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# Honestly, why are you donating money to charity? An experimental study about self-awareness in status-seeking behavior

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**Abstract** This study investigates experimentally whether people in retrospective are self-aware that they engage in status-seeking behavior. Subjects participated in a real-effort task where effort translated into a donation to a charity. Within-subjects we varied the visibility of their performance (private/public feedback). On average, subjects exerted more effort in the public treatment. After the real-effort task, subjects were asked to state their retrospective beliefs about their performance in public given feedback about their performance in private, and about the performance of other subjects in public given the average performance in private. Between-subjects, we varied the compensation that participants would receive for providing accurate performance estimates. Our results show a lack of self-awareness about status-seeking behavior that is robust to increased belief compensation. We also found that subjects expected others to be as status-seeking as they are themselves or even less.

**Keywords** Social status · Self-image · Self-awareness · Self-deception · Experiment · Beliefs

**JEL Classification** A13 · D12

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## 1 Introduction

Status-seeking is a prevalent behavior in everyday life.[1] Yet, it rarely happens that someone proudly claims having bought something in order to signal his or her status, or having donated to charity for this very reason. Presumably, striving for status or positional goods (not only houses, cars, and mobile phones but also education and fame) in order to impress friends is in fact less impressive.[2] Of course, it is fairly easy to hide one's true motives to others. The social reputation of explicitly seeking status can be manipulated, but what about concerns for the self-image? Do people have a tendency to believe that every action taken for status is actually pursued for other, nobler reasons? Take a musician, for instance, who might be more driven by the desire to earn a lot of money than by artistic ambitions. Nevertheless, he or she may be eager to convince others as well as the self that the nobler motivation dominates the chosen track of career. In similar fashion, a donor might tend to give more when the donation is visible but unaware about this particular behavior. Consequently, while high-status individuals gain favorable treatment (see, e.g., Ball et al. 2001) status-seeking behavior could be perceived as a negative character trait and people may have a tendency to downplay its role in their decision making.

This is what Johansson-Stenman and Martinsson (2006) find in a transportation-related survey. People who are asked which attributes in a car are most important to them stated environmental performance near the top and social status near the bottom. However, when asked about their expectations about the preferences of their neighbors or average compatriots, they give reversed rankings. There are at least two explanations to these observations. One is that people underestimate their own status-seeking behavior, while correctly assessing others' propensity to engage in status-seeking behavior. The other is that people overestimate others' status-seeking behavior, while correctly assessing own behavior. Our study picks up this open question and aims to test the relative merit of these explanations. We experimentally investigate (i) whether people engage in social status- seeking behavior, (ii) whether or not people are aware of their status-seeking behavior, and (iii) to what extent they expect others to behave in a status-seeking way.[3] For this purpose we conduct a

[1] There is ample empirical evidence from field and experimental studies that people engage in status-seeking behavior (see, for instance, Glazer and Konrad 1996; Ball and Eckel 1996, 1998; Ariely et al. 2009; Lacetera and Macis 2010). See Frank (1985a, b, 1999), Ireland (1994), Bagwell and Bernheim (1996), Hollander (2001), and Brekke and Howarth (2002) for theoretical studies of the relationship between consumption and status. See Weiss and Fershtman (1998) or Heffetz and Frank (2008) for overviews of the literature.

[2] Han et al. (2010) showed that wealthy consumers with low need for status prefer "quiet" goods recognized only by their own kind, while less wealthy that cannot afford these goods opt for the "louder" products. This could reflect people's desire to signal good taste without signaling the desire to gain higher status.

[3] While this study's focus is on how visibility changes donation behavior and how it relates to self-awareness issues, we do not address the question of why people engage in social status-seeking behavior. Note that social status concerns are not the only possible explanation for increased pro-social activities in a public setting. Such behavior is also predicted by social image models (see, for instance, Akerlof, 1980; Glazer and Konrad 1996; Bénabou and Tirole 2006; Ellingsen and Johannesson 2008; and Andreoni and Bernheim 2009). Such models consider as well the desirability and visibility, but they do not take positional concerns into account. An alternative, biology-based explanation for increased pro-social activity in a public environment is the competitive altruism hypothesis (Zahavi 1975). It proposes that the social status gains

real-effort experiment where subjects' performance translates into donations to a charity.[4]

Our experimental setup is designed to analyze subjects' behavior in two subsequent rounds that differ in the visibility of subjects' performance (*private/public feedback within subjects*). We also vary the incentivization of the belief elicitation scheme (*low/high monetary reward for accurate guesses of performance in the public setting between subjects*). Insights from social psychology and economics on cognitive dissonance and self-image concerns (see Festinger 1957; Konow 2000; Bénabou and Tirole 2011) guide our predictions for behavior in this situation. While performing well in comparison to others may be attractive as it provides high status, such status-seeking behavior may not necessarily coincide with one's behavioral standard or self-image. Cognitive dissonance would result as a consequence of actual behavior deviating from one's standard of behavior. One way such cognitive dissonance can be resolved/reduced is by forming beliefs about relevant aspects in a self-serving manner. In the context of a dictator game experiment, for instance, the dictator can nurture self-serving beliefs about what is fair. Based on the literature on self-image and self-deception (see Konow 2005, for an overview) we expect people, on average, to systematically underestimate their own propensity to engage in status-seeking behavior. While they benefit from higher status (in expectations, that is, they expect to gain status) by increasing effort, they do not suffer from a conflict between action and self-image if self-deception takes place. Note that while holding such a self-deceiving belief is a motivated act the individual is actually not aware of it (Gur and Sackeim 1979). Following Johansson-Stenman and Martinsson (2006) we also expect subjects to believe that their own concern for status is minor in comparison to the believed status concerns of others. As a secondary element of our experimental design we vary subjects' monetary reward for accurate estimates of performance in the public setting. While a negligibly low compensation for accuracy of beliefs can be seen as the relevant level of real life status-seeking behavior, our high belief compensation condition introduces a higher cost for deceiving one self. This allows us to test, whether self-deception prevails (in order to maintain a positive self-image) even at a higher cost, or whether subjects are less prone to deceive themselves due to the monetary incentives. Hence, we expect subjects to have a higher self-awareness of their status-seeking behavior when acknowledging it pays off.

