



When efficient help is perceived as greed: experimental evidence

Andrej Angelovski¹ · Werner Güth² · Simón Lodato¹ · Christos Mavridis³

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Abstract

We study charitable behaviour when genuine donations can be misinterpreted as being greedy. This is relevant when private benefits from donating, like tax exemptions, bring into question whether donors are truly altruistically motivated. In our experiment, a potential donor, the *distributor*, decides how to split a sum of money between themselves, a paired *non-distributor*, and a charity of their choice. Choosing to donate part of the sum to charity is socially efficient because the charity receives four times the amount, with the difference covered by the experimenters. Our conditions vary in the choice set available to the *distributor* and whether the choice set becomes known to the *non-distributor*. With the choice set unknown, the *distributor* may be concerned that the *non-distributor* will believe the money has been split unfairly, with the *distributor* keeping a larger share. Overall, we find this not to be the case: the number of individuals who donate to charity is not significantly lower when donating could be perceived as greedy.

Keywords Charitable donations · Greed · Perceptions of greed · Image concerns · Experiments

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✉ Christos Mavridis
christos.mavridis@unich.it

Andrej Angelovski
a.angelovski@mdx.ac.uk

Werner Güth
gueth@coll.mpg.de

Simón Lodato
s.lodato@mdx.ac.uk

¹ Department of Economics, Middlesex University, London, UK

² Max Planck Institute for Research on Collective Goods, Bonn, Germany

³ Department of Economics, “Gabriele d’Annunzio” University of Chieti-Pescara, Pescara, Italy

1 Introduction

Charities play an important role in modern societies, offering a wide array of help that spans social, environmental, and health-related areas. Besides providing social and humanitarian services to the target population, charities also contribute significantly to a country's economy and welfare. For instance, according to the UK's Civil Society 2023 Almanac, the charity sector in the UK alone accounts for 925 thousand jobs (about 3% of the UK workforce) and over £18bn of annual GDP. Given their importance, direct and indirect incentives are created to encourage charitable behaviour which often responds to society's social and environmental needs swiftly and efficiently.

Incentivising charitable behaviour is in line with the large number of empirical and experimental studies that have concluded that there are both public and private motives and benefits to charitable donations. While public benefits focus on increasing a charitable organisation's output in providing various forms of public goods, private benefits include receiving tax breaks or other gifts (see, for example, Fack & Landais, 2010; Duquette, 2016; Almunia, Guceri, Lockwood, & Scharf, 2020) intrinsic benefits (see, for example, Andreoni 1989, 1990,) reputation effects and social signalling (Tullock, 1966; Glazer & Konrad, 1996; Grossman, 2015), signalling status or wealth in a socially acceptable manner (Glazer & Konrad, 1996), and gaining access to prestigious clubs or social circles or even enhancing one's future profit prospects (Harbaugh, 1998). Although the majority of empirical work shows that private benefits dominate the decision to donate, the experimental evidence is more mixed (see, for example, Ariely et al., 2009). Nevertheless, the literature agrees that the private component is a significant motive for donating (see Vesterlund, 2006, for a broader discussion). Government policy can incentivize or disincentivize charitable contributions (Bönke et al., 2013), so understanding the incentives of individuals to donate to charities is of particular interest to policy-makers, as the public goods provided by charities may be substitutes for those provided by the state.

The experimental workhorse of Dana et al. (2007) finds that generosity is lower, or even crowded out, when the connection between one's actions and outcomes is not perfectly observable. We, instead, question whether individuals would be more hesitant to be generous when this could be interpreted by others as self-serving. In particular, we study whether one would shy away from giving to charity when, in the face of imperfect information, others might misinterpret this as an act of greed rather than generosity. As such, our study relates to the scrutiny under which individuals view charitable donations and those who donate and benefit from them.

We explore this through an experiment that anonymously and randomly pairs participants, allowing one of them to decide how to share a jointly earned monetary pie. The pie can be either small or large. In the first phase of the experiment, the *contribution* phase, each participant privately invests in increasing the probability of the large pie. In the second phase, the *distribution* phase, one of the paired participants is randomly selected as *distributor* who chooses among different ways of using the large pie if the large pie ends up being drawn. Both participants are informed that if the small pie is drawn they will automatically share this amount equally. The other paired participant, the non-distributor, depending on the condition, may or may not become aware of the distributor's options.¹ Our three conditions, *Info*, *No*

¹ Like in the 'moral wiggle room' experiment of Dana et al. (2007), this feature involves implementing a non-well-defined game form. See (Gehrig et al., 2007) for private information games that also allow for hiding greed but are well-defined.

Info, and *Greedy*, vary in terms of what options are available to the distributor and in whether the non-distributor learns what these options are.

