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Cooperation at a discount - Will I give away your money?

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Cooperation at a discount - Will I give away your money?

February 26, 2015

Abstract

Will individuals contribute to a public good, even if doing so imposes a negative externality on an outsider? This paper describes the results of an experiment in which decision makers could contribute to a real public good, while (part of) the contribution costs were passed on to another participant. Decision makers with social preferences thus faced lower contribution cost but had to take into account additional costs imposed on an outsider. Such trade-offs are pervasive in many public good decisions, in which those who decide about provision, those who finance provision and those who benefit from it are different actors. My findings suggest that decision makers, at large, ignored adverse effects imposed on another participant. When varying both the distribution of initial endowments and the fraction of costs passed on to the outsider, I find that decision makers only refrain from contributing if the outsider has to pay for a disproportionate share or the full provision costs. This finding is best explained by advantageous inequity aversion.

1 Introduction

It is widely accepted that incentives to free-ride on the contributions of others are detrimental to the efficient private provision of public goods. However, numerous experiments have shown that, under fairly general conditions, a significant fraction of participants deviates from this prediction (e.g. Ledyard, 1995; Chaudhuri, 2011). This fraction is even larger in studies which allow for the punishment of free-riders (Fehr and Gächter, 2000; Nikiforakis, 2008) or leave room for conditional cooperation (Keser and van Winden, 2000; Fischbacher et al., 2001; Fischbacher and Gächter, 2010).

In these experiments every participant benefits uniformly from higher provision levels. However, most real public goods affect different parties heterogeneously. While there is a rich experimental literature on how heterogeneous benefits (e.g. Fisher, 1995; Reuben and Riedel, 2013) influence provision levels, relatively little is known about the case in which the provision of a public good - although beneficial to some individuals - reduces the welfare of some passive bystanders (Engel and Zhurakhovska, 2014). Such negative provision externalities could arise both from the production of the good per se or because bystanders are forced to contribute while being excluded from the benefits. Several examples, relating to economic decisions at the individual and institutional level, illustrate this: A municipality that increases its spending on a local public good, co-financed by federal taxes, imposes an externality on all tax-payers outside of its borders. When firms cooperate, by successfully colluding in an oligopoly market, they impose a dead-weight loss on their customers. On the individual level, a CEO who gives shareholders' money to a charity provides a public good at the expense of an outside party. Similarly, when individual consumers give to tax-deductible charities, the costs of the rebate are distributed over all tax-payers.

In this paper, I will report on results from an experiment that reproduces the central features of the decision problems portrayed in the last two examples. In each of them the presence of an outsider changes the incentive structure faced by the decision maker in two important ways: First, decisions now entail a trade-off between the welfare of several parties. If voluntary contributions to public goods result from social preferences, as it is generally assumed in the literature (e.g. Andreoni, 1990), the same preferences could plausibly prevent decision makers from ignoring welfare implications for an affected outsider. Second, the presence of affected outsiders reduces the contribution costs faced by the decision maker - in the most extreme case to zero. Given that decision makers treat contributions as an ordinary good (Peloza and Steel, 2005; Karlan and List, 2007), this price change should increase provision levels. In this setting, individual contributions could thus depend on a non-trivial interaction between price effects and social preferences.

Employing a simplified one-shot decision task, that deliberately abstracts from cases of strategic interaction (Engel and Rockenbach, 2011; Engel and Zhurakhovska, 2014), I explore whether the presence of a negative externality, borne by one other participant, changes contribution behavior: In each condition there is a single decision maker and, if relevant, one harmed outsider. The single decision maker can contribute parts of his endowment - earned in a real-effort task - to an existing public good at changing prices of giving. As a treatment variation, this decision is either made in isolation or in the presence of an outsider that has to carry the cost of the different rebates. By comparing those two settings, I analyze if a reduction in the price of giving affects contribution behavior differently, when the costs of this reduction have to be borne by

an identifiable outsider. Through an experimental variation of both the price of giving and the relative intensity of harm inflicted on the outsider, I explore different motives that could underly such change of behavior.

My experimental results suggest that an interaction between the price of giving and other regarding preferences towards the outsider jointly determines average contributions: As expected by arguments of standard price theory, reducing the price of giving leads to higher contributions - under one important qualification. When the outsider had to pay for a disproportionate or full share of the provision costs, rebates were significantly less effective in increase giving. Much of this result can be attributed to an aversion towards advantageous inequity. In line with this interpretation, welfare effects on the outsider are fully ignored, when the decision maker and the outsider face the same prices of giving. This is even the case, when the absolute level of harm was high and equal prices lead to an overall loss in efficiency. Each of these core results continues to hold in an additional treatment condition in which the decision maker and the outsider initially have unequal endowments.

The remainder of this paper is structured as follows: Section 2 discusses the research question in relation to the existing literature. Section 3 will introduce the experimental design and procedures in greater detail. Section 4 states the tested hypothesis and the corresponding results are reported in section 5. Section 6 concludes with a brief discussion.

2 Related Literature

The question addressed in this study relates to two distinct strands within the experimental literature. The first strand has consistently shown, both in the lab and the field, that the level of voluntary public good provision is reactive to changes in the price of giving. In lab experiments (Eckel and Grossman, 2003, 2006; Davis et al., 2005) a lower price of giving - resulting from matching contributions or mathematically equivalent rebates - leads to higher contribution levels, with quantitatively larger effects observed under a matching protocol. Findings from field experiments on charitable giving mirror these results: Investigating different matching rates, Karlan and List(2007) find a 1:1 matching rate to significantly increase generosity, whereas larger rates lead to no additional increases. Further studies have, at large, replicated these results for various matching (Huck and Rasul, 2011) and rebate (Eckel and Grossman, 2008) rates. Moreover, for the real public good studied here, direct price variations (Löschel et al. 2013; Diederich and Goeschl, 2014), as well as variations induced by the introduction of different rebate and matching rates (Kesternich et al. 2014) have been found to affect contribution behavior in the expected direction. This first strand of literature has largely overlooked the question of whether the source of the subsidy financing the matching or rebate scheme affects behavior. Obviously this is due to the fact that most of the relevant field studies are embedded in a fund-raising context in which matches are voluntarily financed by a lead donor. Therefore, welfare concerns towards the lead donor should not influence giving. For actual rebates financed by a government the case would be less clear cut, as these could very well reflect involuntary contributions by other tax payers.

