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Status for the good guys: An experiment on charitable giving

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Abstract

We study the social status motive in an experiment at an art-house cinema in Germany where movie-goers can make monetary contributions to help the cinema become climate neutral. Our key result is that offering high contributors a "social status gift" that displays their good deed increases both the likelihood of a high contribution and mean contributions. It performs significantly better than previously studied mechanisms, such as the removal of anonymity, the provision of a reference point, or a neutral thank-you gift, and it also performs better than offering high contributors publicity through social media.

KEYWORDS
anonymity, experiment, prosocial behavior, social status

JEL CLASSIFICATION
C93, D64, H41

1 | INTRODUCTION

Social status is often associated with exclusive titles, spectacular houses, expensive cars, or luxurious jewelry. Yet, our urge for social approval and status is more general than that. Social status is not only gained by signaling one's ability to earn a high income but also by signaling virtues such as cooperativeness, generosity, or wisdom.[1] There is now a large literature showing the role that social status plays in prosocial behavior (the next section provides an overview). We use an experiment with movie-goers at an art-house cinema in Germany to contribute to this literature on social status. Like many of the previous studies, we compare prosocial behavior when it is observed by others and when it is unobserved. However, our main focus is not whether or not the behavior is observed, but *who* observes the behavior and in what way.

The experiment comprises six different treatments, implemented in a between-subject design.[2] In all treatments, movie-goers are informed that the cinema wants to become climate neutral by reducing operational carbon emissions and offsetting the remaining emissions, and are then asked whether they would like to make a monetary contribution to this goal. The treatments are designed so that they offer a potentially increasing incentive to contribute under the assumption that people are sensitive to being watched by others, want to appear generous, and receive social status. We test different fundraising mechanisms that exploit the social status motivation to various degrees and may thus lead

to more or less generous decisions. We thereby focus solely on the behavior of the person performing the generous act and do not try to measure the change in that person's social status in the eyes of others.

Social status can be provided by different groups of people, including the solicitor who directly observes the donor's decision, friends and family of the donor, and people who do not know the donor personally but who live in the same town or neighborhood. The existing experimental literature has mainly focused on social status (presumably) provided by the solicitor. Such social status effects are typically measured by varying anonymity in the contribution moment (see the next section). To be able to make comparisons with the existing literature, we also include a comparison between an anonymous treatment where nobody can observe the contribution decision and a non-anonymous treatment where the solicitor observes the contribution decision.

We additionally test the effect of a conditional "social status gift" that directly displays the good deed of the donor. Specifically, high contributors who donate €10 or more can choose between a mug and a shopping bag with the printed message "Supporter of the Climate Campaign." We expect this mechanism to have larger social status effects than the mere removal of anonymity because, instead of a one-time signal to an unknown solicitor, these gifts provide an opportunity for repeated signaling to the donor's social environment (as well as to the solicitor and of course to the donors themselves through self-signaling).

In order to know whether people really care about the signaling value of the message on the mug or bag, and do not simply value the mug or bag per se, we also introduce a treatment where high contributors can choose between the same mug or bag, with the only difference that there is no message on the mug or bag that signals generosity. In addition, in order to test whether it is really the gift that affects contributions, and not simply the mentioning that a €10 contribution is seen as generous, we also use a treatment where this reference point is mentioned without any gift. Although the effect of conditional thank-you gifts has been examined in previous studies (see the next section), to our knowledge there has been no comparison between a gift that directly signals the good deed to the donor's immediate social environment and a gift that does not.

Finally, we test whether social media can be used to induce social status effects and correspondingly higher contributions. Social media are widely used by private persons and organizations to share information. Having the generous act published on the cinema's social media can be seen as receiving status from people who do not necessarily know the donor personally but who live in the same town and read the cinema's website, Facebook page, or newsletter. While there is evidence that people care more about the opinions of people they know personally than those of strangers (Cialdini & Goldstein, 2004; Cialdini & Trost, 1998), being mentioned on social media clearly has the potential of being seen by more people. On the other hand, information spread through social media is typically short-lived. While it is possible to distribute and consume the same information repeatedly on social media, this is presumably less likely than repeated use of a mug or shopping bag. Another difference, which is important from a charity perspective, is that there is essentially no cost associated with mentioning generous donors on social media, while providing a material gift is costly. It is therefore of interest to compare the net economic effects between the gift treatments and this treatment (and also the treatment where only the reference point of €10 is mentioned).

Our main finding is that offering a "social status gift" to high contributors that signals their good deed increases both the probability of a high contribution and mean contributions. It performs significantly better than the other mechanisms, suggesting that it is not the observation per se but the group of potential observers that is important. Our results provide valuable insights about the effectiveness of different fundraising mechanisms applied to a large sample of typical charitable donors. They also help improve our understanding of social status which is important, not only for scholars who are interested in human behavior, but also for fundraisers and policy makers because these motives can be used to improve social outcomes (Nyborg et al., 2016).

The remainder of the paper is structured as follows. Section 2 gives a brief overview of the literature on the effects of social status on prosocial behavior, Section 3 presents the design of the experiment and the sample, Section 4 provides hypotheses based on a simple model of prosocial decisions, Section 5 presents the main experimental results, and Section 6 discusses the results and concludes.

2 | RELATED LITERATURE

Much of what people do not only reflects their genuine preferences but also how they want to be seen by others. Important theoretical and empirical analyses of social status effects have been done in the context of charitable donations. For example, Glazer and Konrad (1996) provide a theoretical model where charitable giving is a way for donors

to signal wealth. Harbaugh (1998a) assumes that the publicly observable act of giving brings the donor "warm glow" as well as "prestige." Empirical evidence is provided by Harbaugh (1998b), who uses the fact that contributions by alumni to a prestigious US law school were published in categories, for example, $100–$249, $250–$499, and so on. People who are primarily concerned about social status would then contribute exactly the minimum needed to be reported in a certain category, whereas the contributions of people who are not concerned about social status would be more evenly distributed. According to Harbaugh's estimates, the social status motive accounts for about one-fourth of the contributions. Karlan and McConnell (2014) conduct a field experiment with alumni from a US University and find that the promise of public recognition in a newsletter increases giving.[3]

While wealthy university graduates are a special group of donors who may have good reasons to signal generosity and affluence, there also is a large literature on prosocial behavior of more "normal" people who are not particularly rich. For example, Alpízar et al. (2008) compare how visitors to a national park in Costa Rica react to a request for a contribution to the maintenance of the park when the solicitor can observe the decision and when the decision is unobserved. They find that observation by the solicitor increases contributions somewhat. In a similar setting, Alpízar and Martinsson (2013) find that visitors are more likely to contribute when their decision is observed by their travel companions or other travelers. Churchgoers in the Netherlands have been shown to donate more when the offering can be observed by the person sitting next to them (Soetevent, 2005). Similar results have been found in other contexts such as the usage of debit cards (Soetevent, 2011), blood donations (Lacetera & Macis, 2010), or helping people in need (Bereczkei et al., 2007).

Lab experiments or lab-in-the-field experiments have also been used to study the effects of visibility on prosocial behavior. Cooperation in public goods games significantly improves when players have to convey their contributions to the other players after the game (Rege & Telle, 2004) or when a photo of them is shown along with their contributions (Andreoni & Petrie, 2004; Christens et al., 2019; Samek & Sheremeta, 2014). Lopez et al. (2012) show that, in a sample of Colombian fishermen, revelation of individuals' contributions to a public good is more effective than regulatory pressure. Using a real-effort task to generate income for a charity, Ariely et al. (2009) find that subjects put in more effort when the other participants will be informed about their performance. In a meta-study of dictator games, Engel (2011) finds that visibility of giving decisions makes dictators less likely to give nothing but also less likely to give more than half of the endowment. In another meta-study, based on both field and lab experiments, and with contributions from several academic disciplines, Bradley et al. (2018) find a statistically significant, albeit relatively small, effect of visibility on prosocial behavior.