Our results confirm status-seeking behavior—previously established in various between-subjects studies—in a within-subjects design: subjects' average performance

Footnote 3 contunued
from pro-social activity may serve as a positive signal in the context of mate selection (in order to signal an individual's quality, e.g., ability to share resources and/or good character, e.g., willingness to share resources, Smith and Bird 2000). Another potential candidate is indirect reciprocity (Nowak and Sigmund 1998) which is, however, limited to helping behavior as the return. Generally, the focus of our study is on the self-awareness with respect to the status-seeking behavior, while we treat the underlying motivation for status-seeking as a black box.

[4] Note that social status in this setting may come from the act of charitable giving as well as from the real-effort task itself (if a subject perceives the task as status-awarding). Since we are interested in status-seeking behavior, in general, it is not crucial for us to identify the precise driver of status-seeking behavior. In our experiment, we essentially regard the donations generated via the real-effort task as a proxy for an activity that conveys social status (if performance feedback is public).

is significantly higher in the public than in the private feedback round. When asked about their performance in the public round (given feedback about private round performance), subjects tend to underestimate their performance. This belief-behavior gap indicates a lack of self-awareness about status-seeking behavior which could point to self-image concerns (specifically self-deception) as a motivation for subjects' behavior. High compensation for accurate beliefs about own behavior does not decrease the belief-behavior gap at a statistically significant level. Finally, in contrast to Johansson-Stenman and Martinsson (2006), we found that subjects expected others to be as status-seeking as they are themselves (when compensation for accurate estimations was high they even expected others to be less status-seeking than themselves).

The structure of the paper is as follows. In the next section we discuss the relevant theoretical literature and present our hypotheses. In Sect. 3 we describe the experimental design. Results are presented and discussed in Sect. 4. Section 5 concludes.

## 2 Related literature and hypotheses

Heffetz and Frank (2008) define social status as being characterized by three features: positionality, desirability, and non-tradability. Status is achieved via favorable comparison to others in a socially recognized category, hence it is positional. Social status is also desirable, because high social status brings along some reward. Finally, social status is non-tradable in the sense that it cannot be directly purchased. Instead, it must be gained personally and, therefore, it must be obtained through actions that are socially visible (or the outcome of those actions). Hence, for a pro-social activity social status concerns imply that people will strive to appear more generous, that is, try to perform better, if the activity is visible to relevant others, if it is perceived as good for one's status (yielding a positive social image, respectively), and if a ranking of the activity exists.

People's desire for status has been well documented. For instance, Glazer and Konrad (1996) report that only very few (less than 1 %) donations to U.S. universities are anonymous. Lampel and Bhalla (2007) suggest that status seeking is a substantial motivation for participation in virtual communities. Alpizar et al. (2008) study donations to a national park in Costa Rica and find that donations are 25 % higher when made in front of a solicitor than contributions made in private. Ariely et al. (2009) found that effort in a donation-generating task is higher when performance is publicly visible. Lacetera and Macis (2010) found that blood donors significantly increase the frequency of their donations when they approach the thresholds for which public awards (announcement in the local newspaper and public award ceremony) are given. In contrast, they do not find such effects for private awards.

In a series of experiments, Ball and Eckel (1996, 1998) and Ball et al. (2001) show that in experimental markets the higher status individuals capture a greater share of the surplus than the lower status side even when the status assignment is obviously random and meaningless. On average prices are higher when higher status sellers face lower status buyers and prices are lower if the roles are reversed. Their results explain status-seeking behavior as higher status individuals are shown to have greater access to resources and suggest that it might even be reasonable to invest to acquire higher status.

**Hypothesis 1** On average increased visibility, ceteris paribus increases the level of activity that is considered as pro-social.

A good public performance in relation to others will be beneficial due to the high status it provides. However, the perception of status-seeking behavior may not be entirely positive. Doing something just for the status gain may well be regarded as a negative character trait. Hence, while status-seeking may be good for one's social image, such behavior may stand at odds with one's self-image. Such divergence of actual behavior (status-seeking) and the self-image ("I am not someone doing something to gain status") would lead to the unpleasant feeling of cognitive dissonance (see Festinger 1957).[5] If this cost of having two inconsistent psychological cognitions is smaller than the potential benefit of gaining a higher status, people may deliberately decide to deviate from the self-image (coined *self-centered bias* by Konow 2005). Alternatively, their beliefs about their behavior could become biased (*self-serving bias*), thus resolving/reducing the cognitive dissonance. Hence, people may downplay their engagement in status-seeking, thus deceiving themselves in a motivated act yet not actually aware of it.[6] Their behavior leads to a gain in status (at least in expectations), and they do not experience a conflict between action and self-image due to self-deception. While some people may openly admit their status-seeking to themselves, we also expect self-deception in status-seeking behavior in order to maintain an untarnished self-image.

**Hypothesis 2** *People's expectations about the change* in the level of their pro-social activity when visibility is increased are less than the *real change (i.e., a* belief-behavior gap prevails).

However, there may be a trade-off between self-deception (in order to maintain a positive self-image) and monetary incentives. Status-seekers may become more self-aware about their propensity to engage in status-seeking behavior, if there is a substantial reward for acknowledging the increased level of pro-social activity.

[5] The modern theory of cognitive dissonance (Aronson 1992; Beauvois and Joule 1996) relates best to our study. It argues that dissonance primarily revolves around the self and a piece of behavior that violates that self-concept. See Harmon-Jones and Mills (1999) for a review of the current state of dissonance theory. The basic concept of cognitive dissonance is picked up in economics by models of self-image concerns, see Konow (2000), Johansson-Stenman and Martinsson (2006), Bénabou and Tirole (2011), and Matthey and Regner (2011). Other applications of cognitive dissonance to decision making in economics include Akerlof and Dickens (1982), Rabin (1994), and Oxoby (2003, 2004).