There is also a nascent literature that has started scrutinizing the role that third-party externalities could play in different experimental settings. Several recent papers look at such effects in strategic decision tasks. Engel and Rockenbach (2011) and Engel and Zhurakhovska (2014) come to opposite conclusions when analyzing either a modified public good or a modified pris-

oner dilemma game with contribution externalities. In the public good game provision levels remain unchanged, irrespective of additional positive or negative effects on three outsiders. In the prisoner dilemma conditional cooperation decreases when contributing inflicts increasing levels of harm on an outsider. This is also in line with findings in Bartling et al. (2014). They analyze a market setting, where successful interactions can create a negative externality for a third-party. Their results indicate that a significant fraction of participants is willing to accept higher prices and production costs in exchange for avoiding the externality. In the context of non-strategic decision tasks, several studies use modified dictator games to study third-party effects. Schumacher et al. (2014) find that dictators give less to a recipient, if the costs of giving are dispersed over a group of outsiders. However, as dictators ignore how many outsiders are affected by their decision, this leads to losses in net efficiency as the group of outsiders grows large. Most similar to the design used in this experiment are the studies of Carlsson et al. (2011) and Chavanne et al. (2011). In the experiment of Carlsson et al. (2011) a decision maker could give to an environmental charity - at a fixed price - either only from his own endowment or also from the endowment of a group of other participants. Their findings indicate that average contributions decline as soon as others are affected. As their design does not vary the price of giving or the harm inflicted on the outsider they cannot differentiate between the different motives underlying this reduction. Chavanne et al. (2011) investigate behavior in a group dictator game, in which each dictator reduces the payoffs of his fellow dictators by sending money to a recipient. In their setting a strong in-group bias prevents lower costs of sharing to increase giving.

The present study contributes to both strands of literature as follows: It explores the role of rebates for increasing contribution behavior, when these are explicitly financed by an identifiable outsider. This adds a new aspect to the existing experimental literature on rebates that has, at large, ignored their distributional impacts by treating rebates as more or less a free lunch. Furthermore, the present design allows to differentiate more thoroughly between several motives that could underly the somewhat mixed responses to contribution externalities so far established in the literature. Two experimental parameters are varied to test for different motives that could become actionable in the presence of an affected outsider. First, the (relative) strength by which the outsider's payoffs are reduced by contributing could influence behavior based on the decision makers' preferences for efficiency, equity and altruism. Second, these preferences could play out differently, when the decision maker and the outsider initially have unequal endowments.

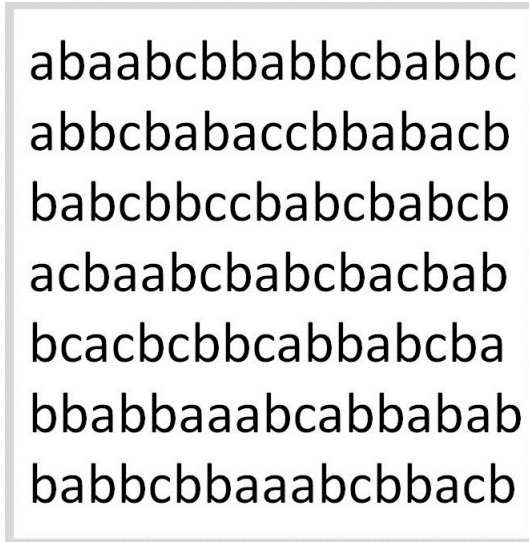
3 Design and Procedures

The experiment proceeded in two stages. The first stage was a real-effort task, in which subjects were earning an endowment they could use in the subsequent contribution task. The real-effort stage was observed under two treatment conditions, implementing a between-subjects variation of the initial distribution of endowments: In the *equal income condition (EI)* subjects received the same payment, independent from their performance, while in the *different income condition (DI)* payment was based on relative performance. The second stage contained the actual contribution task. Treatment effects in this task are analyzed, based on a within-subjects variation of the *price of giving* and the effects that contributions have on a *second participant (outsider)*. I will now describe the single stages in greater detail.

The Real Effort Task

After completing a basic demographic questionnaire, participants were randomly paired and received instructions for the real-effort task. This task served two purposes in the experiment. On the one hand, it aimed at increasing the level of parallelism to real world contribution decisions, by generating earned income. In field decisions, incomes are typically earned rather than emerging from a windfall profit and this difference has been shown to affect contribution behavior (Cherry et al. 2002; Reinstein and Riener, 2012; Oxoby and Spraggon, 2013; Carlsson et al. 2013)¹. On the other hand, the task was used to introduce an experimental variation of initial endowments. In the DI condition (N=74) the higher scoring participant received an endowment of 12 Euros, whereas the participant with the lower score received 8 Euros.² Accordingly, in the subsequent contribution stage, some decision makers were in an advantageous and some in a disadvantageous position, relative to the outsider. In the EI condition (N=76) both participants received the same endowment (8 Euros), independent from their performance. By comparing both treatments, I analyze whether the initial distribution of earned income affects the weight the decision maker attaches to the final payoff of the outsider in stage two.

Figure 1: Example screen of the real-effort task



The real-effort task itself constituted in counting, how often a certain randomly displayed letter, digit or geometrical was shown on their computer screen. Figure 1 displays an example screen, on which subjects had to count the instances of the letter b. Participants received one point per correct count on each screen. This task was designed to be simple enough to prevent subjects with higher cognitive abilities or other attributes related to performance from being overrepresented in the high payment condition. Similarly, while subjects were informed up-front that there would be a subsequent task in which they could use the earned endowment, there was no reference made regarding the content of this task, in order to prevent selection effects based on social preferences (Erkal et al. 2011). On the other hand, the real-effort task was chosen to be sufficiently tedious, to promote a feeling of having earned the endowment among participants. Overall subjects had three minutes to solve as many screens as possible. One example screen

¹For deviating results see Clark (2002), Cherry et al. (2005)

²In case both participants had an equal score, earnings were determined randomly.

was shown prior to the actual task, to familiarize subjects with the setup. The average solution rate was 3.72 (Min.:0;Max.:7). Surprisingly, average scores do not differ significantly between the equal and unequal payment scheme. The number of correct answers is uncorrelated with all observed individual attributes, including a proxy for cognitive abilities.

The Contribution Task

After the completion of the real effort-task and after receiving information about their earnings, participants reached the second stage of the experiment. At the beginning of this stage subjects were rematched with a new participant, so that antipathetic feelings, potentially induced by competing in the real-effort task, would not carry over to the contribution task. Within each group of two, subjects could either take the role of the decision maker or that of the outsider. Using the strategy method, roles were assigned randomly at the end of the experiment, after choices were collected for each subject in the role of the decision maker. No choices could be made in the role of the outsider. The contribution task itself was based on a modified dictator game (Eckel and Grossman, 1996), in which the decision maker could allocate a part of his endowment to an existing organization providing a public good. The existing public good in this experiment was chosen from the behaviorally rich context of climate change mitigation (Gowdy, 2008). The public goods nature of mitigation efforts is widely agreed on by economists (Nordhaus, 1991). Each decision maker could select how much money would go to an offsetting program of CO₂ emissions. This particular choice serves two purposes in the experiment. On the one hand, for this public good it is clear, that its marginal benefits from consumption are in the neighborhood of zero, both for the decision maker and the outsider. Thus, in comparison to other allocation games, taking from the outsider by contributing creates no monetary benefits for the decision maker. This greatly eliminates the scope for "moral biases" (Croson and Konow, 2009) in the trade-off between the decision maker and the outsider. On the other hand, benefits from mitigation accrue mainly to future generations, due to the physical nature of the climate system. Thus, the behavior observed in this experiment can also shed some light on the weight that decision makers attach to members of a future generation when trading off their welfare against that of members of the current generation. Before any decision could be made, a screen informed participants about the specific public good.³