In both *No Info* and *Info*, the distributor can choose between two options: (1) split equally, with each receiving half the pie, or (2) donate half to a charity of their choice and share the remaining half equally, with each receiving a quarter of the pie. The distributor is aware that if the second option is chosen, the amount donated would be multiplied by four before it is received by the charity, the experimenters covering the difference from their own budget. *No Info* and *Info* differ in whether the non-distributor will become informed about the distributor's options on how to split the sum. In *Info* they will learn what are the two options listed above. In *No Info*, they do not receive any information about the distributor's choice set and, therefore, never become aware of the possibility to donate to charity. This lack of information may raise the suspicion that a greedy distributor did not fairly distribute the pie. Lastly, *Greedy* is similar to *No Info* but adds a third option to the distributor's choice set: sharing the large pie unequally, which involves keeping three-quarters for themselves and giving one-quarter to the non-distributor. Like in *No Info*, the distributor knows that the non-distributor will only learn of their own earnings.

Our paper adds to the experimental public choice literature (see, for example, Plott, 2014, and also DeAngelo, 2020, for overviews). In a recent contribution (Buchanan et al., 2024) examine a set-up in which one of two randomly matched players (the dictator) decides how to divide their joint earnings which are increasing by their individual contributions. They find that if receivers (the passive players) become informed of the relative contributions of each player, they tend to earn more. Similar to our setting, the actions of the dictator may be driven by what the receivers may think about them in different information structures. The authors conclude that the fear of being judged by the informed receiver induces a dictator to allocate a larger share of the pie.

Our experimental findings reveal that concerns about appearing greedy do not significantly deter donation behaviour. Contrary to our initial expectations, individuals do not reduce their donations when placed in a setting where their generosity could be misinterpreted as self-serving. This suggests that, at least in our controlled environment with real charitable donations, reputational concerns may not be as strong a deterrent to prosocial behaviour as previously assumed. This lack of evidence may stem from the distributor not assigning a large weight to how others judge their actions when facing the choice to donate or share equally, or from their perception that non-distributors would not consider it unfair to receive less than half of the large pie. Our data from a post-experimental questionnaire suggest the former is more likely. Furthermore, when given the option of retaining a larger share of the endowment (in *Greedy*, our third condition), more than half of the distributors choose it. This highlights the strong role of self-interest and further indicates that individuals may not be overly concerned with how their actions are perceived when making distributive choices. It also suggests that many participants who chose to split equally in *No Info* were likely driven by self-serving motives as opposed to reputational ones.

As such, our study contributes to the public choice tradition by exploring how imperfect information on hidden motives, as well as the potential perceptions, influence charitable contributions, complementing prior work on transparency and fairness in public decision-making.

1.1 Private motives in charitable giving

The private benefits of donations are relevant as they can lead to differing perceptions of the donors' motives, both positive and negative. Publicity and recognition of the donations'

impact is a common private motive, as it enhances the image and reputation of donors. There is abundant field evidence of individual charitable behaviour being publicized. Among others, this involves donations being announced, initiating a non-profit foundation bearing the founder's name, naming a public building after the most generous contributor, and installing a plaque listing the names of donors. Such publicity is particularly appealing to charities, but also to corporations, and high-profile individuals seeking to demonstrate their commitment to social responsibility and improve their public image.

Aware of the importance of private motives to charitable giving, most countries also offer monetary incentives in the form of tax reductions and subsidies to lower or share the costs of donating to charities. For example, in the UK, the 'Gift Aid' policy enables charities to receive an additional 25% from the government on donations made by UK taxpayers. Moreover, higher-rate taxpayers can claim back the difference between their tax rate and the basic rate on the donation amount, which further reduces the cost of their donation.² Although the rule that tax cuts must not exceed the donation amount³ should, in theory, mitigate the risk that donations are made for, and viewed as having, only self-serving motives, combining tax incentives with other private benefits might challenge this.

Moreover, charitable donations do not always reach those most in need and have been accused of not being particularly redistributive. In the US, less than a fifth of large donors' contributions go directly towards the needy, while the majority go to universities, health-care, the arts, sports, and other cultural needs. Furthermore, most donations in the education sector go to the top US universities (Vallely, 2020). The data for the UK indicate a similar trend: between 2007 and 2017, the vast majority of donations by the wealthy, amounting to around £5bn, were directed to higher education, with fifty per cent of that sum going to just the universities of Oxford and Cambridge. During the same period £1.04bn was given to the arts, and just £222m to fighting poverty (Vallely, 2020). A 2023 Institute for Policy study (Flannery et al., 2023) reports that 41 per cent of all donations in 2022 went to either donor-directed charities, which donors themselves control, or to Donor-Advised Funds (DAFs). DAFs are not required by law to distribute the funds to the intended cause within a specific timeline. The Council on Michigan Foundations found that, in 2018, the median payout rate of all 2,600 Michigan DAFs was 3.1 per cent, and that more than a third of them did not distribute any money in any given year. Similarly, the California Attorney General's office reported that between 2016 and 2020, 42 per cent of California's DAFs distributed less than 5 per cent of their incoming contributions (Flannery et al., 2023).

When information about the motives behind a donation or its impact is incomplete, as it often is in the field, the way the donation is perceived may not always align with the donor's actual intentions or the outcomes of the donation. This perception may be shaped by the broader narratives that prevail in a society, typically associated with factors such as the current state of the economy, its wealth distribution and public debt, as well as its systemic mistrust and its notions of social responsibility. The perceptions of possible self-serving behaviour, whether accurate or not, influence public attitudes towards charitable giving, and may affect individuals' willingness to donate. As such, the motivations of donations coming from high-profile individuals or entities may be questioned. There is

² See <https://www.gov.uk/government/publications/charities-detailed-guidance-notes/chapter-3-gift-aid> for details. Accessed 27 May 2024.