[6] Sartre (1958) formulated the paradox of self-deception: "The one to whom the lie is told and the one who lies are one and the same person, which means that I must know in my capacity as deceiver the truth which is hidden from me in my capacity as the one deceived." Gur and Sackeim (1979) proposed the following criteria as necessary and sufficient for ascribing self-deception: (1) The individual simultaneously holds two contradictory beliefs. (2) The individual is only aware of holding one of the beliefs. (3) The act that determines which belief is subject to awareness is a motivated act. Recent studies in neuroscience provide a physiological basis for self-deception. Since most brain areas are only linked unidirectionally to others, the flow of information in the brain is constrained. This can result in reduced awareness of motivation for decisions (Brocas and Carrillo 2008). Notably, a lack of self-awareness about cognition is central to the understanding of self-deception. However, self-deception is stronger since in the context of status-seeking behavior it might be other attributes such as lack of introspection that also lead to unawareness of status-seeking behavior.

**Hypothesis 3** The belief-behavior gap (underestimating one's level of pro-social activity in public), on average, decreases, when monetary incentives for accurate estimates are increased.

Empirical evidence from surveys (see, for instance, Johansson-Stenman and Martinsson 2006 and Grolleau et al. 2012) suggests that a lack of self-awareness in status-seeking behavior may extend to the perception of others. Hence, people may tend to believe others to be more concerned about status than they are themselves.

**Hypothesis 4** People, on average, overestimate others' level of pro-social activity to a larger extent then they underestimate their own level of pro-social activity in public.

## 3 Experiment

### 3.1 Design

Subjects participated in a computerized real-effort task (a modified version of the counting zeros in a table task used in Abeler et al. 2011, see the instructions for a screenshot and further explanation). Their performance in the task was transferred into a monetary donation to a charity.[7] We employed a combined within-subjects and between-subjects $2 \times 2$ design. All subjects performed the task in two different settings (within-subjects variation of the visibility of subjects' performance). The settings were played in two subsequent rounds and we controlled for order effects. In the private setting, feedback about their performance and ranking was given only to themselves at the end of the experiment, while in the public setting everyone learned the performance of all subjects during a public ceremony at the end of the experiment. The paper instructions handed out in the beginning described the first setting, while instructions for the second setting were given on screen after the first setting finished. After the two settings subjects were told their respective performance in the private setting and subsequently they were asked to estimate their own performance in the public setting. They were also asked to estimate the group's average performance in the public setting (after they were told average performance in the private setting). Subjects were randomly assigned to one of two conditions that varied the reward for good guesses (between-subjects variation of the extent the belief elicitation is incentivized). The experimental design is summarized in Table 1. Note that the order of play (private–public and public–private) was varied between subjects and that subjects were informed of the treatment change only after finishing the first setting. The fact that they can earn money with beliefs was announced after the second setting. In addition, we conducted a private–private and a public–public control sessions that allow us to

[7] For our purpose, the generation of donations via a real-effort task is preferable to a design that uses just one identifiable source of status-seeking behavior. When subjects can give directly to charity, the donation choices are highly transparent and estimating is rather pointless. When status should be conveyed merely by ability/performance in a real-effort task (without donations generated), heterogeneity in subjects' status perception of the task is probably rather high and, in turn, it might be difficult to analyze status-seeking behavior. Our design features a straightforward pro-social signal and reduces the salience of the amount donated. It does not allow us to identify the actual motivation of status-seeking which is, however, not important for our study, see also footnote 4.

**Table 1** Experimental design ($n$ = number of observations per treatment)

| Order of play (between-subject variation) | Belief compensation scheme (between-subject variation) | |
|---|---|---|
| | Low | High |
| Private–public | $n = 28$ | $n = 32$ |
| Public–private | $n = 32$ | $n = 31$ |
| Private–private | $n = 30$ | – |
| Public–public | $n = 32$ | – |
| | $N = 185$ | |

better control for potential learning effects. Since visibility in these sessions is not varied from round 1 to 2, status-seeking as an explanation for performance differences can be ruled out. In these sessions, feedback was given about the first round and beliefs were elicited about relative second round performance. Another seemingly natural control treatment would be to conduct the experiment with a non-status task in order to test whether underestimation of own performance in public is found only when the task conveys status or possibly also for a non-status task. In our design this is rather problematic to implement, though.[8]

Before receiving instructions for the experiment, subjects were asked to indicate how much they liked each of a set of five charities (Amnesty International, Greenpeace, Caritas, Doctors without Borders, and Unicef), and how well they believe these charities are perceived by the general public. Then subjects were instructed about the real-effort task (counting the amount of zeros in a $5 \times 15$ table containing only 1s and 0s; $10 \times 15$ tables were used in Abeler et al. 2011). They were informed that every correctly solved table generates a donation of 0.1 Euro to the charity Unicef. If they entered the wrong number of zeros in a table, they could try again twice. If they entered a wrong value three times, one table was deducted from their performance. At the beginning of the experiment, subjects played an eight-minute practice period to familiarize themselves with the task. Then subjects played for 15 min in the private setting which was described to them in the instructions. After a break[9] of 5 min, subjects were given instructions for the public setting and played for another 15 min. For half of the subjects, the order of the private and public setting was reversed.

After the real-effort task, subjects were informed about their own performance in the private setting and asked to estimate their performance in the public setting. The

[8] In our experimental setup the task used is not a perfect instrument to vary subjects' inclination to seek and gain status. When donations are generated via a real-effort task (our actual implementation) one can be rather sure that a performance difference between private and public context can be attributed to status-seeking. Running the experiment with the real-effort task alone (without donations to charity) does not eliminate status-seeking (see footnotes 4 and 8). A seemingly neutral task does not guarantee the elimination of status-seeking, either. Some subjects may still perceive the real-effort task on its own to be status-conveying which could drive them to exert more effort in a public setting. Given that this individual heterogeneity in the perception of whether a task is status-conveying or not cannot be elicited and controlled, any performance increase in a supposedly non-status task may nevertheless be due to status-seeking.

[9] No filler task was administered in the break. We simply wanted to provide subjects with an opportunity to relax from the possibly fatiguing screen activity. We decided to leave it up to them how to relax, instead of making them look at the screen again.

