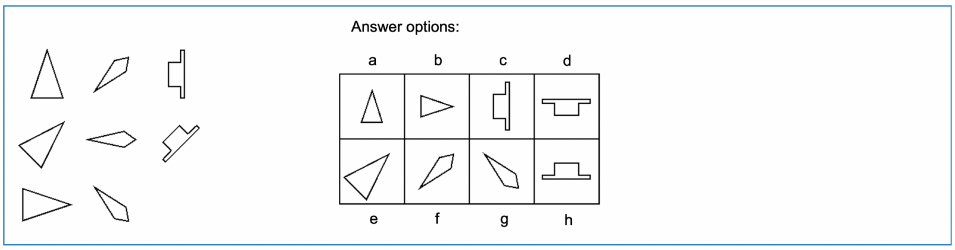
In order to proceed, please answer the following control questions. You can only proceed if you answer all questions correctly.

*True or false: For each task, there is always exactly one correct answer.
☐ True
☐ False

*After the 6 training tasks, how many tasks will there be in total?
☐ 30
☐ 12
☐ 42
☐ 8

## [Training tasks]

**Training Task 1**




*Choose the answer that corresponds to the missing piece:

| a | b | c | d | e | f | g | h |
|---|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**Training Task 2** [new page]

...

**End of training tasks** [new page]

This was the last training task. You will now begin with the actual tasks.

## [Private treatment] (between subject)

**Your score will remain private**

The number of tasks you attempt and/or solve correctly will remain private and not be revealed to other participants.

## [Public treatment] (between subject)

**Your score may be published on behalf of your group**

The number of tasks you solve correctly (i.e. your score) may be publicly announced on behalf of your group ({uni_name} students) to all participants of this study.

At the end of the study, we will randomly select one participant. The selected participant's performance on the matrix task will be used to publicly represent his or her group.

If you are selected to represent your group, the public announcement of your performance will look like the picture below. We will compare your score to the average score of 100 participants from an earlier study consisting of individuals from all over the U.S. In that study, participants solved 18 tasks correctly on average.

| |
|---|
| We asked a {uni_name} student and 100 randomly selected U.S. Americans to solve 30 tasks resembling those commonly used to measure general intelligence. |
| **The {uni_name} student solved X tasks correctly.** ("X" will be replaced with your score) |
| The average U.S. American solved 18 tasks correctly. |

The public announcement will be made automatically with a 90% chance. With a 10% chance, another participant with the same group affiliation as you will decide whether your score is publicly announced on behalf

of your group. All 600 participants in this study will receive a link to a website where the public announcement can be found. In addition, the information will also be sent to all participants via a Prolific message. If your performance is publicly announced, it will be the only performance that is publicly announced on behalf of your group.

At this time, it is important to know that if you are selected to represent your group, many people from all over the U.S. – both from your group and from other groups – may see how many tasks you, as a {uni_name} student, have solved correctly.

*On the next screen, you will begin with the first task. Please tick the following box to proceed:
☐ I have read the above information and wish to begin with the tasks.

## [Work on task]

**Task 1** [new page]

... (tasks 2-29 on separate pages)

**Task 30** [new page]

...

**End of tasks: Your score** [new page]

You completed {score} of 30 tasks correctly. Your score is: {score} points.

## [Willingness to pay for public announcement]

[Additional information for participants in private treatment (not shown to participants in public treatment)]
**Which scores do you prefer to be publicly announced on behalf of your group?**

We are running a study with the same matrix tasks with another group of participants.

Different than the current one, in that study, one participant will be randomly selected, and their score publicly announced along with their university affiliation to 600 other participants, including you. Those participants are informed of this.

If the performance of a participant from your group ({uni_name} students) is publicly announced, the public announcement will look like the picture below. We will compare the score of the selected participant to the average score of 100 participants from an earlier study consisting of individuals from all over the U.S. In that study, participants solved 18 tasks correctly on average.

| |
|---|
| We asked a {uni_name} student and 100 randomly selected U.S. Americans to solve 30 tasks resembling those commonly used to measure general intelligence. |
| **The {uni_name} student solved X tasks correctly.** ("X" will be replaced with the score of the selected participant) |
| The average U.S. American solved 18 tasks correctly. |

The public announcement will be made automatically with a 90% chance. With a 10% chance, another {uni_name} student will decide whether or not the score is publicly announced. The person deciding this may be you.