Our experiment is also related to the literature on the effects of preannounced thank-you gifts that are distributed conditional on the donation. Lacetera and Macis (2010), for instance, find that subjects are more likely to donate blood when conditionally offered gift cards and they are more likely to do so for higher values of the gift cards. Eckel et al. (2018) find that conditional gifts have only small effects on both the likelihood and level of giving in a university fundraising campaign. Newman and Shen (2012) show that conditional gifts can even decrease contributions due to crowding out effects, whereas Chao (2017) find that such gifts sometimes reduce contributions and sometimes not. Zlatev and Miller (2016) discuss and analyze the related role of framing of private incentives for prosocial behavior.

Taken together, there is robust evidence that people's concerns about social status and reputation are an important driver of prosocial behavior. We have learned that people make adjustments when their behavior is communicated in some way to others. However, we still know little about how sensitive people are with respect to *how* their prosocial behavior is communicated to others and *who* these others are. While studies have been conducted in many different contexts with different types of observers, such as fundraisers, neighbors, travel companions, readers of newsletters or newspapers, there is little evidence on how people adjust their behavior depending on the observer group. Provision of such evidence constitutes the main contribution of this paper. To this end, we designed a series of experimental treatments that differed in how and to whom the prosocial decision is communicated, from the donor herself, to the fundraiser, to the immediate social environment, to the potentially large unknown circle of social media users.

3 | DESIGN OF THE EXPERIMENT

The experiment took place at an art-house cinema in Kassel, Germany. The cinema belongs to a group of three similar venues in the same city that are jointly organized as a nonprofit organization. The cinema shows new and old art movies that are typically not shown at big multiplex cinemas. An important goal of the cinema group is to provide a

platform for movies on environmental and sustainability issues and also to make the cinemas themselves more environmentally friendly. The cinema group has recently decided to make the cinemas climate neutral by reducing operational emissions and offsetting the remaining emissions. The experiment elicits the willingness of movie-goers to contribute to this goal by donating money. To do so, the cinema operator allowed us to implement six different treatments during the fundraising campaign.

The general procedure of the experiment was identical in all six treatments. After the movie-goers purchased their tickets at the cashier counter, the staff informed them that the cinema was running a "climate campaign," handed over an information flyer, and invited them to take part in it. The information flyer contained information about climate change, the cinema's long-term goal of becoming climate neutral, and the climate campaign.[4] If the movie-goers showed interest in taking part, they were directed to one of our solicitors, who then showed them a lottery pot. The tickets in the lottery pot displayed numbers indicating the different treatments. The movie-goers were asked to draw a ticket and were then sent individually to a table marked with the corresponding number. They were not informed about the existence of different treatments and thus that they themselves were part of a particular treatment.[5]

For each number (treatment) we had several tables with one solicitor at each table conducting the survey and the experiment to make sure that the movie-goers would not have to wait for their turn. Provision of a sufficient number of tables and solicitors was important to allow for a high participation rate. Most movie-goers came within 20 min of the movie starting and the only way to include as many as possible was to run the experiment with different participants at the same time. As in most German cinemas, commercials were shown before the movie. The cinema operator allowed us to continue with the experiment during the time the commercials were showing and also induced an additional break between the commercials and the movie. This short delay of the movie made it possible to also invite movie-goers to the experiment who came late.

Most movie-goers arrived in small groups. In these cases, each member of the group was invited to take part individually. All tables were sufficiently distant from each other and separated by privacy screens so that participants would not be able to see, hear, or influence each other. The overall participation rate was very high with 69% and was evenly distributed across all treatments (68%–70%). The remaining 31% were movie-goers who declined participation or who were not invited because they came too late or all tables were occupied.

We used undergraduate and graduate students as solicitors, all of whom received extensive training prior to the experiment. They were asked to wear similar clothes and a nametag during the experiment. The solicitors at the tables read the instructions to the participants to ensure that all of them would use the exact same wording, and the participants also received a written copy of the instructions. The answers were always written down by the solicitor. Each set of instructions had a unique ID number for each participant.

At first, the solicitors introduced themselves as students at the University of Kassel, but they did not tell the participants that this was a scientific study with the aim of analyzing behavior. After introducing themselves, the solicitors asked the participants a few questions about how many times per year they visited the cinema, how they had traveled to the cinema that day, how many companions they arrived with and how they were related to them, how serious they perceived the climate change problem to be on a scale from 1 to 5, and their postal code, gender, and year of birth. The participants were told their provision of information was completely voluntary and anonymous.

After these questions, the main part of the experiment followed, in which participants were asked for a contribution to the climate goal of the cinema. Specifically, the solicitor read the following text:

> We are collecting contributions that will help to make the cinema climate neutral in the long run. This means that the cinema will reduce its carbon emissions, for example by using cleaner technologies. Further information is provided in the flyer that you have received. Please decide if you would like to make a contribution or not.

The next few sentences varied depending on the treatment. The first treatment, called *Anonymous*, was designed to elicit participants' willingness to contribute when nobody could observe their decision. In this treatment, subjects were asked to go into a cubicle, put their contribution, if any, in a sealed envelope and place the envelope in a locked box. The solicitors read the following text to the participants:

> Please take this envelope and go behind this privacy screen in order to decide if you want to make a contribution. Put the envelope with your contribution or empty in the box behind the screen. Nobody will see your decision.

We provided a locked donation box in the cubicle that was not opened until the end of the day, making all individual contributions in this treatment completely anonymous. The box was wrapped with adhesive tape that would have to be cut in order to open the box. The purpose of this was to show subjects that we would not open and check the box between participants. The envelopes contained ID numbers, which allowed us to match the contribution with the questionnaire data later while keeping all individual contributions anonymous. All other treatments were non-anonymous in the sense that the solicitor took note of the contribution, including a contribution of zero. This was precisely the difference between the first treatment *Anonymous* and the second treatment, *Non-Anonymous*. Instead of sending subjects into a cubicle, the solicitor instructed them to show their contribution and put it in a box. Specifically, the following sentence was read:

> I will write your contribution down and then you may put it into this donation box, where we collect the contributions.

Thus, when making the decision, the subjects knew that the solicitor was watching them. The comparison of the *Anonymous* treatment and the *Non-Anonymous* treatment allows us to test whether the well-known effect of observance by the solicitor also applies to our sample.

In the third treatment, called *Reference*, subjects' contributions were observed by the solicitor and additionally the effect of a reference level was analyzed by telling participants what was considered a high contribution. We chose €10 as reference level because it is a round number (Reiley & Samek, 2019) and it is a relatively high amount compared to the price of a movie ticket but not unreasonably high (Croson & Shang, 2013). The following text was read:

> A contribution of €10 or more is seen as generous. I will write your contribution down and then you may put it into this donation box, where we collect the contributions.

Thus, comparing the *Non-Anonymous* treatment and the *Reference* treatment shows whether provision of information about which contribution level is seen as high influences contributions.

The next three treatments involve making an offer to generous contributors, that is, those who contribute at or above the reference level of €10. This also explains why we needed the *Reference* treatment, where a reference level was provided without offering any gift. It allows us to distinguish between the effect of providing a reference level and the effect of making an offer to high contributors.

As for the fourth treatment, *Gift*, the solicitor read the following:

> A contribution of €10 or more is seen as generous. If you give €10 or more, you may choose between this mug and this bag as a thank-you gift. I will write your contribution down and then you may put it into this donation box, where we collect the contributions.

While reading these instructions, the solicitor pointed to the two available gifts, a mug and a shopping bag. Both gifts had a white background and showed the colored logos of the three cinemas. All gifts were produced exclusively for the experiment and could not be purchased anywhere. Participants therefore did not know the value of the gifts.

The fifth treatment, *Status-Gift*, had exactly the same instructions. The only difference was that the mug and the bag displayed not only the three logos but also the text "Supporter of the Climate Campaign," see the pictures in Figure 1 below.[6] Thus, the gifts in this treatment potentially provide status or prestige, or signal that the owner is a responsible person, in a way that the gifts without the message do not. It is of course possible that also high contributors in the *Gift* treatment expect to get questions about their mug or bag, giving them the opportunity to explain that they have donated money to the climate campaign. If this is the case, the identified status effect associated with the mug or bag including the text is underestimated.