³ This is not true in every century, and has changed over time. During the mid-twentieth century, for very affluent US households, it was possible for the value of the tax deduction received to be larger than the donation amount (Duquette, 2019).

already some evidence that generosity can be discredited when good deeds are perceived as being privately motivated see (Silver et al., 2021; Critcher & Dunning, 2011). Such actions might even be regarded as less moral than not donating at all (Newman & Cain, 2014). This highlights the need for donors, who may want to donate for purely altruistic reasons, to be concerned about how their donations are perceived.

The rest of this article is structured as follows: Sect. 2 explains the experimental design in detail, and states and justifies our four main hypotheses. In Sect. 3, we describe the data, and present the experimental results and the regression analysis. Finally, Sect. 4 concludes.

2 Experimental design, procedures and predictions

We want to examine whether the willingness of the distributor to donate part of the large pie to charity, instead of sharing it equally with the non-distributor, changes when the non-distributor becomes aware of the options available to the distributor, compared to when the non-distributor does not. Donating to charity is the efficient option as the experimenters top up the donation at no added cost to the participants. If the distributor is less likely to donate when the non-distributor does not learn of the options, this could be attributed to the distributor's fear of being seen as greedy, as keeping the share that went to charity for themselves.

The crucial aspect of the experimental design is what the distributor believes the non-distributor may infer from being informed that the large pie was drawn and what their share of this large pie is. If the non-distributor is not informed of the distributor's choice set, but learns that the large pie has obtained, and that, due to a decision taken by the distributor, they end up getting only a quarter of this large pie, it is not unreasonable to think that they would hypothesize that they have been treated unfairly. In fact, thinking that the distributor kept the rest of the pie for themselves (rather than using a part of it for some other reason), would be a natural suspicion. A distributor may therefore avoid donating to charity for fear that the uninformed non-distributor might wrongly infer that the distributor perhaps kept more for themselves. Of course, there are two necessary conditions for such a choice: the distributor must care about others' opinions, and this should be material to their choice. Additionally, the distributor must perceive that the non-distributor finds it unfair to receive only half of the small pie when the large pie has been drawn and the distributor has taken three quarters of it. By using a payoff-irrelevant questionnaire before payment is received, we can check whether the non-distributor would indeed be suspicious upon receiving only a small share of the large pie and explore the distributors' motivations as well.⁴

Moral wiggle room effects so far come primarily from evidence of greedy behaviour in scenarios which render greed likely but either unverifiable or unobservable (see the stochastic ultimatum experiments whose random pie size is only revealed to proposers, Mitzkewitz and Nagel, 1993 and Rapoport, Sundali, and Seale, 1996 allow for many possible pie sizes; Gehrig et al., 2007 only for a large and a smaller pie size). In these scenarios, proposers may hide their greed by offering only half the smaller pies. This behaviour, in line with the principle *in dubio pro reo*, leads to rejection, although responders are aware that the offer might be due to this principle. Essentially, proposers with large pies pretend that the pie is small to hide their greed (see Gehrig et al., 2007).

⁴ The post-experimental questionnaire includes questions about the demographic characteristics and political orientation of participants.

The moral wiggle room scenario in Dana et al. (2007) is similar to ours in that it does not guarantee common knowledge of the game form. They have shown that, under such a setup, distributors are greedier and sacrifice efficiency when the other party is unaware of it. However, their setup does not allow for studying the opposite case: whether the risk of being falsely perceived as greedy can also prevent efficiency. In this regard, the design of Dana et al. (2007), at least in spirit, appears to be a mirror image of ours.

What can we infer about the aspects influencing distributor behaviour? A distributor who donates is likely motivated by concerns for intrinsic efficiency, which must be strong enough to overcome the reluctance to enforce this efficiency enhancement. This enforcement comes at a cost to both themselves and the other participant. In fact, forcing the non-distributor to also pay for the efficiency enhancement can be regarded as disrespecting the non-distributor's autonomy. Respecting others' autonomy may be one reason why the distributors might choose to not donate to charity even when the non-distributor is aware of the options of the distributor. Inferring this motive from observed behaviour is challenging since it is confounded with distributor opportunism—a distributor who earns the highest payoff and does not donate.

We ran online one-shot sessions on Qualtrics with a total of 500 participants recruited through Amazon Mechanical Turk.⁵ The sessions lasted, on average, just short of 8 min and the average payment was \$2.72. In each session, a participant was randomly assigned to one of three conditions and to one of two roles. Each session comprised of two phases: a contribution phase and a distribution phase. At the end of their session, participants were asked to complete a questionnaire. After all sessions were concluded, each participant was randomly matched with one participant from the same condition but of a different role (each participant was part of one and only one such pairing). Next we outline the experimental design.⁶

The contribution phase is the same in all three conditions: each participant, endowed with 100 experimental currency units (ECU), chooses how many of the 100 units they invest in increasing the probability of obtaining a large pie (as opposed to a small one), where the exchange rate is 100 ECU = \$0.50. Participants would keep the amount not invested. The sum of the investments of both paired participants determines the probability of the large pie according to:

$$0.25 + 0.0025 \times (\text{Sum of both individuals' investments}).$$

So even the minimum investment (0 ECU investments of both participants) yields a probability of obtaining the large pie of 25%. Maximum investment (both participants invest 100 ECU) raises this probability to 75%. This is commonly known. When choosing how much to invest participants were, of course, unaware of how much their paired participant invested.