Similar to comparable studies (e.g. Andreoni and Miller, 2002; Eckel and Grossman, 2003), each decision maker faced several allocation problems under varying conditions. At the end of the experiment one of the fifteen resulting choices was randomly executed with equal probability. The different variants of the allocation problem can be grouped into three distinct conditions, each containing five allocation problems. Under the *baseline condition (BL)* the allocation problems closely resemble those of the rebate treatments of Eckel and Grossman (2003, 2005). Each decision maker could pass on up to €8 (in steps of €1)⁴ to the receiving organization

³The text on this information screen included a reference to the amount of CO₂ that could be reduced for each Euro contributed. To make this amount more tangible, it was also expressed in terms of two common activities (car travel; use of personal computer). As this particular public good was chosen because of its minimal marginal consumption value for both the decision maker and the outsider, the temporal delay between the reduction of CO₂ emissions in the atmosphere and the impact of this reduction on climate change was highlighted. In order to enable participants to verify that all contributions were passed on to the organization, an (anonymous) confirmation of the recipient was posted publicly on campus after the last session. Subjects were informed about this procedure before they were able to make any decisions.

⁴While this affects the flexibility of choices it has been shown (Davis et al., 2005) that hardly any participant

without affecting the outsider. Allocation decisions could be made at five different *prices of giving* ($P_s = 1.0; 0.8; 0.50; 0.2; 0.0$). These prices were explained to subjects as representing the individual costs of contributing one Euro to the organization⁵ to reduce potential bias resulting from confusion (Davis et al., 2005). In the BL decision makers were explicitly informed, that their choices had no influence on the payoffs received by the other participant in their group. This factor was changed in the two outsider conditions. Here, at each price of giving, the decision maker was informed that there were also *provision costs borne by the outsider*. In the five allocation decisions under the *additive condition (ADD)* the price faced by the outsider (P_o) and the price faced by the decision maker (P_s) add to one ($P_s + P_o = 1$). This represents a case in which the rebate is fully financed by an outsider. For several prices, positive contributions under this condition affect payoff equality. They increase inequality when participants have initially equal endowments (EI) and decrease inequality when decision makers start out with a relatively lower endowment (DI). Based on this difference I analyze if potential changes in contribution behavior are driven by inequality aversion. As a counter-factual, there was a second outsider condition. In the allocation problems of the *equal condition (EQU)* the price for the decision maker and the outsider was equivalent ($P_s = P_o$). Accordingly, there are no changes in pay-off inequality resulting from positive contributions, but changes in efficiency (as measured by the sum of payoffs). Table 1 gives an overview over the three allocation problems for each price P_s .

Table 1: Observed Combinations of P_s and P_o

		Cost of 1 Euro contributed for the outsider (P_o)		
P_s		BL	ADD	EQU
Price of giving 1	1.00 [r-0%]	Not Affected	0.00	1.00
Euro (P_s) to the organization [Equivalent Rebate]	0.80 [r-20%]	Not Affected	0.20	0.80
	0.50 [r-50%]	Not Affected	0.50	0.00
	0.20 [r-80%]	Not Affected	0.80	0.20
	0.00 [r-100%]	Not Affected	1.00	0.00

Notes: This table displays the fifteen allocation problems under the different treatment variations. By design, at $P_s = 1$ both under the BL and the ADD condition the task corresponds to a standard modified dictator game (Eckel and Grossman, 1996). Contributions at $P_s = 0$ under BL and EQU can be seen as measuring the value decision makers attach to the provision of the public good, when no monetary costs have to be borne by either party. In one instance ($P_s = 0.50$) the EQU treatment uses a different rule for determining P_o as it would be otherwise fully equivalent to the ADD treatment.

The different allocation problems were displayed as five blocks (BL,ADD,EQU for each level of P_s) in three different orders. Based on pairwise comparisons and regression based tests, there is little evidence for systematic order effects.⁶

made use of intermediate values when given the possibility.

⁵Instead of stating the full price and referring to a rebate paid back to contributors at the end of the experiment as in Eckel and Grossman (2003)

⁶Out of the 45 resulting pairwise comparisons I find significant differences in behavior for only 5 decisions (M.W. Rank Sum Test, $p < 0.05$). Thus, I pool data from the different order conditions for further analysis and control for order effects in all regressions.

Procedures and Sample

The experiment was conducted at the University of Heidelberg AWI-Lab for Experimental Economics between May and December 2014 in fifteen sessions. All instructions and tasks were fully computerized using z-Tree (Fischbacher, 2007) and each sessions was run by the same experimenter. The 150 participants were recruited via ORSEE (Greiner, 2004) from the standard subject pool of undergraduate and graduate students, excluding subjects who had prior experience with similar task formats. Participants were from mixed disciplines, including economics (approx. 25 percent). At the beginning of a session, they were seated at one of the available computer terminals, generated a random password to ensure their anonymity and received a set of general instructions that was read aloud by the experimenter. The two tasks were followed by a set of demographic questionnaires. At the end of the experiment the randomly selected choice was executed and subjects were paid in private, according to their role. All sessions lasted approximately for 60 minutes and the average payment excluding an additional show-up fee of €2 was €6.50 (Min: €0; Max:€8) in the EI treatment and €9.16 (Min:€4; Max:€12) in the DI treatment.⁷

4 Predictions

The experimental outcome can be looked at from two distinct angles. The average contributions received by the organization are a measure of the provision level, resulting from the different treatment conditions. The contributions actually given by the decision maker (i.e. finally subtracted from his initial endowment after accounting for the rebate) and, where relevant, by the outsider can help to differentiate between different underlying motives. In the following, let $C_{P_s}^T$ denote the average contribution received by the organization for condition $T \in (BL; ADD; EQU)$ and price of giving $P_s \in (1.0; 0.8; 0.50; 0.2; 0.0)$. Likewise, let $G_{P_s}^T$ denote the average contribution given. Obviously, these two outcomes are related to each other by the price of giving, so that $G_{P_s}^T = P_s C_{P_s}^T$. The following testable hypotheses can be derived both from theoretical considerations and existing findings.

