Tax Evasion and Charitable Giving—An Experimental Approach

Christopher Nell

Abstract This paper investigates tax evasion through subsidies received by individuals for false declarations of charitable donations. The study distinguishes between a rebate and a match subsidy in an experimental setting. Under the rebate subsidy, the individual receives the subsidy, while under the match subsidy the charitable organization receives the subsidy. First, I develop a theoretical model of overreporting of charitable giving. Second, I test in an experiment whether subjects report donations that are higher than the actual donations made, and thus, receive subsidies illegitimately. The results show that the level of overreporting is higher under the rebate than under the match subsidy and suggest that the latter may generally lead to a government’s desired level of donations at reduced cost. An increase in the probability of an audit under the rebate subsidy has no significant effect on overreporting, whereas a higher probability under the match has a strong negative effect.

Keywords Charitable Giving; Match Subsidy; Rebate Subsidy; Tax Evasion

JEL classification H26, D64, C91

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1 Introduction

This paper investigates an experiment that studies tax evasion through subsidies received for false declarations of charitable donations. Taxpayers in many developed countries can deduct donations to charities from their income tax and reduce their tax liabilities by reporting higher cash or gift donations (e.g. clothes, cars) to charities than they have actually made, and thus evade income tax. The study compares overreporting of donations under a rebate and a match subsidy, respectively, which are the two subsidy types for charitable giving commonly in place in OECD countries. Under a rebate subsidy the taxpayer gets a tax credit at the marginal income tax rate. A match subsidy is a form of third-party reporting under which the charitable organization gets a subsidy for the donation of the taxpayer. A match subsidy is a commitment by a government (e.g. UK, Canada) or by corporations to match the donations of individual taxpayers at a certain rate. This paper asks whether a rebate subsidy to donors leads to higher degrees of overreporting of donations than a match subsidy to charities. If a rebate subsidy leads to more overreporting than a match subsidy, the match subsidy could lead to a government’s desired level of donations at a lower cost. That is, the focus of the paper is not whether the rebate or the match subsidy induces more donations, but rather whether the rebate or the match subsidy induces more overreporting of donations.

Research on charitable giving is of particular importance since the share of charity to GDP in many OECD countries is sizable. According to Giving USA (2013), an annual report on charitable giving in the USA, in the year 2012 charity accounted for more than $315 billion, which was more than 2% of GDP. In 2010, 75% of US taxpayers listed charitable donations on their tax return, where the average deduction was more than $3,800. In the USA the taxpayer is frequently responsible for determining the market value of the gift donation, where there are often no fixed formulas or methods for determining the value (see IRS 2013). For example, Ackerman and Auten (2011) show that a tightening of the rules for vehicle donations in the US tax reforms of 2004 resulted in a 66% drop in the number of donated vehicles. The most obvious way to evade taxes through charitable giving is simply to indicate a cash donation on the income tax return. Tiehen (2001) finds donations reported to the US tax authority (Internal Revenue Service (IRS)) are higher than the donations reported in household surveys that investigate donor behavior. Turk et al. (2007) report that 46% of US taxpayers who reported cash contributions in 2001 misreported their itemized donations in that year, where the average misreporting was $811. The authors emphasize that the widespread but relatively low amounts of misreporting make increased enforcement activities unattractive to tax authorities. Fack and Landais (2016) use the French tax enforcement reform of 1983 as a natural experiment to provide evidence for tax evasion related to charitable giving. Prior to 1983, French taxpayers were only asked to keep a receipt of each charitable contribution they declared on their tax returns. Since 1983, French taxpayers must enclose receipts with their tax returns when claiming the charitable deductions. The total reported contributions decreased by more than 75% in 1983 after the reform, whereas it has been estimated that the share of overreported donations before the reform was between 40% and 60%. If taxpayers want to claim donations on their income tax returns in Austria, they are only required to produce a receipt of the donation upon the tax authority’s request, while taxpayers in the USA only have to provide an acknowledgment of the donation from the charity if the individual contribution is larger than $250 (IRS 2013). In short, in some countries it may not be particularly difficult to make up charitable donations in order to evade taxes.