Moreover, self-signaling might be an additional motivation for contributing €10 in the *Status-Gift* treatment (e.g., Akerlof & Kranton, 2000; Bénabou & Tirole, 2011); indeed, it may feel good to remind yourself of the fact that you are a nice and responsible person when drinking your morning coffee. Yet, such a self-signaling effect would then presumably be present also in the *Gift* treatment (since you probably remember that you received the gift because of a generous contribution). This effect may be either smaller or larger than in the *Status-Gift* treatment; it may be smaller because the reminder of your own niceness is less explicit, and it may be larger because you made your contribution without any potential bragging motive. Overall, we believe that the contribution differences between the *Gift* and the *Status-Gift* treatments, if anything, led to an underestimation of the status effects on contributing.

FIGURE 1 Pictures of the conditional gifts, with the text "Supporter of the Climate Campaign" (*Status-Gift*, on the left) and without this text (*Gift*, on the right) [Colour figure can be viewed at wileyonlinelibrary.com]

The sixth and final treatment, called *Name-Publication*, was designed to test whether offering to make the names of the high contributors public through social media influences contributions. The solicitor read the following:

> A contribution of €10 or more is seen as generous. If you give €10 or more, and if you want to, you will be named as a supporter of the climate campaign on the following media of the cinema: Facebook, newsletter, and website. I will write your contribution down and then you may put it into this donation box, where we collect the contributions.

In this last treatment, if a participant contributed €10 or more and wished to have their name published on social media, they had to sign a form allowing us to publish their name. They were informed that we would only publish the name and not the contribution.

A set of standardized replies to the most common questions (e.g., What will happen with the contributions? What will happen with the data? What does climate neutral mean? Who determines what a generous contribution is?) had been prepared prior to the experiment and provided to the solicitors to ensure that they would answer the questions the same. For further information, participants were advised to go to an information table and talk to the main supervisor of the session. After participants had chosen their contributions, they were given a longer questionnaire with questions about socio-economic characteristics, attitudes about climate change and the relationship between humans and nature, and charitable activities (a translated version is provided in the online appendix). The participants were invited to complete this questionnaire on their own and were offered a free soft drink in return. Importantly, this offer was only made after they had made the contribution decision and thus could not affect the contribution.

Even though participants were asked to answer all questions individually and privacy screens were used to separate them when they chose their contributions, in some cases interaction between participants could not be avoided. For example, it happened a few times that a person did not bring any money and then went over to a partner or friend in order to get some. In those instances, it was impossible to preclude communication between them. In these cases, the solicitors were asked to take notes to enable us to control for this issue in the data analysis. All results that we present in Section 5 below are robust to the exclusion of these observations.

In the experiment, it was only possible to donate in cash. Card payment would not have been possible in the anonymous treatment and we wanted the way of payment to be the same in all treatments. This, however, is not a severe restriction. In Germany, cash is still the most widely used payment method, unlike in many other European countries or the United States. In fact, in the cinema where we conducted the experiment, the only available payment method for the tickets and also food and drinks is cash.

The experiment was carried out daily over a period of 3 weeks in late summer of 2018. To ensure that each participant took part only once, we included only three movies in the experiment and most people in our sample saw the same movie. A large majority of the subjects, 77%, saw the movie "BlacKkKlansman," an American biographical comedy-drama. The remaining 23% watched either "Grüner wirds nicht," a German comedy, or "Egal was kommt," a German documentary. The latter two movies opened at the cinema toward the end of the experiment when the number of people seeing BlacKkKlansman was already declining. People who came to see these latter two movies were only invited to take part in the experiment if they had not seen BlacKkKlansman before. As the three movies are very different, there was almost no overlap in movie-goers. We control for movie watched in the analysis of the data.

Table 1 gives an overview of the six experimental treatments. In total, 933 movie-goers participated in the experiment and more than 150 took part in each treatment.[7] The first three treatments (*Anonymous, Non-Anonymous, Reference*) were always conducted at the same time, and so were the last three (*Gift, Status-Gift, Name-Publication*). The reason for not running all six treatments at the same time was that donors might have complained had they learned that some donors received a gift for a generous contribution while others did not.[8] The assignment of participants within each set of three treatments was determined randomly by drawing tickets from the lottery pot. The two treatment sets were rotated every day so that the treatments would be evenly distributed across the period of 3 weeks. We were also careful in making sure that the treatments were evenly distributed across special days (like Mondays, when the ticket price is reduced, Wednesdays, when foreign movies are shown in their original language, and weekends). We also documented the weather during the 3 weeks to be able to control for temperature and rain.

Fifty-two percent of the participants are women and 48% are men. The mean age is 48 years. Ninety-nine percent of the sample are 18 years or older (the legal adult age in Germany), and the youngest person is 13 and the oldest is 82 years old. Most of the participants are loyal customers of the cinema group. On average, the participants come to the cinema about 11 times per year; two-thirds report to come more than four times per year and about one-third come more than 10 times per year. Ninety percent of the participants came to the cinema with at least one companion that particular day; 65% came with one accompanying person and 26% came with more than one other person. Almost all participants consider climate change to be a serious problem. On a scale from 1 (not serious at all) to 5 (extremely serious), 28% chose 4 and 67% chose the highest value, 5. Still, more than half of the participants had traveled to the cinema by car. In the online appendix, we provide evidence of successful randomized assignment of participants into the treatments, showing that our treatment groups are well balanced on the elicited characteristics.[9]

A large majority of participants (85%) also completed the long questionnaire at the end, though not everyone responded to every question. In brief, the answers show that the people in the sample are on average highly educated, have a relatively high income compared with the German average, and support green and left-wing policy. Seventy

TABLE 1 Overview of experimental treatments

Treatment	Reference level	Conditional offer	Number of participants	Brief description
Anonymous	-	No	152	Anonymous contribution.
Non-anonymous	-	No	151	As in *Anonymous*, except that contribution was seen by the solicitor.
Reference	€10	No	153	As in *Non-Anonymous*, except that it was mentioned that "a contribution of €10 or more is seen as generous."
Gift	€10	Yes	161	As in *Reference*, except that a conditional gift (mug or bag) was offered for contributions of €10 or more.
Status-gift	€10	Yes	159	As in *Gift*, except that the gift (mug or bag) had the printed text "Supporter of the Climate Campaign."
Name-publication	€10	Yes	157	As in *Reference*, except that the donor was offered to have his or her name published on social media for contributions of €10 or more.

percent of the respondents have at least 12 years of education and about half have a university or technical college degree. The median net household income is between 3000 and 4500 euros per month. Thirty percent state that their political views are mostly in line with the Greens, 16% associate themselves with the Left Party, and 11% with the Social Democrats. Table A3 in the online appendix provides more detailed information about the sample.

4 | A SIMPLE MODEL AND HYPOTHESES

The purpose of the stylized model is to give structure to the analysis and provide simple testable hypotheses regarding social status effects related to the treatments introduced in the previous section.

An arbitrary individual i can choose how much to contribute to the climate campaign, X^i, and is assumed to care about own net-of-contribution income, $InitialIncome^i - X^i$. Moreover, the individual is assumed to prefer, ceteris paribus, to contribute the reference amount (€10) when that is said to be generous, where *Reference* is a dummy variable taking the value 1 if the reference amount (or more) is contributed and zero otherwise. The individual also likes to receive a gift, conditional on contributing the said generous amount (€10), in terms of a choice between a mug and a shopping bag, *Gift* (also a zero-one dummy variable) as well as (and even more) to obtain the same gift with the text "Supporter of the Climate Campaign" written on it, *Status-Gift*. Similarly, the individual likes to have their name published as a supporter of the climate campaign on the cinema's Facebook, newsletter, and website, indicated by the dummy variable *Name-Publication*, conditional on contributing €10.

In addition, we assume that the person gets a warm glow from giving to the campaign per se, $WarmGlow^i\ (X^i)$, as in Andreoni (1989, 1990), and that they get more utility when others, in this case the solicitors, observe them doing so; this corresponds to what Griskevicius et al. (2007) denote conspicuous compassion and blatant benevolence.