1. Practice period
2. Round 1 of the real effort task
3. Break
4. Round 2 of the real effort task
5. Subjects get feedback about their performance in the private setting
6. Subjects estimate their performance in the public setting
7. Subjects get feedback about average performance of all other subjects in the private setting
8. Subjects estimate the average performance of all other subjects in the public setting
9. Announcement of subjects' performance

**Fig. 1** Timeline of the experiment

compensation scheme of the task was varied by randomly assigning subjects to either make guesses with low or high incentives. In the high incentives treatment subjects earned 3 Euros if their estimate was exactly right. They also earned something if the estimate was a bit off target, but they were punished the more they deviated from the actual amount. They earned 2 Euros if the absolute distance between their estimate and the true number of correct tables was 1, and 1 Euro if it was 2. In the low incentives treatment, subjects earned 0.3 Euros if their estimate was exactly right, 0.2 Euros if the absolute distance was 1, and 0.1 Euros if it was 2. Then, subjects were informed about the average performance of all subjects in the private setting and subsequently they were asked to estimate the average performance of all subjects in the public setting. The accuracy of their guesses rounded to nearest integers was again rewarded in line with the compensation scheme described above.

As announced in the instructions at the end of the experiment subjects were given feedback about their performance in the private as well as in the public setting. For the private setting they got feedback about their total performance and their relative ranking, that is, how well each subject's performance did compare to the others'. However, it was stressed that the information will be disclosed privately to each subject. For the public setting, subjects knew that they will all stand up at the end of the experiment, and that each subject will read his/her total performance and his/her ranking while standing, and then sit down. This ceremony started with the top ranked (the one achieving most donations) and finished with the last ranked.[10] All details of the procedure were common knowledge. In the private–private session, no ceremony was conducted. In the public–public session, the order in the ceremony was based on overall performance (rank and performance in the single rounds were also announced). In Fig. 1, a timeline of the experiment is shown.

[10] Zizzo (2010) notes that a public ceremony meant to award social status can also produce social pressure. In our ceremony the top ranked was seen by everybody. Since subjects were told to sit down in their cubicle after their turn, the lower a subject was ranked the fewer other subjects could see him/her due to the sight limitations when sitting in a cubicle. We chose this procedure in order to reduce social pressure (from being one of the worst) effects.

### 3.2 Participants and procedures

The experiment took place at the laboratory of the Max Planck Institute of Economics in Jena, Germany. 185 participants were recruited among students from various disciplines at the University of Jena using the ORSEE software (Greiner 2003). In each of the 6 sessions gender composition was approximately balanced and subjects took part only in one session of this experiment. The experiment was programmed and conducted with the software z-Tree (Fischbacher 2007) and took, on average, 90 min. In the experiment participants earned on average 6.68 Euros (including a show-up fee of 2.50 Euros) for themselves and generated on average 7.20 Euros for the charity.

At their arrival at the laboratory subjects were randomly assigned to one of the computer terminals. Each computer terminal is in a cubicle that does not allow communication or visual interaction between the participants. Participants were asked to read the instructions carefully and there was enough time to privately ask for clarifications about the instructions. Subjects had to answer several control questions before the experiment started in order to make sure that they understood the instructions properly. They were informed that there will be a second experiment during this session, and that it is unrelated to the first experiment. At the end of the session subjects, received their payoff in cash from both experiments. Privacy was guaranteed during the payment phase.

Donations were made online directly after the payment to subjects. In order to make donations credible, we asked in each session 2 participants to monitor the transaction after the experiment. This was announced in the instructions.

## 4 Results

The results are organized in subsections. First, we present a general overview of behavior in the real-effort task for the sample of 185 participants. This is followed by descriptive and econometric analysis of self-awareness. Finally, in the last subsection we investigate how expectations of own status-seeking behavior are related to expectations about others' behavior.

### 4.1 Descriptive analysis

Table 2 displays summary statistics of exerted effort in the four treatments and the two rounds. Figure 2 presents histograms of the exerted effort (measured as correctly solved tables minus error correction) by treatment and round.

In the private–public treatment we observe that subjects performed better in the second round which is public. On the other hand, if we look at the remaining treatments we observe that the performance is always higher in the second round. The difference between the rounds is statistically significant at the ten percent significance level using either the two-sided paired $t$ test or the Wilcoxon rank-sum test. Notably, the increase in the private–public treatment between the rounds is not statistically different compared to the increase in the private–private treatment for any conventional significance level. Therefore, it is not appropriate to conclude that on average we observe a status-seeking

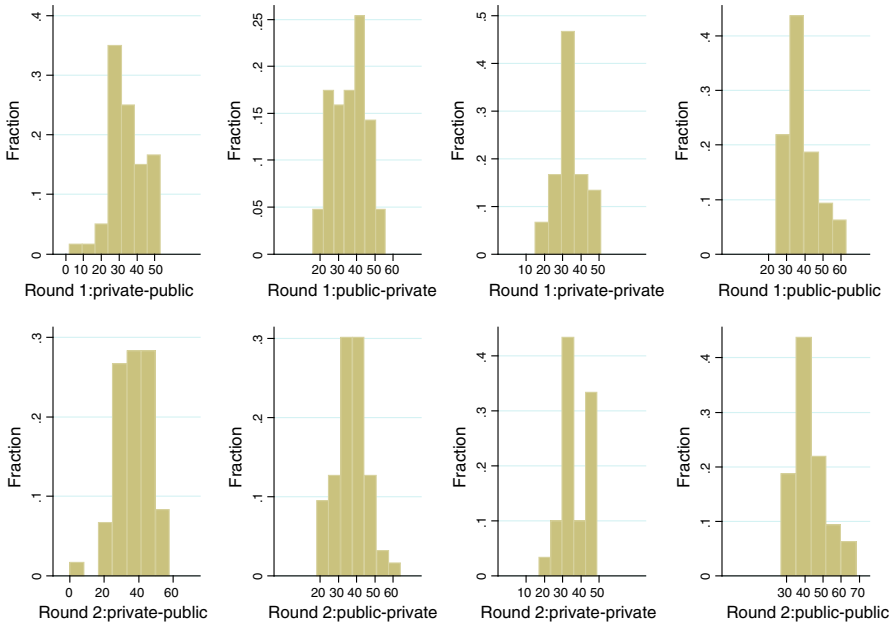



**Fig. 2** Histogram of the average effort (correctly solved tables minus error correction), The panels on the top show the first round effort in the treatments private–public, public–private, private–private, and public–public, respectively. The panels below have the same structure but show the second round efforts

**Table 2** Average effort (correctly solved tables minus error correction) in each round (standard error in parentheses)

| Round | Treatments | | | |
|---|---|---|---|---|
| | Private–public | Private–private | Public–private | Public–public |
| 1 | 34.10 | 33.90 | 35.98 | 38.97 |
| | (1.24) | (1.52) | (1.11) | (1.68) |
| 2 | 37.53 | 36.57 | 37.00 | 42.22 |
| | (1.31) | (1.37) | (1.07) | (1.75) |
| Nr. Obs. | $n = 60$ | $n = 30$ | $n = 63$ | $n = 32$ |

behavior by observing these two treatments only since the increase in the second round in the private–public treatment could, for example, be due to learning effects.