This paper provides a theory of overreporting of charitable giving. The theory distinguishes between the rebate and match subsidy and offers testable hypotheses for my experiment. I predict that an increase in the probability of
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detection and the level of the subsidy have a larger effect on overreporting under the match than under the rebate, since
the motive to overreport under the rebate differs from the motive to overreport under the match. Even though both
the match and rebate subsidy are based on donation reports of individuals, the charity receives the subsidy under the
match, while the individual receives the subsidy under the rebate. That is, individuals who face a rebate subsidy may
overreport donations for selfish reasons to benefit themselves financially, while individuals who face a match subsidy
may overreport for altruistic reasons to benefit the charity. Some individuals may only be willing to overreport for the
charity if it is unlikely that they will have to pay a fine for overreporting. Thus, I am interested in the individuals’
responsiveness to a change in the probability of detection and the level of subsidy.

To find out whether the rebate or match subsidy induces more overreporting of donations, the study makes use
of a lab experiment for the following reasons. To my knowledge, there is no tax reform that can be used as a natural
experiment to directly explore this question, since governments seem to stick to the same type of subsidy once chosen.
To observe a natural experiment, a government would have to replace a rebate with a theoretically equivalent match
scheme for exogenous reasons, or vice versa. Eckel and Grossman (2008) argue that the laboratory provides excellent
control (e.g. no delays with tax refunds that could lead to differences in the match and rebate subsidies) at the cost of
some natural context. Furthermore, the marginal tax rate and thus the subsidy is a function of income and other policy
instruments (Huck and Rasul 2011). Policymakers may expect a decrease in donations and thus introduce or increase
a subsidy for donations. This endogeneity makes it difficult to properly identify through empirical work the effects
of a change of subsidy on overreporting and donations. There might also be a selection bias with respect to audited
taxpayers and even if audits are random, the overall level of evasion is difficult to infer because the distribution of tax
evaders is potentially skewed (Fack and Landais 2016). Alm et al. (2010) emphasize that a lab experiment allows us to
observe the exact amount of misreporting, while in empirical investigations based on field data it is hard to accurately
measure “something that by its very nature people want to conceal” (Alm et al. 2010, p. 548). Finally, the laboratory
provides the opportunity to create a comprehensive data set such that I can control for individual and policy parameters
that may have an impact on charitable donations.

In my experiment, I find that the level of overreporting of donations is higher under the rebate than under the
match subsidy. This finding suggests that the optimal subsidy rate under the rebate is generally lower than under the
match, everything else being equal. Moreover, the probability of an audit does not have a significant influence on
overreporting under the rebate, while this probability is an important predictor of overreporting under the match. For
instance, a ten percentage point increase in the probability of an audit under the match reduces overreporting by almost
ten percent. I estimate a positive price elasticity of overreported donations, which means that overreporting decreases
with the subsidy rate. The elasticity is 0.66 under the match and 0.19 under the rebate in my preferred specification.

If the findings are confirmed in further studies, by knowing the elasticities of overreported donations and the shares
of reported donations to actual donations, policymakers may consider adapting the level of the subsidy in place or
switching to match subsidy schemes.

Related Literature This paper combines two streams of literature that have attracted a lot of attention in public
economics. First, there is a rich literature on charitable giving. Notable empirical contributions that try to estimate
the price elasticity of charitable giving, which reflects the change of donations in response to an increase in the subsidy

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1 Fack and Landais (2016) show that the optimal subsidy rate of giving generally increases if the share of overreporting decreases.
rate, have been made by Taussig (1967), Feldstein and Taylor (1976), Clotfelter (1985), Randolph (1995), and Pelozia
and Steel (2005). Huck and Rasul (2011) give a review of the empirical price elasticities of giving in the literature and
summarize that increases in the subsidy rates generally lead to more donations. In order to overcome the endogeneity
concerns of empirical works, Eckel and Grossman (2003, 2006, 2008), Davis and Millner (2005), Davis et al. (2005),
Karlan and List (2007), Huck and Rasul (2011), Huck et al. (2015), Scharf and Smith (2015), and others use field
and lab experiments to estimate the price elasticity of giving under match and rebate subsidies. These experiments
show that increases in the match subsidy are a more effective tool to increase donations than theoretically equivalent
increases in the rebate subsidies with the same net cost of giving. That is, both field and lab experiments indicate the
price elasticity of charitable contributions is higher under the match than under an equivalent rebate. While Meier
(2007) finds in a field experiment that donations decline after the experiment when donors no longer receive match
subsidies, his field experiment does not investigate the long run impacts of rebate subsidies.