The two possible roles of the participants are distributor or non-distributor. The participants were informed of their role before the distribution phase began after they had made their investment choices. In the distribution phase, only the distributor is active. The non-distributor remains passive but knows that the distributor has a choice to make and that this

⁵ Given our experimental design and existing literature, we expected medium effect sizes (Cohen's $d = 0.6$, using Cohen 2013 conventions), setting a significance level (α) at 0.05 and Power ($1 - \beta$) at the standard level of 0.80 (see, for example, Nikiforakis and Slonim, 2015) for a two-sided test. For an effect size of $d = 0.6$, we needed 88 participants per condition. We have a total of 500 participants, between 165 and 168 per condition.

⁶ Please see the full experimental instructions which are provided as electronic supplementary material.

choice only matters when the large pie is realized. All conditions let the distributor allocate what is earned by the joint contributions but this choice matters only in case the large pie is realized. If instead the small pie is realized, regardless of the distributor's choice, the paired participants share the small pie equally. Distributors are unaware of the actual pie size when deciding.

The three conditions, *Info*, *No Info*, and *Greed*, vary in terms of what options are available to the distributor and in whether the non-distributor will become aware of what these options were. In *Info* the distributor can choose between two options: (1) split the large pie (\$4) equally so that both participants, distributor and non-distributor, earn \$2; or (2) donate half of the large pie (\$2) to charity and share the remaining \$2 equally (\$1 each). The distributor is aware that if they opt to donate to charity the experimenters will add an extra \$6 from their own budget so that the selected charity receives \$8.⁷ At the point of making the distribution decision, the distributor is informed that if they choose to donate to charity, they can donate the \$8 to one of three charities the experimenters are working with but are not aware which ones these three are.⁸ Only after making the distribution decision, each distributor who opted to donate to charity was asked to choose a charity from a list of three charities (St. Jude Children's Hospital, Goodwill, or Feeding America) and the researchers donated \$8 to the charity of their choice. We made sure the list of charities were prominent and varying in causes.

Greed is similar to *No Info*, in that the non-distributor never learns the choice set available to the distributor, but adds a third option to the choice set: sharing the large pie unequally (\$3 for the distributor, \$1 for the non-distributor). Like in *No Info*, the distributor knows that the non-distributor will remain unaware of the distributor's choice set (of course, as described above, the non-distributor will learn whether the large pie has been drawn and what their earnings are). Across all conditions, when the small pie is drawn, the non-distributor will only learn this random realization and their own earnings. Again, the distributor knows this.

The experimental conditions are listed in Table 1. The unusually large efficiency effect of donating -it costs a pair of players \$2 to trigger an \$8 donation- offers an obvious motive to donate to charity even in *No Info*. Not donating in *No Info* may be due to opportunism in the sense of own profit-maximizing, possibly excusing opportunistic behaviour by arguing that donating without the non-distributor's consent could be seen as being greedy. Conversely, distributors who donate to charity would indicate less of a concern for appearing greedy than for -via sacrificing \$1- being socially efficient or charitable towards the needy.

Whereas both *Info* and *No Info* allow for self-serving and profit-maximising distributor behaviour, the "not appearing greedy" motive is not present in *Info*. Therefore, any difference in behaviour between *Info* and *No Info* can be attributed to this motive.

Altogether, our experimental design allows us to formulate the following hypotheses:

H1 Under *No Info* distributors donate less often than under *Info*.

⁷ Offering donors a match or top-up amount to their donation has been found to increase donations more than an equivalent tax subsidy (see, for example, Eckel and Grossman (2003, 2008); and Blumenthal et al. (2012)).

⁸ The choice to make the three charities unknown to the distributor at the point of making the distributing decision was motivated by rendering the effect of donating to charity efficiency enhancing (in a charity-independent way).

Table 1 Experimental structure

Conditions	Non-distributor becomes aware of choice set?	Distributor choice set
<i>Info</i>	Yes	Share equally Charity
<i>No Info</i>	No	Share equally Charity
<i>Greed</i>	No	Share equally Charity Share unequally

Distributor choice matters only if the large pie of \$4 is realized. Under Share equally, each participant gets \$2 (out of the \$4). Under Charity, \$2 goes to charity (multiplied by 4 by the experimenters before being sent out, so \$8 in total goes to a charity of choice) and each participant gets \$1. Under Share unequally, the distributor gets \$3 and the non-distributor gets \$1

If the share unequally option is available, it is attractive to distributors who are primarily interested in maximising their own payoff. Under *No Info*, participants might choose to share equally because a) they want to maximise their own payoff (in *No Info* the profit-maximising choice is deciding to share equally), or b) they fear appearing greedy to the other participant. Purely self-serving distributors, who would prefer to share equally in *No Info*, would switch to the more profitable share unequally option. Hence:

H2 Under *Greed* distributors choose the equally sharing option less often than under *No Info*.