If participants were exclusively motivated by maximizing their own monetary payoff, contributions should be zero for any positive price of giving. Likewise, pure payoff maximizers should be indifferent between all contribution levels when rebates reduce the price of giving to zero. As an extensive experimental literature documents, participants often deviate from this strong theoretical prediction (e.g. Eckel and Grossman, 1996). Several motives for positive contributions have been discussed (e.g. Karlan and List, 2007; Huck and Rasul, 2011) and theories commonly distinguish between pure altruism and warm glow (Andreoni, 1989, 1990). A participant, only motivated by the pure warm glow he receives from his individual giving, would keep constant $G_{P_s}^T$ for all levels of P_s . Due to the rebate mechanism this would automatically increase $C_{P_s}^T$ for lower levels of P_s . Conversely, a participant motivated by pure altruism - and hence the total provision level - would increase $G_{P_s}^T$ due to the price effect of lowering P_s (Karlan and List, 2007). If participants, however, engage in pure donation targeting (Huck and Rasul, 2011) they keep constant $C_{P_s}^T$ ignoring price changes. This would automatically decrease $G_{P_s}^T$ by the arithmetics of the rebate mechanism. There is ample experimental evidence (e.g. Crumpler and Grossman, 2008; Huck and Rasul, 2011) that each of these motives affects behavior to

⁷Total earnings from the session were higher for some subjects as there were additional earnings from a task not analyzed here, that was run after the contribution task.

different degrees. Thus, a theoretical prediction is not clear cut and depends on the relative strength of each motive. Drawing on the previous experimental findings (Eckel and Grossman, 2003; 2005; Karlan and List, 2007; Huck and Rasul, 2011; Kesternich et al. 2014) I expect, that $C_{P_{s_t}}^{BL} \geq C_{P_{s_k}}^{BL} \forall P_{s_k} \geq P_{s_t}$ and $G_{P_{s_t}}^{BL} \geq G_{P_{s_k}}^{BL} \forall P_{s_t} \geq P_{s_k}$. In words:

Hypothesis 1: *In the BL lower prices lead to (weakly) higher contributions received but (weakly) lower actual giving.*

Theoretical consideration backed by empirical and experimental evidence point at a positive relationship between income and giving. From the existing laboratory evidence (Eckel and Grossman, 2003; 2005) it is, however, unclear if this relationship will persist for endowments earned in a real effort task. In the context of this study I would still expect that subjects with the higher endowment in the DI condition will contribute more.

Hypothesis 2: *In the BL those subjects with a higher endowment in the DI treatment contribute more.*

As soon as contributions affect an outsider in the ADD and EQU conditions, additional motives could become actionable. For subjects who are only motivated by their own monetary payoff, contributions should remain at zero in these conditions. Yet, for subjects whose positive contributions in the BL indicate the presence of other-regarding motives these motives could extend to the payoff received by the outsider. There are three candidate preferences that could, in theory, both drive contributions in the BL and keep decision makers from contributing when this decreases the payoff of an outsider: Linear altruism, inequity aversion and efficiency concerns. If linear altruism (e.g. Ledyard, 1995; Ahn et al., 2003) was driving contributions in the BL, the participants' utility would as well depend on the absolute payoffs received by the outsider in the ADD and EQU conditions. Whenever contributing reduces these payoffs, decision makers should (weakly) reduce their contributions relative to the BL. This effect is expected to be present both in the ADD and EQU condition and should be increasing in the harm inflicted on the outsider. Furthermore, this reaction should also be independent from the initial distribution of endowments. Thus if linear altruism is the main underlying motive, I would expect the following outcome:

Hypothesis 3: *For each price level, contributions in the ADD and EQU are weakly lower than in the BL. This holds independent from the initial distribution of incomes.*

Inequity aversion, as discussed in Engel and Zhurakhovska (2014)⁸, could be another important motive. Theoretical models (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000) and the associated experiments, strongly suggest that individuals gain disutility from both advantageous and disadvantageous inequality. If true, the presence of an outsider should influence contributions only in the ADD condition but not in the EQU condition. By design, contributions lead to no payoff differences in the EQU and there is no outsider affected in the BL. Hence, an inequity averse decision maker should contribute less in the ADD for the price pairs $(P_s; P_o) = \{(0.80; 0.20); (0.20; 0.80); (0.00; 1.00)\}$. For each of these three combinations, positive

⁸In contrast to the strategic setting of their paper, in the present non-strategic context beliefs about the actions of another decision maker should not play a role.

contributions are strictly inequality increasing, when the decision maker and the outsider have equal endowments (EI). In these cases, I expect that $C_{P_{sk}}^{ADD} \leq C_{P_{sk}}^{BL} = C_{P_{sk}}^{EQU}$. This relationship should reverse for those decision makers having earned a relatively lower endowment in the DI condition. Positive contributions are now inequality decreasing for price combinations $(P_s; P_o) = \{(0.20; 0.80); (0.00; 1.00)\}$. In words, if decision-makers account for the outsider's welfare and are purely inequity averse, I would expect the following outcomes for the EI and DI treatment, respectively:

Hypothesis 4a (EI): *For each price level, contributions in the ADD condition are weakly smaller than contributions in the BL or the EQU condition.*

Hypothesis 4b (DI): *For each price level, contributions in the ADD condition are weakly larger(smaller) than contributions in the BL or the EQU condition, depending on whether the decision maker is initially in the disadvantageous(advantageous) endowment position.*

If participants perceive the outsider as part of the decision problem, their choices could also be influenced by the total cost that has to be borne jointly by both parties for each Euro received by the organization. Such efficiency concerns have been shown to be an important driver of individual decisions in comparable settings (e.g. Charness and Rabin 2002, Engelmann and Strobel, 2004). In the ADD condition the total cost are in sum always one. The same is implicitly true for the BL condition when the rebate is paid for by the experimenter. In contrast in the EQU the total cost of provision are greater than 1 for prices $(P_s = 1.0; 0.80)$. Thus decision makers only concerned about efficiency should contribute weakly less in the EQU than in the ADD and BL condition at these prices ($C_{P_{sk}}^{EQU} \leq C_{P_{sk}}^{BL} = C_{P_{sk}}^{ADD}$).

Hypothesis 5: *For each price level contributions in the EQU condition are weakly smaller than contributions in the BL or the ADD condition.*

5 Results

5.1 Observed behavior

In absence of a rebate ($P_s = 1$), baseline subjects on average gave 17.35 percent of their initial endowment⁹, which is less than the 30 percent observed in a comparable setting (Eckel and Grossman, 1996). This lower level of giving could reflect the different sources of income in the two experiments, as contributions are typically smaller when endowments have to be earned (e.g Cherry et al. 2002; Reinstein and Riener, 2011; Oxoby and Spraggon, 2013; Carlsson et al. 2013). Additionally, some subjects might simply attach a lower value to the provision of the specific public good offered in this study.¹⁰