Based on these assumptions, we propose the following simple utility function for an individual i who is being asked to contribute:[10]

$$\begin{aligned} U^i = {} & InitialIncome^i - X^i + \alpha^i_{Reference} Reference + \alpha^i_{Gift} Gift + \alpha^i_{StatusGift} StatusGift \\ & + \alpha^i_{NamePublication} NamePublication + \left(1 + \beta^i_{NonAnonymity} NonAnonymity\right) \cdot WarmGlow^i\ (X^i), \end{aligned} \tag{1}$$

where we assume that all α-parameters and $\beta^i_{NonAnonymity}$ are positive, that *NonAnonymity* is equal to 1 when the solicitors can observe the contributions and 0 otherwise, and that $WarmGlow^i$ is a concave function of X^i. That people derive utility from the status associated with the status gift does then correspond to $\alpha^i_{StatusGift} > \alpha^i_{Gift} > 0$, and that people value the status from getting their name published on social media corresponds to $\alpha^i_{NamePublication} > 0$.

We assume that all individuals in the underlying population, from which the subject pool in each treatment is drawn, have the same utility function given by Equation (1), but that the parameter values as well as the warm-glow function vary across individuals. We impose no restrictions on the slope of this function at $X^i = 0$, implying that the model is consistent with corner solutions of zero contributions for some individuals. Let us moreover for analytical simplicity assume that the variations in parameters and warm-glow functions are such that the underlying contribution density function for each treatment is always positive (i.e., there are no holes) in the range from zero (the lowest possible contribution) to the maximum contribution.[11]

We show in the appendix that we can then derive the following straightforward and testable hypotheses, where $\overline{X}(Anonymous\ \ treatment)$ reflects the mean contribution in the *Anonymous* treatment and correspondingly for the other variables:

Hypotheses 1 *Mean contributions across treatments.*

$$\begin{aligned} & \bar{X}(Anonymous\ \ treatment) < \bar{X}(Non-Anonymous\ \ treatment) < \bar{X}(Reference\ \ treatment) \\ & < \bar{X}(Gift\ \ treatment) < \bar{X}(Status-Gift\ \ treatment) \end{aligned}$$

and

$$\bar{X}(Reference\ \ treatment) < \bar{X}(Name-Publication\ \ treatment)$$

Thus, the model provides clear predictions about the mean contributions between the different treatments, such that for example the expected mean contribution is higher in the *Status-Gift* treatment than in the *Gift* treatment, reflecting that the individuals get higher utility from getting a status gift than an ordinary gift. Yet, the model does not give any prediction between the *Name-Publication* treatment and the *Status-Gift* treatment (or the *Gift* treatment).

We want to be transparent about the fact that we did not start with this specific theoretical model and then, based on this model, formulated the hypotheses, designed and ran the experiment, and finally collected the results. Rather, when we were given the opportunity to run an experiment related to the attempt of the cinema in question to become more climate neutral, we formulated the broad hypothesis that people are motivated by status-concerns also related to charitable giving. We then contemplated about different ways to test this hypothesis in an experiment, and eventually chose the present design, where we also formulated conjectures about the relative mean contributions for the treatments based on the existing literature, consistent with Hypotheses 1, our main ones directly related to status concerns. The theoretical model was then constructed in order to be a simple and internally consistent utility-theoretic formulation implying Hypotheses 1.

Hypotheses 2 and 3, in contrast, where not formulated before-hand, but simply follow from the specific formulation of the theoretical model. Hypotheses 2 presents hypotheses regarding the fractions who contribute exactly €10 in the different treatments, where $f(X = 10;\ Non - Anonymous\ \ treatment)$ reflects the fraction of the subjects in the *Non-Anonymous* treatment who donate exactly €10 etc., as follows:

Hypotheses 2 *Fractions donating exactly €10 across treatments.*

$$f(X = 10;\ Non - Anonymous\ \ treatment) < f(X = 10;\ Reference\ \ treatment)$$
$$< f(X = 10;\ Gift\ \ treatment) < f(X = 10;\ Status - Gift\ \ treatment)$$

and

$$f(X = 10;\ Reference\ \ treatment) < f(X = 10;\ Name - Publication\ \ treatment)$$

The predicted order between treatments of the fractions who contribute exactly €10 is thus the same as for the mean contribution levels, although the model does not provide any prediction of the fractions of individuals in the *Anonymous* and *Non-Anonymous* treatments who contribute exactly €10. Also similar to the mean contribution comparisons, the model does not give any prediction regarding $f(X = 10;\ Name - Publication\ \ treatment)$ in relation to $f(X = 10;\ Gift\ \ treatment)$ or $f(X = 10;\ Status - Gift\ \ treatment)$.

Let us finally also consider the individuals who contribute more than €10 across treatments, where $f(X > 10;\ Non - Anonymous\ \ treatment)$ reflects the fraction of the subjects in the *Non-Anonymous* treatment who contribute more than €10 etc., as follows:

Hypotheses 3 *Fractions contributing more than €10 across treatments.*

$$f(X > 10;\ Non - Anonymous\ \ treatment) = f(X > 10;\ Reference\ \ treatment)$$
$$= f(X > 10;\ Gift\ \ treatment) = f(X > 10;\ Status - Gift\ \ treatment)$$
$$= f(X > 10;\ Name - Publication\ \ treatment)$$

Thus, Hypotheses 3 imply that the fraction contributing more than €10 is the same for each of the non-anonymous treatments.

Of course, theoretical hypotheses and predictions always and by necessity follow from the simplifying assumptions made, and it would certainly not be difficult to construct models with different predictions or alternative models with similar predictions (cf. Card et al., 2011).[12] Nevertheless, while we consider our main hypotheses, Hypotheses 1, to be more robust to different modeling assumptions than Hypotheses 2 and 3, these latter hypotheses also constitute clear predictions that might serve as benchmarks in the analysis of charitable giving for the present and other settings.

5 | RESULTS

The mean contribution across all treatments and participants is €3.37, which equals 40% of the regular price of a single movie ticket. Table 2 and Figures 2 and 3 give an overview of contributions separated by treatment.

The highest mean contribution is observed for the *Status-Gift* treatment followed by the *Name-Publication* treatment and the *Gift* treatment. In the *Status-Gift* treatment, the median contribution is €5.00 and in the *Anonymous* treatment it is €1.40. All other treatments have a median contribution of €2.00. The proportion of zero contributions ranges from 28% for the *Name-Publication* treatment to 42% for the *Gift* treatment. The proportion of €10 contributions is highest in the *Status-Gift* treatment (30%) and lowest in the *Anonymous* treatment (6%). The proportion of very high contributions of more than €10 is 1% or lower in all treatments.

TABLE 2 Overview of contributions by treatment

Treatment	Mean contribution (in €)	Standard deviation (in €)	Median contribution (in €)	Maximum contribution (in €)	Percent of zero contributions	Percent of €10 contributions	Percent of > €10 contributions
Anonymous	2.62	3.41	1.40	20	34%	6%	1%
Non-anonymous	2.78	2.84	2.00	10	30%	7%	0%
Reference	3.11	3.34	2.00	20	34%	9%	1%
Gift	3.35	4.06	2.00	20	42%	20%	1%
Status-gift	4.68	4.40	5.00	20	28%	30%	1%
Name-publication	3.58	4.11	2.00	20	38%	18%	1%
Overall	3.37	3.79	2.00	20	35%	15%	1%