An important reason for H1 is that many individuals may care about how others perceive them. Naturally, we expect that there will be heterogeneity in how much one cares about others' opinions. Using information from the post-experimental questionnaire we try to shed light on such reputation concerns whose heterogeneity may be crucial for H1, and formulate the following hypothesis:

H3 Distributors who strongly care about other people's opinions of them are less likely to donate in *No Info* and *Greed* than in *Info*.

Our final hypothesis relates to non-distributor beliefs. When speculating whether or not distributors caring about others' opinions is a reasonable expectation, one should also examine how non-distributors would feel after receiving only a small share of the large pie. In fact, the post-experimental questionnaire elicited non-distributors' opinions on how unfair they would perceive receiving \$1.

H4 Non-distributors would be more likely to find it unfair if, in the case of the large pie, they received \$1 instead of \$2.

It is not unreasonable to assume that distributors can imagine themselves in the non-distributor role. If, indeed, non-distributors would not be happy receiving \$1 instead of \$2, it is safe to assume that distributors would anticipate such sentiment and possibly care more about what the non-distributors' opinion of them would be.

3 Results

Table 2 depicts the frequency of charitable donations in the three conditions. We see that the share of distributors opting for donating is 0.2262 in *Info* while it is 0.3012 in *No Info*. Thus, we face the unexpected result that in *No Info* the share of donating distributors is not lower than that in *Info*, but actually higher. Performing a two-sample two-tailed t-test on the means we see that we cannot reject the null hypothesis of the two means being equal (p -value = 0.2740); statistically, there is no difference in the behaviour of distributors across these two conditions. The lack of significance leads us to reject H1.

In *Greed*, slightly more than half of the distributors (a share of 0.5181) chose to share unequally, an option that was only available to this condition. The share of donating distributors is 0.2410, which lies between the corresponding share in *Info* and *No Info*. As for the fraction of distributors who shared the large pie equally, it is 0.2410 in *Greed*, down from 0.6988 in *No Info*. This difference is statistically significant according to a two-sample two-tailed t-test (p -value = 0.0000). Therefore, H2 is confirmed. It seems that many participants who chose to split equally in *No Info* are driven by profit-maximisation motives and thus might have shared unequally had this option been available. Therefore, many distributors who chose to share equally in *No Info* are interested mainly in their own payoff.

Nevertheless, about a quarter of the participants in *Greed* chose the share equally option. This is relevant as these participants cannot be classified as either profit or efficiency maximizers. Interestingly, the majority of individuals who are willing to donate seem not much affected by the choice set: a one-tailed t-test comparing the share of donations in *No Info* to the one in *Greed* reveals that they are not statistically different from each other (p -value=0.1929).

The failure to confirm the first hypothesis renders the third hypothesis particularly interesting. H3 relates donations to others' opinions; our post-experimental questionnaire asked

Table 2 Frequency of CHARITABLE DONATIONS and (Un)equal sharing

	Donate to charity	Share equally	Share unequally
<i>Info</i>			
Mean	0.2262	0.7738	
Std. Dev	0.4209	0.4209	
<i>No Info</i>			
Mean	0.3012	0.6988	
Std. Dev	0.4616	0.4616	
<i>Greed</i>			
Mean	0.2410	0.2410	0.5181
Std. Dev	0.4303	0.4303	0.503

Numbers of distributors in each condition are 84, 83, and 83 respectively

Table 3 Effect of other people's opinions on the probability of sharing equally

	Share equally
<i>Others' Opinion</i>	−0.031 (0.026)
Ref. Cat: <i>Info</i>	
<i>No Info</i>	−0.059 (0.070)
<i>Greed</i>	−0.540*** (0.071)
<i>No Info</i> × <i>Others' Opinion</i>	−0.046 (0.038)
<i>Greed</i> × <i>Others' Opinion</i>	0.007 (0.042)
Constant	0.793*** (0.050)
Observations	250
R^2	0.255

Standard errors in parenthesis; ***, **, * denote significance at the 1%, 5%, and 10% level, respectively

distributors to indicate how much they cared about other people's opinions on a seven-point scale ranging from −3 (very little) to 3 (very much).

Table 3 presents the results of an OLS regression analysing how the probability of sharing equally depends on how the responses to the “others' opinion” question interact with condition. Using *Info* as the baseline, the table shows that concern about others' opinions is, in all conditions, no significant predictor of sharing equally, contrary to the third hypothesis.

Finally, we test the non-distributors' attitudes by using their answers to two post-experimental questions. One of these questions asked the non-distributors to rate from −3 to 3 how fair they would consider an allocation of the large pie where they would receive \$1 or \$2 (−3 very unfair, 3 very fair). Importantly, the non-distributors had not yet been informed of their earnings when answering. For the case of receiving \$1, the median rating is 1, while the mean is 0.232. When receiving \$2, the median is 2 and the mean is 1.986. A two-tailed paired t-test reveals that the two means are statistically different (p - value = 0.0000).