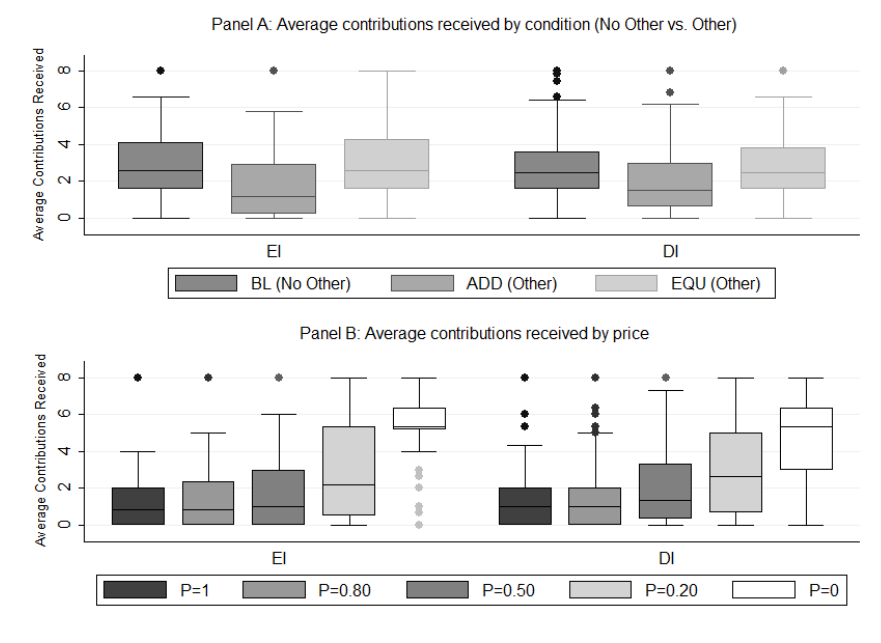
Figure 2 provides a first overview over $C_{P_s}^T$, along the three dimensions varied in the experiment. The distributional plots in the top panel illustrate that, compared to the BL (Med:2.6; Mean:2.82), the presence of an affected outsider reduces the median and mean contribution in

⁹In this allocation problem, 59 percent of subjects contributed a positive amount and the conditional mean is 30 percent of the initial endowment.

¹⁰There is, however, little concern that a majority of participants does not value the public good at all, given that the organization received high contributions (Conditional Mean = €6.76) by nearly 90 percent of the subjects in the BL($P=0$) condition.

the ADD (Med:1.4; Mean:1.92) condition, yet not in the EQU (Med:2.6; Mean:2.85) condition. The separate box plots for the EI and DI treatments furthermore indicate a remarkably small impact of the initial distribution of incomes. The bottom panel compares contributions received for the different prices of giving, separately for the EI and the DI treatment. Independent from the initial distribution of endowments, the organization received higher contributions when the price of giving was smaller.

Figure 2: Average contribution behavior



Notes: The top panel displays contributions received across the varying conditions (no-outsider vs. outsider) and different endowment treatments (EI vs. DI). Values are calculated by pooling over the different price levels. The bottom panel displays contributions received for all price levels and endowment treatments (EI vs. DI). Values are calculated by pooling over all conditions (no-outsider vs. outsider). The median contribution is plotted as a black line. The lower and upper quartiles are illustrated by the surrounding gray boxes and whiskers are used to display values within 1.5 times of the interquartile range. Contributions outside of this range are shown as a dot.

Obviously, by pooling over data from different conditions, this first overview could mask important interactions between the treatment variables. Table 2 therefore lists summary statistics of the two main outcomes ($C_{P_s}^T$ and $G_{P_s}^T$), for all fifteen allocation problems. Column (1) and (2) contain the values for the endowment and price of giving in each allocation problem. Average contributions received (including the rebate) are shown in columns (3)-(5), for the three different ways the outsider was affected. Similarly, average contributions given (excluding the rebate) are displayed in columns (6)-(8).

Moving downward row-by-row in columns (3)-(5), suggests a negative relationship between $C_{P_s}^T$ and prices of giving. The strength of this relationship differs by condition. Average contributions rise by more than a factor of five when prices drop to zero in the BL and EQU condition, whereas they do not even double in the ADD condition. The lower contribution average in the ADD

Table 2: Average Contributions

(1)	(2)	(C) Contributions Received [Mean (s.d.)]			(G) Contributions Given [Mean (s.d.)]		
		(3)	(4)	(5)	(6)	(7)	(8)
Endowment	Price of Giving (P_s)	BL	ADD	EQU	BL	ADD	EQU
EI = 8	1.00	1.25 (1.64)	1.25 (1.64)	1.22 (1.69)	1.25 (1.64)	1.25 (1.64)	1.22 (1.69)
	0.80	1.39 (1.77)	1.40 (1.76)	1.44 (1.98)	1.11 (1.41)	1.12 (1.40)	1.15 (1.58)
	0.50	1.84 (2.20)	2.06 (2.43)	1.81 (2.13)	0.92 (1.10)	1.03 (1.21)	0.90 (1.06)
	0.20	3.32 (3.05)	2.15 (2.53)	3.39 (3.18)	0.66 (0.61)	0.43 (0.50)	0.67 (0.63)
	0.00	6.47 (2.78)	2.22 (2.65)	6.60 (2.77)	-	-	-
DI = 8	1.00	1.51 (2.02)	1.40 (2.03)	1.62 (2.05)	1.51 (2.02)	1.40 (2.03)	1.62 (2.05)
	0.80	1.72 (2.24)	1.56 (2.12)	1.70 (2.24)	1.38 (1.79)	1.25 (1.70)	1.36 (1.79)
	0.50	2.00 (2.30)	2.48 (2.61)	1.91 (2.32)	1.00 (1.15)	1.24 (1.30)	0.95 (1.16)
	0.20	3.13 (2.86)	2.94 (2.59)	3.35 (2.98)	0.62 (0.57)	0.58 (0.51)	0.67 (0.59)
	0.00	5.62 (3.22)	2.62 (2.69)	5.89 (3.12)	-	-	-
DI = 12	1.00	1.54 (2.02)	1.59 (2.01)	1.16 (1.40)	1.54 (2.02)	1.59 (2.01)	1.16 (1.40)
	0.80	1.54 (2.16)	1.54 (2.00)	1.18 (1.50)	1.23 (1.73)	1.23 (1.60)	0.95 (1.20)
	0.50	2.02 (2.61)	2.16 (2.38)	2.13 (2.66)	1.01 (1.30)	1.08 (1.19)	1.06 (1.33)
	0.20	3.16 (3.13)	1.78 (1.93)	3.13 (3.06)	0.63 (0.62)	0.35 (0.38)	0.62 (0.61)
	0.00	5.56 (3.34)	2.16 (2.15)	5.91 (3.18)	-	-	-

Notes: G is computed by multiplying C with the price of giving. No values of G are shown for a price of giving of $P_s = 0$ as they are not meaningful.

condition - as displayed in figure 2 - is mainly driven by two allocation problems: When the outsider had to bear higher ($P_s = 0.20; P_o = 0.80$) or the full ($P_s = 0.00; P_o = 1.00$) provision cost, decision makers increase contributions only moderately. In contrast, in the BL (3) and the EQU (5) condition, no such reluctance is present for the same prices of giving. Rather, in all allocation problems of the EQU condition the presence of an outsider does not change behavior relative to the BL. This is even true, when the outsider had to pay the same high contribution cost as the decision-maker. A comparison of the EI and DI treatment shows, that subjects whose income from stage 1 is fifty percent larger, overall do not contribute more. In the ADD condition, better off subjects were slightly more reluctant to further increase inequality (i.e. lower contributions) while worse off subjects were slightly more inclined to reduce inequity (i.e. higher contributions). Columns (6) - (8) show that subjects actually give lower net amounts when the price of giving falls. $C_{P_s}^T$ rises not as strongly, as would be expected if participants were keeping constant $G_{P_s}^T$.¹¹ In the following, I will explore these observations more rigorously along the lines of the hypotheses outlined in section 4.