Second, there is a long history of studies on income tax evasion, which was triggered by the seminal theoretical
audits to estimate tax evasion through charitable donations. Both studies conclude that overreporting of charitable
donations is quantitatively important. Slemrod (1989) finds that the elasticity of overreported donations is low and
that overreporting of donations is less price responsive than actual donations. Fack and Landais (2016), in the only paper
besides Slemrod (1989) that aims to measure the elasticity of overreported donations, exploit variation in reporting
behavior in response to a tax reform in France. Fack and Landais find the elasticity of overreported donations to be
large before the tax reform (between $−1.35$ and $−2.67$) and to be small after the tax reform (between $−0.20$ and
$−0.57$). Cojoc and Stoian (2014) find in their experiment that subjects cheat more on self-reported tasks in the first
stage if they know that they have the opportunity to donate to a charity in a second stage. While Douoguih et al.
(2014) argue that charitable donations can be used as a costly signal that a high-income taxpayer truthfully reported
her income situation such that she will not be examined by an auditor, Hungerman (2014) allows individuals to hide
income in a warm-glow model of charitable giving. Unlike in my study, Cojoc and Stoian (2014), Douoguih et al. (2014),
and Hungerman (2014) do not consider that donations themselves can be used to evade taxes. In independent work,
Blumenthal et al. (2012) test in a lab experiment how match and rebate subsidies can be used to overreport charitable
donations. In this experiment each subject repeatedly faces both a match and a rebate, where the match subsidy is
between 0 and 100 %.

In contrast to the study by Blumenthal et al. (2012), I present a one-shot between-subject design, where the subjects
either face a match or rebate and which avoids income and order effects. Moreover, I do not restrict the match subsidy
to lie between 0 and 100 % and also allow the rebate to be larger than 50 %. Karlan et al. (2011) not only argue
that the optimal match subsidy may be more than 100 % for certain types of donors, but that high subsidy rates are
also frequently observed in practice (see, for example, Karlan and List 2007; and Rondeau and List 2007). My study
additionally presents a novel double-anonymous design and controls for personal characteristics such as risk preferences.
Given these differences in the experimental design, a valuable contribution of this paper is also to test the replicability

2 Detailed summaries of the literature on income tax evasion can be found in Andreoni et al. (1998), Slemrod (2007), and Alm
(2012).

3 The idea of the experiment by Blumenthal et al. (2012) was first mentioned in the proceedings of the 2007 IRS research
conference (Turk et al. 2007). I was unaware of the suggestion by Turk et al. (2007) and the study by Blumenthal et al. (2012)
and first presented the design of my experiment in May 2011 at the Vienna Graduate Seminar in Economics.
and robustness of the findings of Blumenthal et. al. (2012), especially regarding their recommendations for tax policy. In addition, I motivate the analysis by providing a theoretical framework of overreporting of charitable donations, which could also be the basis for future theoretical and empirical studies on tax evasion and charitable giving. The theory predicts higher overreporting under the match than under the rebate. It also predicts relatively higher effects of increasing the probability of an audit and the subsidy rate under the match, which is consistent with my experimental results but different to the findings of Blumenthal et al. (2012). Other than previously suggested by the literature mentioned above, the theory shows that the differences in overreporting are not merely due to differences in framing the two subsidy schemes, but a result of different incentives to overreport under the two schemes.

The rest of this paper is organized as follows. Section 2 discusses theory and derives predictions. Section 3 presents the experimental design, and Section 4 presents the results. Section 5 concludes.

2 Theory

In this section, I present a simple theory of overreporting of charitable giving in order to obtain testable predictions for the experiment described in Section 3. The model is close to standard models of charitable giving (e.g. Becker 1974; DellaVigna et al. 2012; Onderstal et al. 2013) and to models of tax evasion (e.g. Allingham and Sandmo 1972; Kleven et al. 2011).