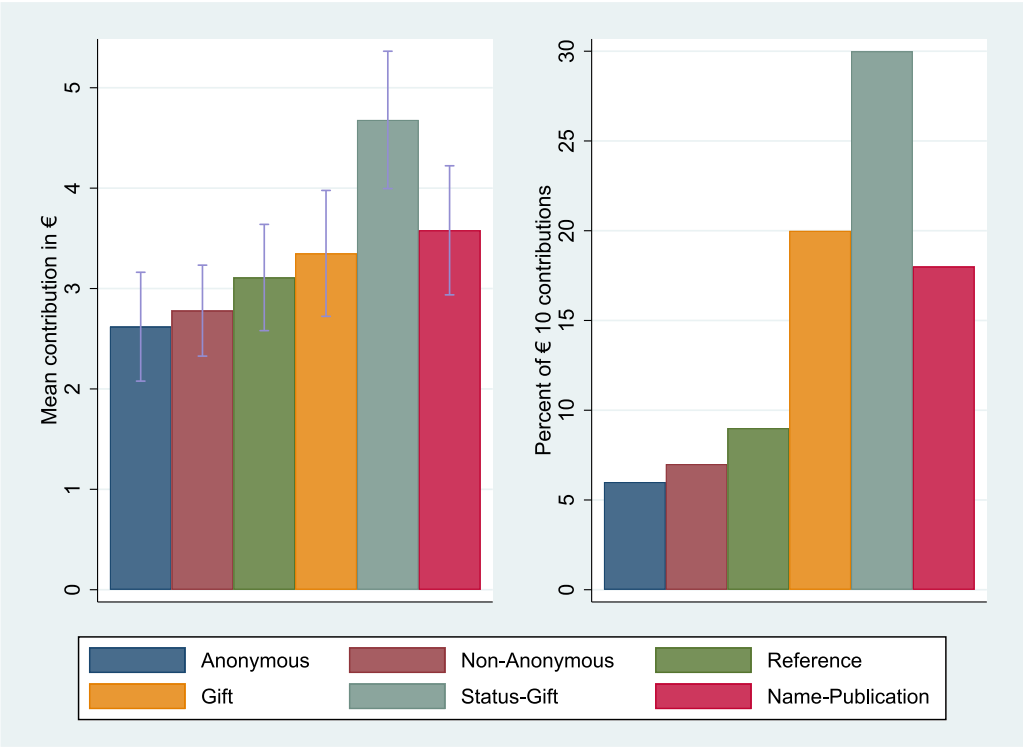

FIGURE 2 Mean contributions with standard error bars (left) and proportion of €10 contributions (right) by treatment [Colour figure can be viewed at wileyonlinelibrary.com]

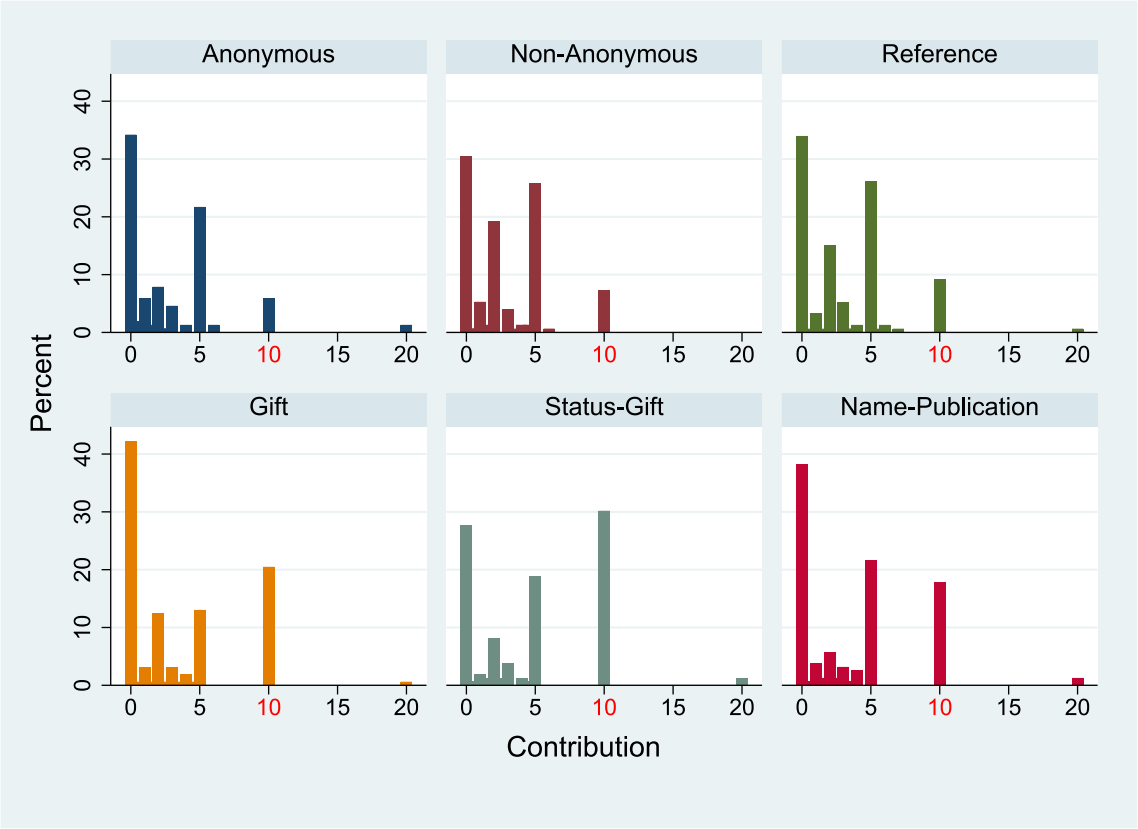

FIGURE 3 Distribution of contributions (in €) by treatment [Colour figure can be viewed at wileyonlinelibrary.com]

With respect to our hypotheses, we observe that the pattern with respect to mean contributions completely follows Hypotheses 1, that is, mean contributions increase from *Anonymous* to *Non-Anonymous* to *Reference* to *Gift* and to *Status-Gift*, and they also increase from *Reference* to *Name-Publication*.

While the pattern follows Hypotheses 1, not all differences are statistically significant; see Table 3 below.[13] For example, the provision of a reference point has only little effect on behavior as shown by the similarity of donations in the *Non-Anonymous* treatment and the *Reference* treatment. A possible explanation is that participants probably had a fairly good sense of the generosity of their donations, regardless of the reference point provided, and that they were generally supportive of the cause of the fundraising campaign. Goswami and Urminsky (2016), for instance, find that people's donations are easier to be influenced by suggestions when the cause or the charity are viewed less favorably and people have more difficulties to decide.

Figures 2 and 3 show furthermore that the effect of providing a conditional non-status gift on mean contributions is quite modest, which is consistent with some of the earlier literature reviewed in Section 2. However, from our focus on underlying status concerns, the most important finding is that the mean contribution is substantially and significantly larger in the *Status-Gift* treatment than in the *Gift* treatment, suggesting that the associated value in the status gift is important.

We also note that, although not based on a theoretical prediction, the mean contribution is substantially and significantly larger in the *Status-Gift* treatment than in the *Name-Publication* treatment. In the *Name-Publication* treatment only 37% of the eligible participants who donated at least €10 wanted to have their name published and 63% declined this opportunity. Together, these findings indicate that people react more positively when the status mechanism allows for repeated signaling to the contributors' social environment, including themselves, than when it sends a one-time signal to a larger but mostly unknown group of people. This is also consistent with Meer (2011), who in a study of charitable contributions by university alumni find that social ties play a large role for both the decision to donate and the average gift size.

Moreover, while this is a finding that we do not want to overemphasize, we also note from Table 2 and Figures 2 and 3 that the pattern with respect to contributing exactly €10 across treatments completely follows Hypotheses 2, that

TABLE 3 Comparisons of contribution behavior across treatments

	Mean contributions		Proportion of €10 contributions
	Wilcoxon Mann-Whitney test: adjusted *p*-value	*t*-test: adjusted *p*-value	Fisher's exact test: adjusted *p*-value
Anonymous			
< *Non-Anonymous*	0.536	0.350	0.432
< *Reference*	0.408	0.153	0.248
< *Gift*	0.729	0.081*	0.000***
< *Status-Gift*	0.000***	0.000***	0.000***
< *Name-Publication*	0.409	0.039**	0.003***
Non-Anonymous			
< *Reference*	0.729	0.221	0.405
< *Gift*	0.820	0.128	0.003***
< *Status-Gift*	0.008***	0.000***	0.000***
< *Name-Publication*	0.729	0.054*	0.008***
Reference			
< *Gift*	0.729	0.330	0.008***
< *Status-Gift*	0.019**	0.000***	0.000***
< *Name-Publication*	0.839	0.188	0.029**
Gift			
< *Status-Gift*	0.015**	0.011**	0.042**
vs. *Name-Publication*	0.729	0.623	0.571
Status-Gift			
vs. *Name-Publication*	0.048**	0.054*	0.020**

Note: In line with Hypotheses 1, we use one-sided Fisher's exact and *t*-tests for all treatment comparisons, except for *Name-Publication* vs. *Gift* and *Name-Publication* vs. *Status-Gift*, for which we use two-sided tests. However, the results also hold if the respective two-sided tests are used. *p*-Values are adjusted for multiple hypotheses testing using the Benjamini and Hochberg (1995) correction procedure.