5.2 The role of price and endowment in the BL condition

I begin by analyzing the changes in contributions behavior in reaction to different prices of giving and endowments in the BL. For this condition there are clear predictions from the experimental literature on rebates. Column (3) in table 2 shows a strictly increasing pattern of contributions for falling prices. Relative to the allocation problem with no rebate ($P_s = 1.00$) each reduction of prices leads to a significant increase in contributions (Pairwise Sign-Rank-Test; $p < 0.05$).

¹¹Some of this decline might simply reflect that giving cannot be perfectly balanced between the different prices, given the experimental set-up. Furthermore, to keep all treatments comparable the maximum contribution was held constant at €8. Therefore, for instance at a price of 0.20 those subjects who had already contributed €8 at a higher price, could not further increase giving. However, as the average contribution was only €1.25 at a price of 1 this concern is unlikely the sole driver of the declining $G_{P_s}^T$.

Yet, actual giving (6) declines significantly with each fall in prices (Pairwise Sign-Rank-Test; $p < 0.05$). For a quantitative comparison to existing findings (Eckel and Grossman, 2003,2005; List and Karlan, 2007; Huck and Rasul, 2011), I estimate a panel regression model in the commonly used log linear specification:

$$\log(C_{it}) = \beta_0 + \beta_1 \log(P_{s_t}) + \beta_2 \log(E_i) + \epsilon_{it} \quad (1)$$

C_{it} denotes the contribution¹² by individual $i = 1, \dots, 150$ in allocation problem $t = 1, \dots, 5$. P_{s_t} is the price of giving faced by the decision maker in allocation problem t and E_i is his earned endowment. In this specification, the coefficients β_1 and β_2 can be interpreted as the elasticities of giving with respect to price and income. Table 3 displays the results for C_{it} and G_{it} as the dependent variables.

Table 3: Price and Income Elasticities BL Condition

	(1)		(2)		(3)	
	C		C if $p > 0$		G if $p > 0$	
Log(Price) (Euro)	-0.814****	(-14.43)	-0.619****	(-7.57)	0.176***	(2.68)
Log(Endowment) (Euro)	-0.216	(-0.32)	-0.108	(-0.14)	-0.0369	(-0.06)
Order-Dummies	Yes		Yes		Yes	
Constant	-0.385	(-0.26)	-0.550	(-0.33)	-0.692	(-0.50)
Observations	750		600		600	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Notes: This table shows random effects OLS estimates for the elasticities in respect to price and income. T-statistics based on cluster robust standard errors are shown in parentheses. Order effects are controlled for and are insignificant in all specifications. Using a Tobit Model as an alternative estimation that accounts for potential censoring in the contribution data does not change results qualitatively but leads to higher elasticities.

In line with previous lab and field studies, column (1) shows a highly significant and negative price elasticity of giving. Column (2) displays results for the same model, restricting observations to strictly positive prices of giving. The marginal effect of a price change is slightly lower, but remains highly significant. Both estimates of the price elasticity lie within the range $[-.340; -1.488]$ reported in the two lab experiments of Eckel and Grossman (2003, 2005) and also in the vicinity of those found in field studies using a matching protocol (Karlan and List, 2007; Huck and Rasul, 2011). As their absolute value is smaller than one, there is evidence for a partial crowding effect. This can also be seen from the positive elasticity for actual amounts given in column (3). The change of signs of the two elasticities, when moving from column (2) to column (3), can be interpreted as indicating that both warm glow and pure altruism drive contributions in this experiment (Rasul and Huck, 2011). Based on this evidence, I fail to reject Hypothesis 1 and state the following result:

¹²As common in the literature a small amount (0.10) is added to the contributions to circumvent the problem that $\log(0)$ is not defined.

Result 1: *When no outsider is affected, a decrease in the price of giving leads to significantly higher contributions received and significantly lower contributions given.*

In contrast to the existing experimental evidence (Eckel and Grossman 2003, 2005) the elasticity of giving with respect to income is insignificant in all specifications. One reason could be that, in comparison to the existing studies, there is less variation in the endowments. Moreover, it could play an important role that higher incomes were awarded for better performance in the real-effort task, instead of being assigned to participants as a windfall. Non-parametric tests (Man Whitney Rank Sum Test $p < 0.05$) also find no evidence for differences in average contributions between high and low income subjects at each price level. Given this evidence, I reject Hypothesis 2.

Result 2: *There is no significant increase in contributions or giving for subjects with a higher earned endowment.*

5.3 The role of the negative externality

5.3.1 Aggregate Analysis

I now turn to the main question of the paper, by analyzing how the presence of an affected outsider influences decision makers. First evidence on this question comes from a series of pairwise significance tests, comparing average contributions received between the different conditions shown in columns (3)-(5) of table 2. Between the BL (3) and the EQU (5) condition, I find no significant differences in contributions received or given for each price level (Pairwise Sign-Rank-Test; $p < 0.05$). This holds both for the pooled sample and for separate tests within the DI and EI samples. In the allocation problems of the EQU condition, the presence of an affected outsider has little influence on behavior, even when the outsider loses as much as 12.5 percent of his endowment for each Euro contributed. This clearly contradicts a general concern for the absolute payoffs of the outsider, as proposed in Hypothesis 3. Accordingly, average contributions are not significantly lower, when contributing leads to a total loss of efficiency (due to $P_s + P_o > 1$). Contrary to Hypothesis 5, this outcome suggests little concerns for efficiency. A comparison of the BL and the ADD condition arrives at more nuanced results. For those allocation problems in which the decision maker had to pay for the larger share of the provision cost, the presence of the outsider does not significantly influence average contributions. This is different for the remaining allocation problems. As soon as the outsider had to carry a larger fraction ($P_s = 0.20; P_o = 0.80$) or the full contribution cost ($P_s = 0.00; P_o = 1.00$), average contributions drop significantly (Pairwise Sign-Rank-Test; $p < 0.05$). When the decision maker and the outsider share cost equally ($P_s = 0.50; P_o = 0.50$), contributions even rise slightly but significantly (Sign-Rank-Test; $p < 0.05$). This significant increase is most pronounced for low-income subjects in the DI treatment. Together, these observations provide limited support for Hypothesis 4a: When contributing has neutral effects on the final distribution of payoffs or increases inequality in the disadvantageous direction (from the point of view of the decision maker) the effects on the outsider are largely ignored. Implied increases in advantageous inequality, on the other hand, lead to a reduction of contributions. This finding is not driven by the complete absence of an outsider in the BL. When comparing contributions in the ADD to contributions in the EQU condition, I again find that decision makers only significantly