Since investing in the first phase, to increase the probability of the large pie, likely grants entitlement to an equal share when the large pie becomes available, receiving less than one-half could create a feeling of resentment, explaining why the means differ. The other question asked non-distributors to indicate whether, if they were to be matched with the same distributor in a future session, they would prefer to keep the same distributor after having received \$2 or \$1 (from −3 switch to 3 keep). The mean in the case of \$2 is 1.9, while in the case of \$1, it is 0.172, indicating a stronger preference for a new distributor after having received \$1 instead of \$2. A two-tailed paired t-test confirms that the two means differ (p - value = 0.0000). Therefore we see that the fourth hypothesis is confirmed.

The combined findings of the last two hypotheses are interesting. While the non-distributors strongly resent receiving only \$1 and would even want to avoid any future interactions with the same distributor, for the distributors themselves, caring about the others' opinions does not seem to influence their choice of whether to share equally or not.

The probit regression analysis in Table 4 looks into the effects of all collected variables on the decision to donate to charity (first four columns) or to share equally (last two

Table 4 Probit regression of donating to charity and sharing equally on all covariates

Dependent variable	<i>Info</i> Chose Charity	<i>No Info</i> Chose Charity	<i>Greed</i> Chose Charity	<i>All Obs</i> Chose Charity	<i>Greed</i> Share equally	<i>All Obs</i> Share equally
<i>Investment in Phase 1</i>	−0.008 (0.010)	−0.002 (0.008)	0.008 (0.008)	−0.002 (0.004)	0.006 (0.008)	0.005 (0.004)
<i>Fiscally Conservative</i>	0.918** (0.466)	0.502 (0.380)	1.029* (0.557)	0.510** (0.227)	−1.099** (0.525)	−0.634*** (0.228)
<i>Republican</i>	−1.242* (0.666)	−1.113** (0.540)	−0.687 (0.537)	−0.670** (0.291)	0.417 (0.546)	0.506* (0.272)
<i>Female</i>	−0.173 (0.383)	0.373 (0.354)	−0.057 (0.379)	−0.022 (0.188)	−0.020 (0.385)	−0.072 (0.188)
<i>Higher Education</i>	−0.532 (0.510)	0.641 (0.482)	−0.488 (0.485)	−0.092 (0.235)	0.369 (0.529)	−0.076 (0.236)
<i>Above Median Income</i>	0.493 (0.411)	0.043 (0.407)	−0.350 (0.437)	0.222 (0.212)	0.585 (0.499)	−0.051 (0.214)
<i>Government to Decrease Income Inequality</i>	0.915 (0.696)	−0.168 (0.456)	−0.198 (0.433)	0.108 (0.236)	−0.199 (0.480)	−0.365 (0.237)
<i>Government to Spend Less on Unemployment</i>	−0.247 (0.404)	0.680 (0.424)	−0.579 (0.445)	−0.070 (0.215)	1.150** (0.461)	0.169 (0.216)
<i>Easy Experiment</i>	0.024 (0.181)	0.076 (0.141)	0.203 (0.206)	0.101 (0.087)	−0.232 (0.203)	−0.121 (0.084)
<i>Believes they Invested More</i>	−0.001 (0.167)	−0.011 (0.173)	0.378* (0.218)	0.090 (0.090)	−0.350* (0.211)	−0.073 (0.091)
<i>Socially Concerned</i>	0.227 (0.178)	0.112 (0.152)	0.268 (0.180)	0.190** (0.084)	0.496** (0.209)	−0.006 (0.080)
<i>Others' Opinion</i>	0.008 (0.150)	0.271** (0.120)	−0.124 (0.151)	0.048 (0.067)	−0.212 (0.168)	−0.088 (0.067)
<i>High Shame Avoidance</i>	0.051	−0.192	0.035	0.008	0.298**	0.089

Table 4 (continued)

Dependent variable	Info	No Info	Greed	All Obs	Greed	All Obs
	Chose Charity	Chose Charity	Chose Charity	Chose Charity	Share equally	Share equally
No Info	(0.139)	(0.121)	(0.126)	(0.062)	(0.147)	(0.063)
				0.433*		-0.437*
				(0.229)		(0.230)
Greed				0.143		-1.675***
				(0.234)		(0.240)
Constant	-1.342 (1.260)	-1.465* (0.808)	-1.925** (0.867)	-1.480*** (0.494)	-1.517* (0.918)	1.385*** (0.494)
Observations	84	83	83	250	83	250