Significance levels: *$p < .10$, **$p < .05$, ***$p < .01$.

is, the proportion of €10 contributions increases from *Non-Anonymous* to *Reference* to *Gift* to *Status-Gift* and it increases from *Reference* to *Name-Publication*. Finally, since very few people contributed more than €10 in all treatments, it also follows that the results are consistent with Hypotheses 3.

In Table 3, we use pairwise Wilcoxon-Mann-Whitney tests, *t*-tests, and Fisher's exact tests for treatment comparisons. The results show that the mean contribution of €4.68 in *Status-Gift* is significantly higher than in all the other treatments. Hence, the subtle difference that the status gifts display the text "Supporter of the Climate Campaign" leads to significantly different contribution behavior, as illustrated in Figures 2 and 3. According to the t-tests, there is also a significant difference between *Gift* and *Anonymous*, between *Name-Publication* and *Anonymous*, and between *Name-Publication* and *Non-Anonymous*. For the other treatments, we do not find significant differences in mean contributions.

The right column of Table 3 reports results for our second set of hypotheses regarding the difference in €10 contributions across treatments. Fisher's exact tests indicate significantly higher proportions of €10 contributions in *Gift* (20%) and *Status-Gift* (30%) than in *Non-Anonymous* (7%) and *Reference* (9%). Furthermore, we find a significantly higher proportion of €10 contributions in *Status-Gift* than in *Gift* as well as an in *Name-Publication* (18%) compared with *Reference*. Overall, the results indicate a positive effect of offering something in return for a high contribution. The gifts were particularly popular; 85% of the high contributors in *Gift* and 88% in *Status-Gift* brought home a mug or bag. Altogether, the results provide strong support for our second set of hypotheses that the proportion of €10 contributions increases from the *Gift* treatment to the *Status-Gift* treatment and from the *Reference* treatment to the *Name-Publication* treatment.

In addition, we find a significantly higher proportion of zero contributions in *Gift* (42%) than in *Non-Anonymous* (30%, two-sided Fisher's exact test: $p = .035$) and *Status-Gift* (28%, $p = .007$) and a significantly higher proportion in *Name-Publication* (38%) than in *Status-Gift* (28%, $p = .055$). While we did not derive hypotheses on the proportion of zero contributions, these differences are interesting. A possible explanation for the relatively high proportion of zero contributions in the *Gift* treatment is that the subjects' intrinsic motivation may have been partly crowded out by the thank-you gift (Chao, 2017).

Table 4 presents regression results where we control for solicitor, day, movie, and participation rate in all models. The *Anonymous* treatment constitutes the base case. Columns 2 and 3 present the results of a simple linear OLS regression on contributions. The results in the second column include solicitor, day, movie, and participation rate as controls only, while the results in the third column additionally consider individual characteristics. Similarly, columns 4 and 5 show the marginal or discrete effects of a probit regression on the likelihood of a high contribution of €10.

The results from the regression analyses confirm the results from the nonparametric analysis. The likelihood of a high contribution is significantly higher in the *Gift*, *Status-Gift*, and *Name-Publication* treatments. For the *Status-Gift* treatment, we observe a significant increase in the mean contribution by about €1.80 in both models. For *Name-Publication*, we find a weakly significant increase by about €0.80 if we include the control variables.

As mentioned before, a crucial difference from a fundraising perspective between the two gift treatments on the one hand and *Reference* and *Name-Publication* on the other is that the gifts are costly for the fundraiser while providing a reference level and publishing names on social media are not. In our case, the mean unit price for the gifts, including tax and shipping, was €4.40 with small differences between mug and bag and between the versions with and without the status text. If we take the costs of the gifts into account, assuming zero costs for the non-gift treatments, and compare the net benefits, we find that *Name-Publication* is actually the winner with the highest mean net contribution, followed by *Status-Gift*, *Reference*, *Non-Anonymous*, *Anonymous*, and lastly *Gift*. The regular gift treatment, without the social status-inducing text, was thus the least profitable compared with the other treatments.

However, the unit price of the gifts was in our case relatively high since we ordered only a small number of units. The unit price typically falls substantially with the number of units ordered. We can easily calculate the prices when the thank-you gift would be profitable compared to the other treatments. The break-even when the *Status-Gift* becomes

TABLE 4 Regression results on contribution behavior

	OLS (contributions ≥ €0)		Probit (average marginal effects) (contribution = €10)	
Non-Anonymous	0.064	0.149	0.007	0.021
	(0.407)	(0.389)	(0.052)	(0.052)
Reference	0.481	0.725*	0.054	0.078
	(0.447)	(0.427)	(0.055)	(0.055)
Gift	0.487	0.652	0.171***	0.195***
	(0.456)	(0.446)	(0.059)	(0.059)
Status-Gift	1.847***	1.873***	0.285***	0.298***
	(0.504)	(0.488)	(0.066)	(0.065)
Name-Publication	0.662	0.798*	0.146**	0.164***
	(0.487)	(0.465)	(0.059)	(0.058)
Solicitor, day, movie and participation controls	Yes	Yes	Yes	Yes
Individual characteristics controls	No	Yes	No	Yes
Observations	933	927	933	927

Note: Robust standard errors in parentheses. All models include an intercept, solicitor, day, movie, and participation rate controls. Individual characteristics controls consist of gender, age, cinema visits per year, number of companions, perception of climate change, and transport to the cinema. Detailed results including the estimated coefficients for the individual characteristics controls are provided in Table A4 in the online appendix.

Significance levels: *$p < .10$, **$p < .05$, ***$p < .01$.

more profitable than *Name-Publication* occurs where the price of the gifts is reduced by about 15%.[14] Compared with *Reference*, the price could increase by about 20% before the status gift becomes unprofitable. From the present study we can conclude that it seems to be a profitable strategy to try to induce social status effects for contributors who choose to give a relatively substantial (but still far from extreme) amount. More generally, whether it is more profitable to provide conditional status-inducing material goods or to provide status through social media depends of course on the associated costs.

One important difference between the *Status-Gift* and *Name-Publication* treatments that deserves further exploration in future research concerns donor control over the receiver of the status signal. Donors tend to have little control when their name is simply published in an annual report or on social media or when a new building or university chair is named after them. The status gift used in our experiment, on the other hand, allows the donor to determine the receiver of the signal, which may be an additional reason it was quite successful.

6 | DISCUSSION AND CONCLUSIONS

As far as we know, this is the first study that has tried to identify people's status-seeking behavior, tailored to *how* the prosocial act is communicated to others and *who* these others are. Our key result is that the social status gift increases both the likelihood of high contributions and mean contributions. With this, it performs significantly better than previously studied mechanisms, as removing anonymity, providing a reference point, or offering a neutral thank-you gift, and it also performs better than offering donors publicity on social media.

Our findings suggest that, first, social status is an important motive, not only for rich people but also for more typical donors. Second, donors do not seem very interested in a one-time signal sent to an unknown solicitor or to a larger but also mostly unknown group of people. Donors react much more positively to a signal that is sent repeatedly to their immediate social environment and themselves. The results can help fundraisers to identify effective ways to increase contributions by exploiting the status motive.