Table 4: Price and Income Elasticities all Conditions

	(1)		(2)		(3)	
	C		C		C if $p > 0$	
Log(Price) (Euro)	-0.637****	(-13.75)	-0.814****	(-14.45)	-0.619****	(-7.58)
Log(Endowment) (Euro)	-0.107	(-0.17)	-0.107	(-0.17)	-0.0929	(-0.13)
Dummy ADD (1 = Yes)	-0.326****	(-5.42)	0.164****	(4.33)	0.0422	(1.23)
Dummy EQU (1 = Yes)	-0.0320	(-0.85)	-0.0947	(-1.60)	-0.120*	(-1.91)
ADD*Log(Price)			0.609****	(9.55)	0.201**	(1.98)
EQU*Log(Price)			-0.0778**	(-2.32)	-0.161**	(-2.19)
Order-Dummies	Yes		Yes		Yes	
Constant	-0.424	(-0.31)	-0.567	(-0.41)	-0.521	(-0.34)
Observations	2250		2250		1800	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Notes: This table shows OLS estimates for the elasticities of giving and income. T-statistics based on cluster robust standard errors are shown in parentheses. Order effects are controlled for and are insignificant in all specifications. Using a Tobit Model as an alternative estimation that accounts for potential censoring in the contribution data does not change results qualitatively but leads to higher elasticities.

decrease their contributions when the outsider carries a larger share of the total contribution cost (Sign-Rank-Test; $p < 0.05$).

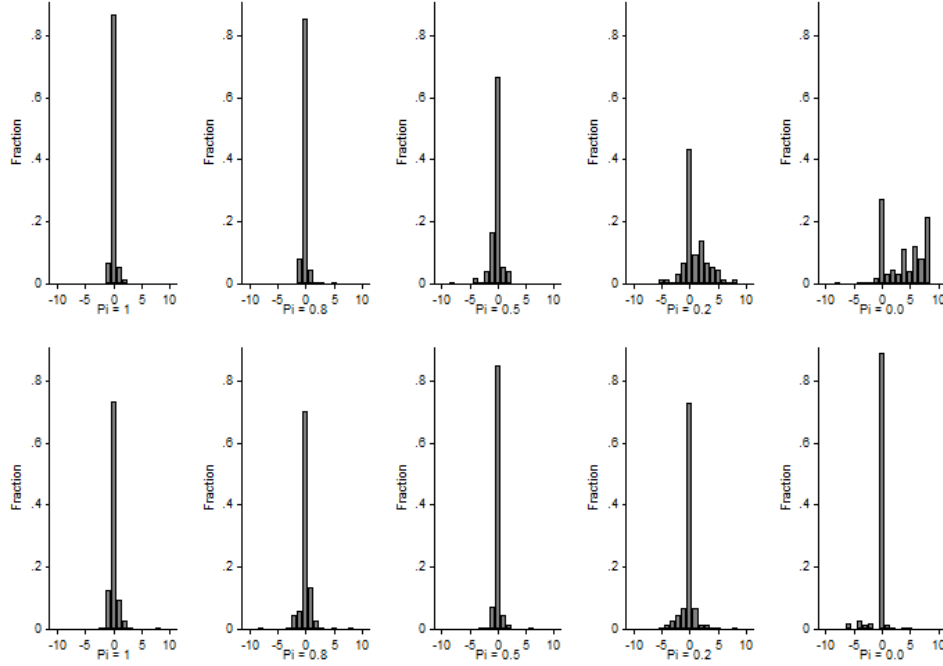
The regression results shown in table 4 quantify how imposing harm on an outsider affects average provision levels under different rebates. In specification (1) I estimate a log linear model of contributions, introduced before in equation (1). Additional dummies indicate the presence of an affected outsider in the ADD and EQU conditions. Specifications (2) and (3) test via interaction terms between these dummies and the price variable, if and how strongly the elasticity changes in the presence of an outsider. Specification (1) replicates the non-parametric result, that average contributions are significantly lower in the ADD condition. Contributions decline steeply by 32.6 percent relative to the baseline. There is no significant decline of contributions in the EQU condition.

The significant interaction terms in specification (2) and (3) demonstrate that the elasticity of giving is lower (in absolute terms) in the ADD condition than in the BL condition and slightly larger in the EQU condition. Accordingly, rebates are far less effective than indicated by previous findings (Eckel and Grossman 2003, 2005) when they are fully financed by an identifiable third party. Specification (3) shows that these results are qualitatively robust to excluding the three allocation problems offering a full rebate. Quantitatively, the elasticity of giving is smaller and its reduction in the ADD condition is less pronounced.

5.3.2 Individual Analysis

I will now examine changes in behavior at the individual level and thereby shed more light on the additional motives that could become actionable in the presence of an affected outsider. Figure 3 displays the changes in contributions for a given decision maker when moving from the baseline

Figure 3: Histograms of D1 and D2



Notes: The top panel shows the fraction of subjects who change their behavior between the BL and the ADD condition for the five different price levels. The bottom panel shows this change between the BL and the EQU condition

to one of the outsider conditions. The top panel shows the distribution of $D1 = C_{P_s}^{BL} - C_{P_s}^{ADD}$ and the bottom panel the distribution of $D2 = C_{P_s}^{BL} - C_{P_s}^{EQU}$ for the five different prices of giving. In eight out of ten allocation problems, a large fraction of decision makers (70-85 percent) does not change contributions when an outsider is affected. Only in two allocations problems of the ADD condition a majority of decision makers (60 and 75 percent) reduce their contributions. When $P_s = 0.0$ and consequently contributions are fully financed by an outsider, the fraction of decision makers who reduce contributions from eight to zero is nearly as large as the fraction who do not behave differently. As in the aggregate data, this strong reduction indicates that many decision makers refrain from contributing only if this increases advantageous inequity. Regression table 5 scrutinizes this proposition more thoroughly. The dependent variable ($C_{P_{sit}}^{BL} - C_{P_{sit}}^T$ for $T \in (ADD, EQU)$) takes a positive value if the decision maker contributes more in the absence of an outsider, and a negative value if he contributes less. The coefficients for the two price variables in specification (1) underline the role of inequity aversion as an important motive. When $P_s \neq P_o$, contributions are inequality increasing compared to allocation problems where $P_s = P_o$. Thus, the significant and positive coefficients support the proposition that decision makers reduce their contributions when these are inequity increasing. The two coefficients also point at a quantitatively much stronger influence of advantageous inequity aversion.