Standard errors in parenthesis; ***, **, * denote significance at the 1%, 5%, and 10% level, respectively. Baseline condition is *Info*. *Female* takes value 1 for Female and 0 otherwise. *Higher Education equals* 1 if at least a college or university degree has been achieved, 0 otherwise. *Above median income* takes value 1 if household income reported is above \$70,000, 0 otherwise. *Fiscally Conservative* takes value 1 if on a scale from 1, extremely liberal, to 7, extremely conservative, the political ideology fiscal issues has been reported to be strictly greater than 4, and take value 0 otherwise. *Republican* takes value 1 if favorite party reported is Republican party, 0 otherwise. *Other's opinion* is a seven-point scale from -3, care very little, to 3, very much. *Government to Decrease Income Inequality* and *Government to Spend Less on Unemployment* take value 1 if on a scale from 1, strongly disagree, to 5, strongly agree, the responder has indicated that they somewhat agree or strongly agree these statements as duties of the government and zero otherwise. *Easy Experiment* is a seven point scale which indicates how easy or demanding/stressful a responder thought the experiment was from -3, demanding/stressful to 3, easy. *Believes they invested more* is a seven point scale which indicates how certain the responder is they were the one in their pairing that invested the most from -3, certain it was the other participant, to 3 certain it was them. *Socially Concerned* is a seven-point scale which indicates whether the responder considers themselves more opportunistic or more socially concerned from -3, very opportunistic, to 3 very socially concerned. *High Shame Avoidance* is a seven-point scale which indicates whether the responder cares more about receiving praise or about avoiding shame from -3, receiving praise, to 3, avoiding shame

columns) and confirms many of the above findings (see Table 5 for summary statistics of the variables used). The table presents the estimates for each of the three conditions in the columns *Info*, *No Info*, and *Greed*, as well as the aggregated results across all conditions in the *All Obs* column.⁹

The variables *No Info* and *Greed* in the *All Obs* columns provide comparisons for the effects of different conditions on the choice to donate to charity or to share equally (compared to *Info* condition). For the choice to donate to charity the estimated effect of *No Info*, compared to *Info*, is positive and marginally significant at the 10% level, suggesting that non-distributors lacking information about the options available to the distributor positively affects the overall propensity to donate. This again supports our rejection of H1. On the other hand, when the condition includes the option to be greedy, we see no significant difference between *Greed* and *Info*. For the choice to share equally, the coefficients of both *No Info* and *Greed* are negative and statistically significant at at least 5%. The coefficient of *Greed* is larger in magnitude than the one of *No Info* and the two coefficients are statistically different from each other ($p - value = 0.0000$); this finding is consistent with our H2 whereby distributors tend to share equally less under *Greed* than under *No Info*. Moreover, the estimates of the variable *Investment in Phase 1* show that having invested a large or a small amount in the investment phase does not significantly impact the likelihood of choosing to donate to charity or to share equally in any of the conditions or overall.

Overall, the variable *Fiscally Conservative* is positively and significantly associated with the likelihood of donating and negatively associated with sharing equally. In *No Info*, however, the effect is not significant. Furthermore, self-identifying as *Republican* is negatively and significantly related to the willingness to donate (except for *Greed*, where the effect is negative but not significant). The overall effect in the likelihood to share equally is significant and negative. Interestingly, therefore, self-identifying as Republican and fiscal conservatism, which one would expect to be positively correlated, have opposite effects on the likelihood to donate or to share equally.

Other factors such as gender, higher education, and income level do not exhibit statistically significant effects in most conditions, nor do so opinions on the role of the government in decreasing inequality. This absence of strong demographic predictors in our data could indicate that the inclination to engage in charitable giving is more influenced by personal preferences than demographic factors.

Subjective social concerns, such as *Socially Concerned* and *Others' Opinion*, are of note. The former shows a significant positive effect in donating to charity at the 5% level when combining all conditions: individuals who are more socially conscious generally engage more in charitable giving. Thus, a heightened sense of social responsibility can enhance empathy and motivate altruistic behaviour.

In contrast, *Others' Opinion* is significant at the 5% level only in *No Info*, indicating that concerns about others' opinions affect charitable donations more when there is a lack of information about the decision context. This seemingly counter-intuitive result is in line with evidence that one is less willing to donate to charity if there is a risk that it may be viewed as tax avoidance (due to imperfect information).

Ultimately, the probit regression analysis reveals a complex interplay of various factors in the decision to engage in charitable giving. Ideological leanings, such as fiscal conservatism and Republican affiliation, personal beliefs, and social concerns are significant predictors, although their influence varies across different information conditions. This underscores the multifaceted motivation for engaging in charitable behaviour, which is driven by an amalgamation of personal,

⁹ The *Info* and *No Info* cases for share equally are redundant and therefore skipped.

socio-political, and contextual factors. Such insights may be crucial for effective fundraising and encouraging altruism.

4 Conclusions

There is no doubt about the ubiquity and importance of charity in the modern world. However, while charities generally bring about positive social effects, the motives for (not) donating to charity are personal and can be highly individualistic. Choosing to donate can be a selfless act, born out of a willingness to help out, or a self-serving one, if the one who donates is after the reputation boost that comes from being recognized as someone willing to help others. However, the common knowledge of the possibility that donations can be self-serving could make individuals who are concerned about one's reputation choose not to donate. If, for example, a politician or public servant, having the best intentions and willingness to help a charitable cause, knows that their tax statement would show a tax deduction due to their charitable behaviour, they might decide not to donate at all for fear of being seen as self-serving.

In this paper, we experimentally test whether the fear of appearing greedy can make individuals avoid choosing a socially desirable charity donation. In regards to the information structure, the decision of participants to donate to charity follows two possible channels that can lead a participant to not donate: a) wanting to maximize own earnings and b) not wanting to appear greedy. Both channels are present in *No Info* but only the fear of appearing greedy is present in *Info*; nevertheless, we find no significant difference in charitable donations between the two conditions (if anything, participants in *Info* opt to donate to charity slightly more frequently). Overall, we find that the share of individuals who donated to charity is not significantly different across conditions, even when a new option is added.