Of course, as for all studies there are limitations that should be considered when interpreting the results; we focus here on three important ones. First, we conducted the experiment with a special sample in a special context. The sample contains mainly educated, well-off people who are politically rather left-wing, who have a loyal relationship with the fundraiser (the cinema), and who support the cause of the campaign (climate protection). Previous studies have shown that mechanisms, such as suggestions or defaults, tend to have a larger impact when potential donors are uncertain about the quality of the fundraising organization, the importance of the cause, or their own preferences (Goswami & Urminsky, 2016). We may then speculate that the effectiveness of the various mechanisms considered would tend to increase with lower attachment to the fundraiser and the cause. If so, the special sample and context might help to explain why the removal of anonymity, the provision of the reference point, and the regular thank-you gift had rather small effects on the willingness to donate, which was generally quite high. It is difficult to say anything about the generalizability of the results to other populations or other contexts. However, we would expect the good performance of the status gift over the other mechanisms to be quite robust, as we see no reason for our sample to have a higher need for status than others.

Second, while participants were not told that they were part of a scientific study, the circumstances in the solicitation process were somewhat unusual as participants were asked to draw a number, go to a certain table, answer questions, and so on. While this approach allowed us to study a set of different treatments with clean and verifiable randomization, the procedure might have made participants feel somewhat observed and pressured, perhaps especially in the treatments where they were offered suggestions and incentives. If so, we cannot rule out a bias in the direction of higher contributions compared to a more natural setting. Yet, again we do not see how this could explain the differences in contributions between the status gift and the regular gift. Nevertheless, we encourage future research on the issues investigated here based on other contexts and settings.

Third, we used a relatively high reference point. Only 7% of people chose this amount in the non-anonymous treatment where the reference point was not mentioned. Previous literature has shown that for suggested amounts or default options to be effective in increasing donations, they need to be in an appropriate range which depends on the particular setting (Croson & Shang, 2013; Goswami & Urminsky, 2016; Shang & Croson, 2009). Arguably, the same is true for the threshold value used to assign conditional awards, in the sense that it should be within a certain range for the awards to have a positive impact on donations. We would expect that the ranking of the conditional awards, as we have employed them, is largely robust as long as the threshold value is the same for all awards and it is not set too low

or too high. However, the relative performance of different awards may change with different threshold values, with the material value of the awards, or with the person or organization setting the threshold value (see, e.g., Bruns & Perino, 2021).

Despite these limitations, we believe that there are some general lessons that can be learned from our experiment. The fundraising mechanisms and status carriers that we have tested are of course not the only possible ones and conditional provision of inexpensive goods with a status text, such as magnets, stickers, or postcards, are possible. While the offer to have the name published on social media was only moderately successful in our experiment, social media still seems to be a promising tool for fundraisers because the use of them is virtually costless. Our results suggest that it is useful to think systematically about possibilities to tailor publicity to the contributor's social environment and to provide more long-term memories for the contributors themselves. The cinema where we conducted the experiment uses its social media channels primarily to provide information about new movies and the moviegoers use these media passively to inform themselves. It is possible that organizations that have more active social media users can use their social media channels more effectively for such fundraising campaigns.

Likewise, we believe that our research has implications that go beyond the context that we have used in our experiment. There is still a lack of binding climate change regulations in many countries. Despite or rather because of this, much of the climate action is happening at the level of cities, local groups, and companies. These actors, very much like our art-house cinema, have to rely on mechanisms which are able to increase voluntary contributions without putting their customers off. The provision of social status may be one way to achieve this.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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ENDNOTES

[1] We use the notion of *social status* with a similarly broad meaning as in *Encyclopedia Britannica*: "Social status, also called status, the relative rank that an individual holds, with attendant rights, duties, and lifestyle, in a social hierarchy based upon honor or prestige" (https://www.britannica.com/topic/social-status). See Kafashan et al. (2014) for a good overview in psychology of why prosocial behavior is likely to contribute to social status.

[2] As will become clear in the design section, our experiment is somewhere between a "natural field experiment," where people are not aware that they take part in an experiment, and a "framed field experiment," where an artificial task is supplemented with field context (Harrison & List, 2004). For this reason, we will simply call it an "experiment."

[3] There is also a large empirical literature on the importance of status considerations and social comparisons more generally, that is, beyond charitable giving (e.g., Clark et al., 2008; Johansson-Stenman et al., 2002), which we will not further discuss here.

[4] Most notably, the flyer included the following information about the usage of the donations: "100% of the contributions will be invested in technical improvements and compensation of CO_2 emissions. The sum of the collected contributions and the concrete measures will be published on the website of the [name] cinema after completion of the campaign: [http://www.filmladen.de/klima-kampagne]." After the completion of the fundraising campaign, a report was uploaded to that website with information about the number of participants, the amount of donations, and how the money was spent. The information flyer (translated from the original German version) can be found in the appendix.

[5] At the time of the invitation to participate, it was not yet made clear that participants would be asked to make a donation. This was to ensure that both potential donors and non-donors would participate. Similarly, participants did not know that there were different treatments. It is possible though that they learned this at a later stage, for example, through exchanges with their companions.

[6] We decided to also show the cinema logos on the non-status gifts so that the mugs and bags would look similar in both treatments and any behavioral differences would not be caused by differences in product design.

[7] We did not perform any explicit ex-ante power analyses because we had only limited control over the sample size. The experiment had to be conducted in as short a time as possible, involving as few movies as possible, to avoid individuals participating in multiple treatments. Once the movies were selected, we tried to invite all visitors to participate in the campaign as far as possible.

[8] The people in the *Name-Publication* treatment did not get a gift but at least they got an offer in return to making a generous donation, even when that offer was not equivalent to the gifts. This is why these three treatments were run in parallel. We had a complaints table set up in case people complained and were ready to offer a gift to people from the *Name-Publication* treatment should they make a serious complaint. Fortunately, this never happened.

[9] Table A1 reports *p*-values from a joint *F*-test across all treatments using all characteristics elicited before the donation decision. Except for transport to the cinema by bike there are no statistically significant differences between treatments. Table A2 reports *p*-values from pairwise two-tailed *t*-tests. Due to the high number of tests, the *p*-values of the *t*-tests are corrected for multiple hypotheses testing based on the Benjamini and Hochberg (1995) correction procedure. Again there are no statistically significant differences between treatments. Using *p*-values unadjusted for multiple hypothesis testing, 21 of the 150 *t*-tests indicate statistically significant differences at the 10% or a lower level, which is only slightly above the number that would be expected by chance.

[10] This is thus a simple model for the contribution choices *conditional on being asked to contribute*. We do not claim that people would get higher utility from being asked, including the subsequent utility consequences associated with the contribution choices, compared with not being asked in the first place. Indeed, there is compelling evidence that people often prefer not to be asked for their charitable contributions; see, for example, Andreoni et al. (2017) and DellaVigna et al. (2012). Moreover, the utility function of Equation (1) is ordinal such that any monotonic transformation of it represent an equally valid utility function, and hence implying the same predictions.

[11] Note that the model then still allows for larger fractions that contribute at certain levels, for example, at round numbers such as €0, €5, and €10.

[12] More generally, while, as noted by Card et al. (2011) a lower fraction of field experimental as compared to lab experimental studies seem to be based on explicit theoretical models, we tend to agree with List (2011, p. 10): "Economic theory is portable; empirical results in isolation offer only limited information about what is likely to happen in a new setting. Together, however, theory and experimental results provide a powerful guide to situations heretofore unexplored."

[13] Of course, that some differences are insignificance does not imply that there are no real underlying effects, only that no significant effects could be identified given the limited power.

[14] To reduce the unit price by 15%, the number of ordered mugs would have to be increased from 200 to 250 and the number of ordered bags from 200 to 300.