Hence, we turn to a regression analysis in order to test for the status-seeking effect and to control for the apparent learning effects from round 1 to round 2. We estimate random-effect panel regressions (standard errors are clustered at the subject level): $e_{it} = \alpha + \beta c + \vartheta_i + \epsilon_{it}$. The effort of a subject $i$ is $e$, period is $t$, a vector of explanatory and control variables is represented by $c$, the subject-specific error term is $\vartheta_i$, and the residual is $\epsilon_{it}$. In Table 3, *model I* presents results from a baseline specification, *model II* adds the belief about the public perception of the charity used[11] and gender as control variables.

[11] Based on a pre-test, students believe that Unicef is well perceived by the general public. Replies of actual subjects in our experiment confirmed this result.

**Table 3** Panel regression on effort (all treatments, two observations per subject)

| Independent variables | Dependent variable: Model I | | Effort in a period Model II | |
|---|---|---|---|---|
| | Coefficient | SE | Coefficient | SE |
| Public (=1 if period is public) | 1.55** | 0.736 | 1.56** | .736 |
| Period (=1 if period is 2) | 2.28*** | 0.85 | 2.28*** | .856 |
| Public * Period | −.395 | 1.28 | −.386 | 1.29 |
| Belief about the public perception of Unicef | | | .292 | .49 |
| Gender (=1 if subject is female) | | | 1.34 | 1.35 |
| Constant | 32.68*** | 1.48 | 31.13*** | 2.42 |
| No. of obs. | 370 | | 370 | |
| $R2$ | 0.26 | | 0.26 | |

We also interacted the variable Public with gender, but it resulted in insignificant main as well as interaction effects

*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided $t$ test

Regression results confirm an increase of effort from period 1 to 2, and in addition a significant effect on effort when the period is public. The belief about the public perception of the charity does not seem to affect effort. The coefficient for gender is positive but not significantly different from zero. Overall, the results in this section give some evidence of status-seeking behavior but note that the status-seeking behavior is far from prominent in our experiment.

## 4.2 Self-awareness

We will now continue to analyze self-awareness of the subjects considering their performance in the public round. The main variable of interest is called *belief 1* and is defined as the difference between the subjects' belief about their performance in the public round and retrieved feedback about their performance in the private round. A positive sign implies that the subjects on average believe that they performed better in the public round while a negative sign has the opposite interpretation. To avoid potential confounds in the beliefs about learning (i.e., belief that second round performance is highest) or fatigue effects (i.e., belief that first round performance is highest) we will base the analysis on the aggregate level where data from the private–public and the public–private treatments are pooled.

**Result 1** *Subjects, on average, underestimated their effort in the public round.*

Support for this result comes from Table 4. The positive sign of the belief 1 variable in Table 4 indicates that subjects, on average, expect to exert more effort in the public round. However, the two-sided, one-sample t test and the Wilcoxon signed-rank test

**Table 4** Belief about performance in public round compared to performance in the private round (standard error in parentheses)

| Treatment | Average belief 1 | *t* test *p* value | Wilcoxon test *p* value | Nr. Obs.[a] |
|---|---|---|---|---|
| Low Inc. | 0.68 (0.69) | 0.331 | 0.252 | $n = 59$ |
| High Inc. | 1.05 (0.57) | 0.071 | 0.099 | $n = 62$ |

[a] Observations are from private–public and public–private treatments. Two subjects apparently misunderstood the beliefs estimations as they entered values for both rounds together. We excluded them from the analysis of the beliefs data

**Table 5** Regression models on belief 1 (private–public and public–private treatments)

| Independent variables | Model I[a] | | Model II | |
|---|---|---|---|---|
| | Dependent variable: belief 1 | SE | Dependent variable: belief 1 | SE |
| Dummy variables | | | | |
| High incentives (=1 if assigned to the high incentives treatment) | 0.875 | 0.831 | 1.740 | 1.267 |
| Public first (=1 if assigned to the public–private treatment) | 4.456*** | 0.940 | 5.608*** | 1.393 |
| Women (=1 if woman) | 1.820*** | 0.102 | 2.829** | 1.299 |
| Constant | −3.239*** | 0.102 | −3.531** | 0.208 |
| Continuous variable | | | | |
| Public effort–Private effort | 0.262** | 0.157 | 0.093 | 1.774 |
| $R2$ | 0.18 | | 0.25 | |
| Number of observations | 121 | | 64 | |

Belief 1 = expected increase/decrease in effort in public
*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided *t*test
[a] The continuous variable Public effort–Private effort was also interacted with the three dummy variables in a separate model but it resulted in insignificant main as well as interaction effects

shows that belief 1 variable is not significantly different from zero unless the subjects were assigned to the treatment that paid high incentives to form correct beliefs.[12]

Further evidence is presented by the regression model in Table 5 which contains data from private–public and public–private treatments: $b = \alpha + \beta c + \epsilon$. The expected difference in effort between public and private is $b$, a vector of explanatory and control variables is represented by $c$ and the residual is $\epsilon$. The main independent variable in Table 5 is *Public effort–Private effort* and the size of the coefficient (0.262) in model I shows that if the subjects will extract 4 more units of effort in the public round they will underestimate and believe that they only extracted 1 more unit in the public. Any deviations from a coefficient value of one can actually be identified as a belief-behavior gap, where a value less than one indicates that the subjects underestimate their effort in the public round, while a value greater than one indicates the opposite. Our results

[12] On the other hand, the subjects did on average increase their effort by only 1.18 tables in the public round which is not statistically different from the average belief in the low or high incentives treatment.

imply that the more effort the subjects would exert in the public round compared to the private round, a behavior consistent with status-seeking, the more biased would they be in absolute terms of underestimating how much they actually increased their effort in public. The regression also shows that the subjects assigned to the public–private treatment expect more effort in public compared to subjects assigned to the private–public treatment. The coefficient for the high incentives condition for the belief compensation is positive, but not statistically different from zero. Furthermore, women expect themselves to behave more status-seeking than males, although the marginal impact of increased effort on the belief-behavior gap is the same for males as well as females. That women are more self-aware has been found before in previous research. For example, London and Wohlers (1991) found women's self- perception to be more in line with how others see them compared to men's self-perception, and related their findings to self-awareness. Woodzicka (2008) found that women were more self-aware of having used false smiles during a job interview to mask negative emotions and appear enthusiastic.