The two coefficients of the income variables furthermore indicate, whether decision makers change their behavior when their initial endowment is lower (higher) than that of the outsider. Compared to decision makers in the EI treatment, richer decision makers in the DI treatment are not more prone to change their behavior if contributing affects an outsider. There is (weakly)

Table 5: Changes in contribution behavior No Outsider - Outsider

	(1)		(2)	
	Difference		Difference	
Negative Price Difference ($ P_i - P_j $ if $P_i < P_j$)	3.349****	(13.76)	3.827****	(11.85)
Positive Price Difference ($ P_i - P_j $ if $P_i > P_j$)	0.213***	(2.72)	0.209*	(1.82)
Lower Income (1=Yes)	-0.242*	(-1.73)	-0.113	(-0.89)
Higher Income (1=Yes)	-0.00131	(-0.01)	0.176	(1.18)
Lower Income*Negative Price Difference			-1.210*	(-1.92)
Higher Income*Negative Price Difference			-0.726	(-1.29)
Lower Income*Positive Price Difference			0.307*	(1.87)
Higher Income*Positive Price Difference			-0.289	(-1.45)
Order-Dummies	Yes		Yes	
Constant	-0.230**	(-2.11)	-0.306***	(-2.72)
Observations	1500		1500	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$

Notes: This table shows OLS estimates for the elasticities of giving and income. T-statistics based on robust standard errors are shown in parentheses. Order effects are controlled for in all specifications. Using a Tobit Model as an alternative estimation that accounts for potential censoring in the contribution data does not change results.

significant evidence that poorer decision makers contribute slightly higher amounts in the outsider conditions. This could point at both spite and inequity aversion as potential motives. Specification (2) shows that the latter is the more plausible explanation. The significant interaction term between the price and low-income variable points out that low income subjects reduce some of the initial inequality by contributing more when the comparatively richer outsider has to pay for the largest share of this contribution. The main effect of the low income variable, which would point at pure spite, is now insignificant.

A complementary approach to analyze, if the presence of outsiders activates additional motives is based on the question of whether decision makers deviate from a consistent contribution rule employed in the BL as soon as they move to the ADD or EQU conditions. By making full use of the within-subjects design, this approach provides also an indication of whether subjects displaying altruistic preferences in the BL are more affected by the presence of a harmed outsider. To study such heterogeneous treatment effects, I follow Andreoni and Miller (2002) and Fishman (2007) and categorize decision makers into different types according to their behavior in the BL condition. Based on the theoretical considerations laid out in section 4, I discern between four types: The perfectly selfish type will always contribute zero at positive prices and zero or a positive amount when the price drops to zero. The second type will perfectly conform to preferences for donation targeting by contributing a constant and positive amount. The third type shows preferences in accordance with impure altruism by contributing a positive amount in at least one decision and reacting to rebates by increasing contributions in a (weakly) monotonic,

but not constant, way. The fourth type does not follow any of the three previous rules. Most of the decision makers classified accordingly contribute positive amounts but react to price changes non-monotonically. This can be seen as a violation of consistency in the sense that they make at least one pareto-dominated choice in five decisions. Based on this criterion 78 percent of the decision makers choose perfectly consistent in the baseline. This is in line with Andreoni and Miller (2002) and Fishman (2007).¹³ Table 6 shows in column 1 that 26 percent of subjects have purely selfish preferences in the BL, 4 percent follow strict donation targeting mainly by contributing the maximum amount of 8 Euros, 48 percent can be described as impure altruists and 22 percent violate consistency.

Table 6: Conditional distribution of types for the ADD and EQU conditions

Type Baseline [Perc. of Total]	Type ADD				Type EQU			
	Type 1	Type 2	Type 3	Type 4	Type 1	Type 2	Type 3	Type 4
Type 1 (Selfish) [26%]	79.49%	0.00%	20.51%	0.00%	84.62%	0.00%	10.26%	5.13%
Type 2 (Constant) [4%]	0.00%	66.67%	0.00%	33.33%	0.00%	66.67%	33.33%	0.00%
Type 3 (Impure Altruist) [48%]	11.11%	2.78%	22.22%	63.89%	2.78%	0.00%	76.39%	20.83%
Type 4 (Inconsistent) [22%]	6.06%	9.09%	18.18%	66.67%	0.00%	0.00%	21.21%	78.79%

Notes: This table displays a cross tabulation of the different types found in the ADD and EQU conditions for a given type assigned based on BL behavior.

The second column (ADD) displays, for each of the four types, the fraction of decision makers who remain in the same category when moving to the ADD condition and the fraction who switch to one of the other types. Comparing values along the diagonal shows that for three out of four types a large majority of decision makers remains in the same category. As expected theoretically, the selfish type is least affected by the presence of an outsider and 79 percent of decision makers remain in the same category.¹⁴ Similarly, 67 percent of type 2 and type 4 subject remain within the same category. The only type which displays a strong tendency to change its contribution rule in the ADD condition are type 3 decision makers. A majority (77%) of subjects who display preferences consistent with impure altruism follow a different rule in the ADD condition. 11 percent react strongly and switch to full free-riding. A larger fraction (64%) are now classified as inconsistent. Reflecting concerns for pay-off inequality, most of these reduce contributions when P_s falls and consequently P_o rises. In contrast, in the third column (EQU) most decision makers remain in the same category, when they move from the BL to the EQU condition. This includes subjects who show preferences for impure altruism in the BL. Given the combined evidence from the aggregate and individual analysis, I formulate the following results. A majority of subjects does not change their behavior in the EQU condition. Therefore, I reject Hypothesis 3 and 5 and state:

Result 3: *A large fraction of subjects does not generally change behavior in the presence of an affected outsider. This also holds, when contributing decreases total efficiency.*

In the ADD condition a majority of subjects changes behavior when contributing is inequality increasing. Furthermore average contributions are weakly lower in the ADD condition. Therefore,

¹³In their experiments an even larger fraction of subjects(95%) was consistent. These findings are, however, based on a test that allows for a small number of violations.

¹⁴Interestingly the remaining 21 percent begin to contribute positive amounts as soon as they are assured that an outsider contributes as well. For those subjects free-riding could be an expression of a hurt sense of fairness rather than being motivated by pure money maximizing

I fail to reject Hypothesis 4a and 4b and state:

Result 4: *A majority of subjects changes behavior in the presence of an affected outsider, only when contributions are inequality increasing.*

6 Conclusion

Often decision makers can spend other people's money when choosing to provide a public good. This reduces the provision cost borne by the decision maker, but potentially imposes harm on outsiders. In this paper, I have shown experimentally that in many cases decision makers ignore welfare implications for an outsider. The presence of a harmed outsider only reduces contribution levels, when he has to bear a majority or the full contribution cost and thus higher contribution levels are inequality increasing. Yet, in these cases the positive effect of the price reduction is greatly moderated. If governments use rebates in the form of tax deductions to subsidize private contributions to a public good, this finding could therefore have some implications that go beyond the well-studied concerns about crowding-out (e.g. Kingma 1989; Manzoor and Straub, 2005). Whether these implications materialize depends at least on two factors. It is unclear if potential contributors perceive money spent by their government as exogenous (comparable to the BL condition of the experiment) or as in fact being taken from a fellow citizen (comparable to the ADD and EQU conditions). In the experiment the harm imposed on the outsider was made very salient by design. For many contribution decisions beyond the lab the positive effect on the beneficiaries is likely to be far more salient than the negative effect on a dispersed group of harmed outsiders as evidence on the "identifiable victims effect" (Small et al. 2003, 2007) would suggest. Whether this is truly the case is beyond the scope of this experiment and is thus left for further research.

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