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APPENDIX

Derivation of hypotheses

Hypotheses 1

We will start by deriving utility-maximizing contributions for an individual i for each treatment, starting with the *Anonymous* treatment (where there are no conditional gifts or reference information). Maximizing Equation (1) with respect to X^i, for $Reference = Gift = StatusGift = NamePublication = NonAnonymity = 0$, and assuming (first) an interior solution, implies the optimum condition:

$$WarmGlow^{i\,\prime}\left(X^i_{Anon}\right) = 1, \tag{A1}$$

where $WarmGlow^{i\,\prime}(X^i_{Anon})$ is the derivative of $WarmGlow^i(X^i_{Anon})$ with respect to i's optimal contribution level for the *Anonymous* treatment, X^i_{Anon}. If instead $WarmGlow^{i\,\prime}(0) \leq 1$ we obtain a corner solution such that it is optimal for individual i not to contribute anything, that is, $X^i_{Anon} = 0$.

Consider next the *Non-Anonymous* treatment, such that $NonAnonymity = 1$, where we correspondingly get

$$WarmGlow^{i\,\prime}\left(X^i_{NonAnon}\right) = 1/\left(1+\beta^i_{NonAnonymity}\right) < 1. \tag{A2}$$

Since $WarmGlow^i$ is increasing and concave in contributions, we obtain by combining Equations (A1) and (A2) that $X^i_{NonAnon} > X^i_{Anon}$, provided that the contribution in the non-anonymous treatment is positive. This, in turn, is the case when $(1+\beta^i_{NonAnonymity}) \cdot WarmGlow^{i\,\prime}(0) > 1$, or equivalently $WarmGlow^{i\,\prime}(0) > \frac{1}{1+\beta^i_{NonAnonymity}}$. If instead $WarmGlow^{i\,\prime}(0) \leq \frac{1}{1+\beta^i_{NonAnonymity}}$, then the optimal contribution by i is zero, implying that $X^i_{Anon} = X^i_{NonAnon} = 0$. However, since it is assumed that the underlying contribution density function for each treatment is always positive (in the range

from zero to the maximum one) it clearly follows that $WarmGlow^{i\prime}(0) > \frac{1}{1+\beta^i_{NonAnonymity}}$ is fulfilled for at least some individuals in the underlying population. This in turn means that there exist individuals of type k for which $X^k_{NonAnon} > X^k_{Anon}$, while the opposite is not true for anyone, and hence it follows that the mean contribution is larger in the *Non-Anonymous* than in the *Anonymous* treatment., that is,

$$\overline{X}(Nonanonymous\ \ treatment) > \overline{X}(Anonymous\ \ treatment). \tag{A3}$$

Since all remaining treatments are non-anonymous, let us for simplicity use the short notation $g^i(X^i) \equiv (1 + NonAnonymity) \cdot WarmGlow^i\ (X^i)$, where g^i is thus also concave.

Consider next the *Reference* treatment, implying a conditional utility component if the individual contributes at least €10. Suppose an individual i contributed $X^i_{NonAnon} < 10$ in the *Non-Anonymous* treatment, how much would this person then contribute in the *Reference* treatment? This clearly depends on $X^i_{NonAnon}$ as well as on the person's $\alpha_{Reference}$-parameter and g-function. Based on Equation (1), the person would contribute €10 instead of $X^i_{NonAnon}$ if the loss in income would be more than offset by the discrete utility increase from donating €10, plus the additional utility from the increased warm glow (including the effect of the solicitors observing the giving), that is, if

$$\alpha^i_{Reference} + g^i(10) - g^i\left(X^i_{NonAnon}\right) > 10 - X^i_{NonAnon}. \tag{A4}$$

Suppose first that inequality (Equation A4) is not fulfilled, then the individual would donate exactly the same amount as under the non-anonymous treatment, $X^i_{NonAnon}$, that is, the amount without the reference information. This is so because the optimization problem for the individual who would donate less than €10 would be identical to the problem this individual would face in the *Non-Anonymous* treatment, for which we know that the optimal contribution level is $X^i_{NonAnon}$.

Suppose next that inequality (Equation A4) is fulfilled. We will now show that such an individual i would then donate *exactly* €10, and hence not more than €10. To see this, note that an individual who would donate at least €10 when maximizing $InitialIncome^i - X^i_{Reference} + g^i(X^i_{Reference})$ would clearly choose the same amount when maximizing $InitialIncome^i - X^i_{Reference} + \alpha^i_{Reference} + g^i(X^i_{Reference})$, since the utility component $\alpha^i_{Reference}$ is independent of how much the individual donates above €10. Thus, some people who in the *Non-Anonymous* treatment would give less than €10 would still give less than €10, but others will now give €10 instead. Nobody who gave €10 or less in the *Non-Anonymous* treatment would give more than €10 in the *Reference* treatment. Moreover, given the distributional assumptions of the contributions in the *Non-Anonymous* treatment, we know that a fraction of individuals for which the inequality (Equation A4) is fulfilled exists.

Consider next an individual i who contributed more than €10 in the *Non-Anonymous* treatment, how much would this individual then contribute in the *Reference* treatment? It is easy to see that this person would then contribute exactly the same amount. Let $X^i_{NonAnon} > €10$ be the utility-maximizing contribution in the *Non-Anonymous* treatment. Since the only difference in the *Reference* treatment is that the individual will get an additional utility of contributing at least €10 it is clearly impossible that $X^i_{Reference} < €10$. This means that utility in the *Reference* treatment is given by $InitialIncome^i - X^i + \alpha^i_{Reference} + g^i(X^i)$, where $\alpha^i_{Reference}$ is a constant. Since maximizing $InitialIncome^i - X^i + \alpha^i_{Reference} + g^i(X^i)$ is (again) equivalent to maximizing $InitialIncome^i - X^i + g^i(X^i)$ with respect to the contribution X^i, this means that the optimal contribution is then indeed the same in the *Reference* treatment as in the *Non-Anonymous* treatment.

Taken together this means that some individuals would contribute the same amount in both treatments, some would contribute more in the *Reference* treatment, while none would contribute more in the *Non-Anonymous* treatment, implying that the mean contribution is larger in the *Reference* treatment. Thus

$$\overline{X}(Reference\ \ treatment) > \overline{X}(Non - Anonymous\ \ treatment). \tag{A5}$$

For later use, we also note that the fraction who gives exactly €10 is larger in the reference than in the *Non-Anonymous* treatment, that is,

$$f(X = 10; Reference\ \ treatment) > f(X = 10; Non - anonymous\ \ treatment). \tag{A6}$$

The same reasoning can be applied when comparing the *Gift* treatment with the reference treatment. An individual i who contributes $X^i_{Reference}$, which is less than €10, in the reference treatment will contribute exactly €10 in the *Gift* treatment if

$$\alpha^i_{Reference} + \alpha^i_{Gift} + g^i(10) - g^i\left(X^i\right) > 10 - X^i_{Reference}, \tag{A7}$$

and will continue to donate $X^i_{Reference}$ if the inequality in Equation (A7) is not fulfilled, and no individual will contribute more in the *Reference* treatment. Hence we get:

$$\overline{X}(Gift\ \ treatment) > \overline{X}(Reference\ \ treatment) \tag{A8}$$

and

$$f(X = 10; Gift\ \ treatment) > f(X = 10; Reference\ \ treatment) \tag{A9}$$

The same reasoning again when introducing the *Status-Gift* treatment implies

$$\overline{X}(Status - Gift\ \ treatment) > \overline{X}(Gift\ \ treatment) \tag{A10}$$

and

$$f(X = 10; Status - Gift\ \ treatment) > f(X = 10; Gift\ \ treatment). \tag{A11}$$

We also similarly get

$$\overline{X}(Name - Publicationt\ \ treatment) > \overline{X}(Reference\ \ treatment) \tag{A12}$$

and

$$f(X = 10; Name - Publicationt\ \ treatment) > f(X = 10; Reference\ \ treatment). \tag{A13}$$

By combining inequalities (A3), (A5), (A8), (A10), and (A12), we obtain Hypotheses 1.

Hypotheses 2

By instead combining (A6), (A9), (A11), and (A13), we obtain Hypotheses 2.

Hypotheses 3

We explicitly showed above that an individual who contributes more than €10 in the *Non-Anonymous* treatment would contribute exactly the same amount in the *Reference treatment*, and the same reasoning can then be repeated for the other treatments, in turn implying Hypotheses 3.