While model 1 identifies a belief-behavior gap, the lack of self-awareness cannot be attributed solely to subjects that increased their effort in the public round compared to the private round. Model II controls for this by only including data from the subsample of subjects that increased their effort in the public round such that the main independent variable (i.e., Public effort – Private effort) is restricted to the positive domain. The main difference between the two models is that the size of the coefficient of the main independent variable is considerably lower in model 2 and that the coefficient is no longer significant. The insignificant coefficient could reflect a further lack of awareness about the subjects' status-seeking behavior. [13]

### 4.3 Robustness check

The evidence from the previous section showed the existence of a belief-behavior gap as subjects underestimate how much effort they exert in the public round when given feedback about their effort in the private round. However, the belief-behavior gap might be general in the sense that subjects are not aware of increased productivity driven by learning effects opposed to status-seeking effects, which is the interest of this paper.

In Table 6, we show results from a regression where we compare the belief-behavior gap in private–public and public–private treatments with the private–private and public–public treatments. Since there is no variation in visibility from round 1 to 2 in the latter two treatments, status-seeking as an explanation for a performance difference can be ruled out. This allows us to assess the level of self-awareness in a situation where status-seeking cannot play a role. Focusing on the significant effects, in line with Table 5 we see that subjects assigned to the public–private treatment on average expect that they exert more effort in public (regression coefficient value of

[13] We should, on the other hand, not conclude too much from the difference between model I and model II. Hence, we also estimated a model (with all observations) where individuals that increase their effort in the private round were distinguished from those that increase effort in the public round using a set of dummy variables and we found that the difference is not statistically significant.

**Table 6** Regression model to test robustness (all treatments)

| Independent variables | Dependent variable: expected increase in effort in round 2 | SE |
|---|---|---|
| Dummy variables | | |
| Public first (=1 if assigned to the public–private treatment) | 4.357*** | 0.944 |
| Private (=1 if assigned to the private–private treatment) | −1.391 | 1.207 |
| Public (=1 if assigned to the public–public treatment) | 0.254 | 1.457 |
| High incentives (=1 if assigned to the high incentives treatment) | 0.70 | 0.802 |
| Women (=1 if woman) | 0.876 | 0.667 |
| Constant | −2.570*** | 0.978 |
| Continuous variable | | |
| Effort Period 2–Effort Period 1 | 0.267* | 0.144 |
| Interactions | | |
| (Effort Period 1–Effort Period 2) *Public first | −0.006 | 0.198 |
| (Effort Period 2–Effort Period 1) *Private | 0.333* | 0.182 |
| (Effort Period 2–Effort Period 1) *Public | −0.214 | 0.305 |
| No. of obs. | 183 | |
| R2 | 0.287 | |

*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided *t* test

4.357) than subjects in the private–public treatment.[14] This is also the only significant effect among the dummy variables. In line with Table 3 we also see the belief-behavior gap where the subjects underestimate their own effort in the public round with a magnitude of three fourths. Also note that the belief-behavior gap does not differ between the private–public and public–private treatments. Interestingly, the awareness is significantly higher in the private–private treatment (regression coefficient value of 0.333) compared to private–public treatment and lower (but not statistical significant lower) in the public–public treatment (regression coefficient value of −0.214). The higher awareness in the private–private treatment compared to the private–public treatment is compelling as it shows that self-awareness is reduced by allowing for status-seeking behavior. A lower self-awareness in the public–public treatment might be explained by subjects being more stressed to perform well in the public–public treatment. This may cause them to narrow down their attention to task-relevant attributes. Such behavior would be in line with the finding in Chajut and Algom (2003) who showed that selective attention improves under stress. But again, note that self-awareness in the public–public treatment is not significantly different from the private–public treatment. In summary, the robustness analysis shows that subjects become less self-aware

[14] The intercept is negative and the dummies for the public–public and the private–private treatment are not significantly different from the intercept. This shows that in all treatments subjects expect that they contributed more in the first round.

**Table 7** Subjects' belief about other subjects performance in the public round compared to own behavior (standard error in parentheses)

| Treatment | Average belief 1 | Average belief 2 | $t$ test $p$ value | Wilcoxon test $p$ value | Nr. Obs. |
|---|---|---|---|---|---|
| Low Inc. | 0.68 (0.69) | 1.14 (0.70) | 0.404 | 0.170 | $n = 59$ |
| High Inc. | 1.05 (0.57) | 0.53 (0.50) | 0.364 | 0.559 | $n = 62$ |

about their donation behavior when status-seeking is possible which indicates that subjects are not self-aware about their status-seeking behavior.

For scrutiny, we present two additional regressions in the appendix. In one model we utilize data from private–private and private–public treatments, and in the other data from public–public and public–private treatments.

### 4.4 Expectations about others' behavior

The aim of this section is to test to what extent subjects' expect others to behave in a status-seeking way. The main variable of interest is called *belief 2* and is defined as the difference between beliefs about other subjects' performance in the public round and feedback about other subjects' performance in the private round. A positive sign implies that the subject believe that other subjects exert more effort in the public round than in the private round, while a negative sign has the opposite interpretation.

**Result 2** *On average, subjects underestimated others' effort in the public roundto the same extent as they underestimated their own effort.*

Support for this result comes from Table 7. On average the variable *belief 1* is not significantly different from *belief 2 using paired two-sided t test and the Wilcoxon signed-rank test*.