All participants (of this as well as the other study) will receive a link to a website where the public announcement can be found. In addition, the information will also be sent to all participants via a Prolific message.

Note that only the performance of one randomly selected group member will be publicly announced on behalf of the entire group.

On the following screens, we will ask you for the scores that you prefer to (not) be publicly announced on behalf of your group. Your answers to these questions will ultimately be used to determine whether or not a particular score will be used to publicly represent your group's performance on the anthem task.

*Please tick the following box to proceed:
☐ I have read the above information and wish to proceed.

[The following pages are shown to all subjects (private and public treatment)]

**Which scores do you prefer to be publicly announced on behalf of your group?**

It may happen that another participant of this study, who is also a {uni_name} student, is drawn to publicly represent your group with how well they performed on the matrix tasks. Your group's public score may

then fall within any of the 8 intervals shown below.

In this case, you cannot influence the score of your group. However, there is a chance* that you will decide whether the score is publicly announced on behalf of your group to all participants (and all groups) participating in this study or kept private. *For detail, see the bottom of this screen.

To decide which scores you wish to be publicly announced on behalf of your group and which not, please answer the question below.

**Please indicate <u>for each interval</u> below:**

If the performance of another {uni_name} student falls within this interval, do you prefer that this score is publicly announced on behalf of your group, or do you prefer that the score is NOT publicly announced?

| | No, do NOT publicly announce the score. | Yes, publicly announce the score. |
|---|---|---|
| The {uni_name} student solved 0 tasks correctly (did not solve any task correctly) | ○ | ○ |
| The {uni_name} student solved 1-4 tasks correctly | ○ | ○ |
| The {uni_name} student solved 5-9 tasks correctly | ○ | ○ |
| The {uni_name} student solved 10-14 tasks correctly | ○ | ○ |
| The {uni_name} student solved 15-19 tasks correctly | ○ | ○ |
| The {uni_name} student solved 20-24 tasks correctly | ○ | ○ |
| The {uni_name} student solved 20-29 tasks correctly | ○ | ○ |
| The {uni_name} student solved 30 tasks correctly (solved all tasks correctly) | ○ | ○ |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] As stated earlier, with a 90% chance, the score of a participant selected to publicly represent his or her group will be automatically announced. With a 10% chance, however, another participant who is of the same group as the selected participant can decide whether the score is publicly announced or kept private. The person deciding this may be you. Your selection on this screen determines which scores you prefer to be publicly announced on behalf of your group and which not.

**Which scores do you prefer to be publicly announced on behalf of your group?** [new page]

Below is the selection you made regarding the public announcement of potential scores on behalf of your group, {uni_name} students.

We would like to know **how important** it is to you that we implement this selection. For this, we provide you with $50 for each interval. You can invest these $50 to choose how important the selection you made for a given interval is to you. The more you invest, the more likely your selection for that interval will be implemented when it comes to whether a given score will be publicly announced on behalf of your group. For each $1 invested, you increase the probability that your selection will be implemented by 1 percent. If you invest $50, your selection is implemented with a 100 percent probability, that is, with certainty. If you are chosen to determine the public announcement of your group's score, you will receive a bonus payment for this task that depends on your investment decisions and will be between $0 and $50.

**The higher your investment, the more likely it becomes that a particular score will only be publicly announced on behalf of your group if you wish for it to be publicly announced. At the same time, the higher your investment, the lower your expected bonus payment.**

We chose a procedure to ensure that honest responses to this question are in your best interest. If you wish, you can view a precise description of the procedure at the bottom of this screen.