Further, we find that if given the option to keep more of the pie for oneself without the other participant fully finding out, around half of the participants do not take this option. In the *Greed* condition, the non-distributors do not become informed of the options available to the distributors; still, a quarter of all distributors split the pie equally, and another quarter donate to charity. The participants who do opt to keep most of the pie for themselves do not seem to be affected by how they would be perceived when making these decisions, even though we do find (post-experimentally) that receiving a small part of a large pie would be considered unfair.

In our setup we did not include a full information condition in which the greedy option is available (*Info and Greed*). Such a condition could potentially identify whether the distributors' behaviour in the *Greed* condition is driven primarily by the presence of the greedy option or by the lack of transparency. However, this additional condition would have been similar to prior studies showing that when the self-serving option exists, self-serving behaviour decreases under transparency (Dana et al., 2007; Mitzkewitz & Nagel, 1993). Our study, instead, focuses on the novel interaction between hidden motives and charitable efficiency, which is underexplored in the literature. The three-condition set-up was chosen to address our primary research questions efficiently, without introducing additional complexity that might obscure our findings.

It is important to note that we purposefully designed our experiment to test the weakest form of image concerns: participants only play one round and the experiment is online with a broad subject pool and fully anonymized, i.e., we do not allow for very salient or dynamic reputation effects. Future research could run repeated interactions between participants, thereby making image concerns and reputation effects more salient. Moreover, whereas (non-)transparency is exogenously imposed, in future research one might let it be endogenously decided by the distributor, the non-distributor, or unanimously by both.

Another point of interest for future research would be to understand the importance of respecting the autonomy of the other participant in the decision-making of distributors. All our conditions have a potential additional reason to not donate to charity: respecting the autonomy of the non-distributor. The non-distributor has no say in how the pie is divided but has invested part of their own endowment to increase the probability of a large pie. It is thereby possible that this is an additional reason for some participants to not donate to charity; they don't want to donate "other people's money" away. If this effect is present, it is present in all three conditions, thereby it should not affect our between-condition results, though future research could find this an interesting avenue to pursue.

Appendix

See Table 5.

Table 5 Demographic and ideology statistics

	Mean	St. dev	Min	Max
<i>Overall</i>				
Age	37.9	10.49	19	72
Female	0.408	0.492	0	1
Minority	0.182	0.386	0	1
Higher Education	0.770	0.421	0	1
Atheist	0.248	0.432	0	1
Above Median Income	0.274	0.446	0	1
Socially Conservative	0.554	0.498	0	1
Fiscally Conservative	0.53	0.500	0	1
Republican	0.202	0.402	0	1
<i>Info</i>				
Age	39.1	11.24	21	72
Female	0.402	0.492	0	1
Minority	0.195	0.398	0	1
Higher Education	0.781	0.415	0	1
Atheist	0.272	0.446	0	1
Above Median Income	0.308	0.463	0	1
Socially Conservative	0.562	0.498	0	1
Fiscally Conservative	0.568	0.497	0	1
Republican	0.213	0.411	0	1
<i>No Info</i>				
Age	37.0	9.91	21	70
Female	0.4	0.491	0	1
Minority	0.176	0.382	0	1
Higher Education	0.739	0.440	0	1
Atheist	0.248	0.433	0	1
Above Median Income	0.279	0.450	0	1
Socially Conservative	0.558	0.498	0	1
Fiscally Conservative	0.515	0.501	0	1

Table 5 (continued)

	Mean	St. dev	Min	Max
Republican	0.218	0.414	0	1
<i>Greed</i>				
Age	37.51	10.20	19	67
Female	0.422	0.495	0	1
Minority	0.175	0.381	0	1
Higher Education	0.789	0.409	0	1
Atheist	0.223	0.417	0	1
Above Median Income	0.235	0.425	0	1
Socially Conservative	0.542	0.500	0	1
Fiscally Conservative	0.506	0.501	0	1
Republican	0.175	0.381	0	1

Number of total observations is equal to 500, distributed across the three conditions as follows: 169, 165, and 166. Female takes value 1 for Female and 0 otherwise. Minority takes value 0 if race is declared as White (non-Hispanic), 1 otherwise. Higher Education equals 1 if at least a college or university degree has been achieved, 0 otherwise. Atheist takes value 1 if in terms of religion atheist or agnostic is reported, 0 otherwise. Above median income takes value 1 if household income reported is above \$70,000, 0 otherwise. Socially Conservative and Fiscally Conservative take value 1 if on a scale from 1, extremely liberal, to 7, extremely conservative, the political ideology on social or fiscal issues has been reported to be strictly greater than 4, and take value 0 otherwise. Republican takes value 1 if favorite party reported is Republican party, 0 otherwise

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Declarations

Conflict of interest The authors declare that there are no conflicts of interest regarding the publication of this paper. No financial, personal, or professional relationships have influenced the research, findings, or conclusions presented in this manuscript.

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