We present a regression model (see Table 8) in order to illustrate more clearly how beliefs about others' behavior are correlated with subjects' beliefs about own behavior. In Table 8 we see that the coefficient of the variable *belief 1* is 0.917 and not statistically different from the coefficient value of one. This confirms the results in Table 7 that subjects believe others to be as status-seeking as they are themselves which together with the previous result (see result 1) implies that subjects with increased effort in the public round will underestimate their own as well as others' status-seeking behavior. The regression also shows that female subjects expect more of a status-seeking behavior than males (note the marginal impact of increased own expected effort on the belief of others effort, however, is the same for males as well as females).[15] If we then look at the interactions with the variable belief 1 we see that subjects that are assigned to the treatment, public first expect other subjects in their treatment to be less status-seeking than themselves. We have no clear hypothesis of why the beliefs about others' behavior relative to own behavior differ between the private first and public

[15] We ran all the regression without the gender control and nothing substantial changed besides the interaction Public first * belief1 in Table 8 became less significant with a p-value of 0.118. The value of the coefficient is still in the same level, which indicates that the model is noisier without controlling for the significant gender effect.

**Table 8** Regression model on belief 2 (private–public and public–private treatments)

| Independent variables | Dependent variable: belief 2 | SE |
|---|---|---|
| *Main effects* | | |
| Dummy variables | | |
| Public first (=1 if assigned to the public–private treatment) | 0.129 | 0.859 |
| High incentives (=1 if assigned to the high incentives treatment) | −0.021 | 0.763 |
| Women (=1 if woman) | 1.939*** | 0.007 |
| Constant | −0.453** | 0.802 |
| Continuous variable | | |
| Expected increase in own effort in public (i.e., belief 1) | 0.917*** | 0.157 |
| Interactions | | |
| Public first * belief 1 | −0.277** | 0.145 |
| High incentives * belief 1 | 0.316** | 0.139 |
| Women * belief 1 | −0.130 | 0.145 |
| No. of obs. | 121 | |
| $R2$ | 0.439 | |

Belief 2 = expected increase/decrease in effort of others in public
*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided $t$ test

first treatments. Interestingly, the results also show that subjects in the high incentives treatment believe others to be less status-seeking compared to themselves than subjects in the low incentives treatment where subjects believe others to be as status-seeking as they are themselves. Hence, increased rewards for having correct beliefs of own behavior seem to raise the subjects' willingness to admit (to themselves) that they could to a greater extent than other subjects' increased their level of pro-social activity in the public round.

## 5 Discussion

Our study investigates whether people are self-aware of their status-seeking. To the best of our knowledge, self-awareness of status-seeking has previously only been investigated using survey data and not using a laboratory experiment. The methodological approach in surveys is to ask people about own as well as other people's preferences of different goods. Johansson-Stenman and Martinsson (2006) and Grolleau et al. (2012) find that people believe that others have a stronger demand for positional goods than they have themselves. Our experiment complements the existing survey studies as it enables us to not only compare beliefs about own status-seeking behavior to others' but also to actual behavior. Three key findings emerged. We found that (i) subjects engaged in social status-seeking behavior, (ii) subjects underestimated their status-seeking behavior, and (iii) subjects expected others to behave at least as status-seeking as they did. High compensation for accurate beliefs about own behavior does not decrease the belief-behavior gap at a statistically significant level. The lack of self-awareness appears to be rather robust to monetary incentives, which is in line

with the findings of Chance et al. (2011) about self-deception. Our results corroborate survey evidence in Johansson-Stenman and Martinsson (2006) that people have status concerns beyond their own awareness (or expressed in the words of the authors beyond "we would admit even to ourselves"). However, we find that subjects expect others to behave as status-seeking as they do if not even less which is not compatible with survey evidence that people believe others to be more status-seeking than they are themselves (see Johansson-Stenman and Martinsson 2006; Grolleau et al. 2012). Interestingly, comparing treatments with low and high reward for having correct beliefs, we found that increased rewards for having correct beliefs of own behavior seem to change the subjects' beliefs such that they believe that they, to a greater extent than other subjects, behave in a status-seeking manner. Since respondents in surveys are not rewarded for accurate beliefs, it could actually at least partly explain the findings in surveys that people believe others to be more status-seeking than they are themselves.

Another relevant difference is that the experimental setting induces introspection and therefore could lead to increased self-awareness. While in real life one is rarely asked to reflect about own behavior or rewarded for accurate beliefs about behavior, our laboratory context provides good conditions for being self-aware. Nevertheless, we found a belief-behavior gap and that subjects underestimated own status-seeking behavior. These results indicate that self-deception is a way to justify status-seeking behavior if it is beyond the level that is compatible with one's self-image.

What do our results mean in the context of our motivating example? When fund-raisers campaign for donations, is it important to strike a balance between salience and subtlety of charitable giving? While status-seeking motives make donations increase the more salient the giving is, it may also matter that it is not too evident that status-seeking is the purpose of giving. Such an awareness could interfere with the donors' self-image of being motivated by noble reasons and not a desire to signal and gain higher status. We experimentally varied the price of remaining unaware of status-seeking and a higher price led to a smaller belief-behavior gap (but not at a statistically significant level). It appears that subtlety matters but individuals (in our context) are not too sensitive about it.

## Appendix

Experimental instructions

**Welcome and thank you very much for participating in this experiment.** In this experiment you can earn money. **Hence, it is important that you read the following instructions carefully.**

Please note that these instructions are only meant for you and that you are not allowed to exchange any information with the other participants. Similarly, you are not allowed to talk to any other participant during the entire experiment. If you have any questions or concerns, please raise your hand. We will answer your questions

individually. Please do not ask your question(s) aloud. It is very important that you follow these rules; otherwise we will have to stop the entire experiment. Please also turn off your mobile phone now.

General procedure

The experiment takes about 60 min and consists of two parts. You will now be given detailed information about your task in the first part of the experiment. The second part will be independent from the first part and you will be given the instructions for the second part only after the first part is finished.