**For each interval, please choose how important it is to you that your selection (announce or don't announce) will be implemented by choosing an investment between $0 (not at all important) and $50 (maximally important).**

| | | |
|---|---|---|
| The {uni_name} student<br>solved 0 tasks correctly<br>(did not solve any task correctly) | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 1-4 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 5-9 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 10-14 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 15-19 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 20-24 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 25-29 tasks correctly | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |
| The {uni_name} student<br>solved 30 tasks correctly<br>(solved all tasks correctly) | Your selection:<br>Yes, publicly announce. / No,<br>do NOT publicly announce | Your investment:<br>($0-$50) |

Click below to show detailed information about the procedure.

☐ show detailed info

[Shown in a separate box:] If the score of a participant from your group ({uni_name} students) is drawn for public announcement, then with 10% chance, another {uni_name} student can decide whether the score will indeed be publicly announced. Should the person deciding this be you, the following rules apply:

- Once we know which of the 9 intervals the score falls into, we will use your previous decisions to determine whether you wish this score to be publicly announced or not publicly announced.
- With a 50% chance, your selection for the relevant interval will be implemented regardless of your investment. In this case, regardless of your investment, your bonus payment is $50.
- Otherwise, also with a 50% chance, your investment will influence the probability of your selection being implemented as follows:
  - A random number x between $0 and $50 is drawn.
  - If your investment is smaller than the random number x, your selection will not be implemented. Instead, the opposite of your selection will be implemented. Regardless of your investment, your bonus payment is $50 in this case.

– If your investment is at least as high as the random number x, your selection will be implemented. You will then receive a bonus payment of $50 minus the random number x, i.e., 50 minus x dollars.

## [Questionnaire]

### Demographics

You have nearly completed the survey. Finally, please answer the following questions about yourself. Your payment from this survey is not affected by your answers to these questions.

*You have specified that you are currently enroled as a student at {uni_name}. How strongly do you identify with being a {uni_name} student?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*We would like to get your feelings toward toward students of your own and other universities on a "feeling thermometer." A rating of zero degrees means you feel as cold and negative as possible. A rating of 100 degrees means you feel as warm and positive as possible. You would rate the group at 50 degrees if you don't feel particularly positive or negative toward the group.

- Please rate how you feel toward students of **your own university**.
  0  100
- Please rate how you feel toward students of **other universities**.
  0  100

*Is there a university that is commonly considered a "rival" of your university? Please provide the name of this university. (If there is none, please leave the answer field blank.)

[rival_name]

*[If {rival_name} is non-empty] How would you rate students of {rival_name} on the "feeling thermometer"?

0  100

*What degree are you currently pursuing at {uni_name}?

☐ Associate's degree

☐ Bachelor's degree

☐ Postgraduate or professional degree

*What is your field of study at {uni_name}?

*What is your highest level of education (not including the degree you are currently pursuing at {uni_name})?

☐ Did not graduate from high school

☐ High school graduate, diploma, or equivalent (such as GED)

☐ Began college, no degree

☐ Associate's degree

☐ Bachelor's degree

☐ Postgraduate or professional degree

*It is important that you pay close attention and that you answer all questions carefully and conscientiously. To show that you are paying attention, please select "strongly agree" as your answer for this question. Please do not select any other answer!

☐ Strongly disagree

☐ Weakly disagree

☐ Neither agree nor disagree

☐ Very agree

☐ Strongly agree

*What is your religious affiliation? [religious_affiliation]

☐ Christian

☐ Jewish

☐ Muslim

☐ Non Religious (e.g., Agnostic, Atheist, No Religion)

☐ Other religion or faith (please specify below)

*[If other religion or faith] If other religion or faith, please specify:

*How strongly do you identify with being {religious_affiliation}?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*In politics today, do you consider yourself a Republican, a Democrat, or an Independent?

☐ Democrat

☐ Republican

☐ Independent (lean Democrat)

☐ Independent (lean Republican)

*[If Democrat or Democrat-leaning] How strongly do you identify with "being a Democrat"?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

*[If Republican or Republican-leaning] How strongly do you identify with "being a Republican"?

☐ Very strongly

☐ Strongly

☐ Weakly

☐ Very weakly

This is the end of the survey. Thank you for your participation. By clicking "Finish and submit survey," your participation will be registered and you will be automatically redirected back to Prolific.