During the experiment you can generate a donation for the charitable organization Unicef. In addition to that you will be paid a fixed amount for your participation. How much you donate to Unicef depends on your performance in this experiment. The final amount will be calculated in ECU (Experimental Currency Units) with 1 ECU = 0,1 EURO. At the end of today's session, your earnings for Unicef will be converted into EURO and then be transferred to the organization's account via online deposit. Furthermore, you will be paid your personal earnings in cash. This is comprised of a show-up fee of 2,5 EURO, a fixed payment of 4 EUROs for the first part of the experiment and an individual payment for the experiment's second part, which depends on your (and possibly the other participants') decisions.

After completing a short questionnaire the experiment will be finished and you receive your payoff.
Here is the procedure as an overview:

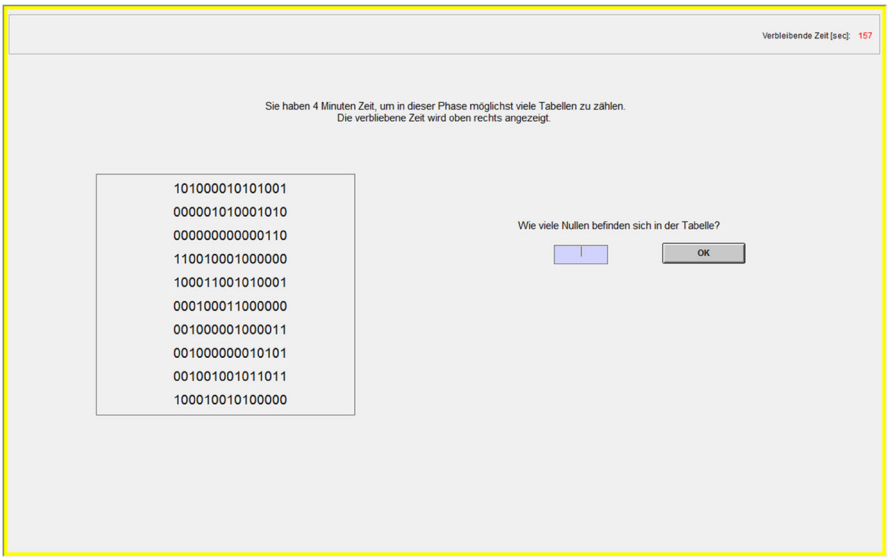
- Read the instructions of the first part of the experiment
- Test section T
- Donation section S
- Feedback
- The instructions for the second part of the experiment will be distributed
- Second part of the experiment
- Questionnaire
- Payoff and end of the experiment

Details of the experiment

During the experiment you can generate a donation to the charity organization Unicef.

*How to donate?*

You donate by correctly counting the number of zeros in a table. Every table processed correctly guarantees you 1 ECU. **The more tables you process correctly, the higher is your donation.** The following screenshot is the same you will be presented with during the experiment.




Please enter the number of zeros you count in the table on the left- hand side in the box on the right-hand side of the screen. After you have done so, please press 'OK.' If you have counted the number of zeros correctly, the computer will automatically generate a new table for you to count. If your count was not correct, you have two more tries to enter a correct number. If you have entered an incorrect number of zeros three times for the same table, you will be deducted 1 ECU and the computer generates a new table for you to count.

*Example*

You enter the correct amount of zeros for three tables, count incorrectly once for a fourth table and enter an incorrect number three times for another table. Your donation will then look as follows:

- 3 ECU for three correct tables.
- −1 ECU for the one table, where you have entered an incorrect number three times.

Hence, your final donation would be 2 ECU.

*Procedure*

Before the actual experiment starts, you will play a **test section T** so you can familiarize yourself with the counting process. You will have 4 min to practice. You will not be generating any donations in this section.

Afterward, we will start with section S, where you will actually be generating donations. At the end of the experiment you will be given feedback regarding your donation, i.e., you ...

- will be shown on screen how many tables you processed correctly,
- will be shown on screen your rank in comparison to the other participants.

ONLY TREATMENT PUBLIC:

[In addition to that, **the other participants will be informed about your personal performance**. For this, all participants will be called one by one. You stand, you say the amount of points you reached and your rank, and then you sit down. The order will be determined by the rank. The one who has generated most donations will be called first, and the one who generated fewest donations will be called last.]

Your earnings from this experiment

Your earnings from this experiment will be comprised by your show-up fee (2,5€) and the fixed amount. You will be paid your total earnings in cash directly after everybody completed the second part of the experiment, i.e., after having completed the final questionnaire.

Furthermore, you will be donating an amount to Unicef according to your performance in this experiment. The ECU you generated for your donation will be converted into EURO. **After the experiment, the total amount of all donations will be transferred to the organization via their web site. This process will be supervised by two participants of the experiment.**

Additional regressions to Table 6

Model: (1)private–public (reference) and private–private

| Independent variables | Dependent variable: expected increase in effort in round 2 | SE |
|---|---|---|
| Dummy variables | | |
| Private (=1 if assigned to the private-private treatment) | −1.72 | 1.23 |
| High incentives (=1 if assigned to the high incentives treatment) | 0.132 | 1.1 |
| Women (=1 if woman) | 0.456 | 0.931 |
| Constant | −1.99*** | 1.12 |
| Continuous variable | | |
| Effort Period 2–Effort Period 1 | 0.273* | 0.139 |
| Interaction | | |
| (Effort Period 2–Effort Period 1) * Private | 0.331* | 0.176 |
| No. of obs. | 89 | |
| $R2$ | 0.266 | |

*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided $t$ test

Model: (2) public–private, and public–public treatments

| Independent variables | Dependent variable: expected increase in effort in round 2 | SE |
|---|---|---|
| Dummy variables | | |
| Public (=1 if assigned to the public–public treatment) | −3.768 | 1.459 |
| High incentives (=1 if assigned to the high incentives treatment) | 1.33 | 1.16 |
| Women (=1 if woman) | 1.29 | 0.96 |
| Constant | 1.27 | 0.99 |
| Continuous variable | | |
| Effort Period 2–Effort Period 1 | 0.267* | 0.14 |
| Interactions | | |
| (Effort Period 2–Effort Period 1) * Public | −0.205 | 0.312 |
| No. of obs. | 94 | |
| $R2$ | 0.172 | |

*,**, and *** denote that the coefficient is statistically significant at the 10, 5, and 1 % level, respectively, using a two-sided $t$ test

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