In the case of a rebate subsidy, the decision problem of the individual becomes the following. The individual gets utility from private consumption and from the charitable good. The individual consumes $c_E$ if overreporting is not detected and $c_D$ if overreporting is detected:

$$c_{E,r} = I - g(1 - s_r) + s_r g^e,$$
$$c_{D,r} = I - g(1 - s_r) - s_r g^e \theta,$$

where $I$ reflects income, $g$ stands for the non-negative individual’s true donations to the charity and $g^e$ for overreported donations, $s_r$ for the subsidy rate ($0 \leq s_r \leq 1$), and $\theta$ indicates the non-negative fine rate. For example, $I - g$ is equal to consumption if donations are not subsidized. If the individual receives a rebate subsidy for the donation, the subsidy is equal to the donated amount $g$ times the rebate subsidy rate $s_r$. An increase in the subsidy rate increases the money available for consumption. If overreporting is undetected, the individual also receives a subsidy for the overreported amount $g^e$. If overreporting is detected, the individual has to pay back the overreported subsidy $s_r g^e$ and further, has to pay a fine that is in proportion to the subsidy and the overreported donations $s_r g^e \theta$.

The differentiable, increasing, and concave function $\beta = \beta(g)$ reflects utility from the charitable good and depends on the individual’s donation $g$. I use a quasi-linear utility function and assume risk neutral individuals for simplicity. Since overreporting is detected with probability $p$ and undetected with probability $(1 - p)$, the expected utility is:

$$\max_{g, g^e} U_r = (c_{D,r} + \beta(g)) p + (c_{E,r} + \beta(g)) (1 - p)$$  (1)

4 For parsimony, the function $\beta(\cdot)$ does not depend on the donations of other individuals and does not distinguish between pure and impure altruism (warm glow), because this does not influence the main theoretical results regarding the decision to overreport or not.

5 The main theoretical results do not rely on the assumptions of risk neutrality and a quasi-linear utility function. The derivations under risk aversion and a concave consumption function can be obtained from the author upon request.
subject to the reporting and non-negativity constraints:

\[ g + g^e \leq I \text{ and } g, g^e, \lambda \geq 0. \] (2)

The conditions in inequality (2) say that the individual cannot report a donation higher than her income, and that the
donation cannot be negative. The former constraint is not very restrictive. Total donations, for example, are restricted
to be smaller than 50\% of adjusted gross income in the USA (see Feldman and Slemrod 2007).

In the case of a match subsidy, the individual reports her donation and the charity receives a match subsidy for
the donation. The function \( \beta (.) \), reflecting utility from the charitable good, also depends on the match subsidy rate
\( s_m \) (\( s_m \geq 0 \)) and the overreported amount \( g^e \). If the individual is overreporting in favor of the charity, the charity
receives the subsidy rate \( s_m \) times the overreported donation \( g^e \). The subsidy for the charity is generally equal to the
sum of the donated and overreported amount, \( g + g^e \), times the match subsidy rate \( s_m \). If overreporting is detected, the
individual has to pay back the overreported subsidy and further, has to pay a fine that is in proportion to the subsidy
rate and the overreported donation, \( s_m g^e \theta \). Under the match subsidy, the individual consumes \( c_E \) if overreporting is
not detected and \( c_D \) if overreporting is detected:

\[ c_{E,m} = I - g, \]
\[ c_{D,m} = I - g - s_m g^e \theta. \]

Under the match subsidy, the expected utility is:

\[ \max_{g,g^e} U_m = (c_{D,m} + \beta (g (1 + s_m))) p + (c_{E,m} + \beta (g (1 + s_m) + s_m g^e)) (1 - p) \] (3)

subject to the reporting and non-negativity constraints:

\[ g + g^e \leq I \text{ and } g, g^e, \lambda \geq 0. \] (4)

I characterize the optimal levels of giving \( g^* \) and overreporting \( g^{e*} \) as functions of the parameters \( p, \theta \), and \( s_r \) under the
rebate and \( s_m \) under the match in Appendix A.1 and A.2, respectively.\(^6\) In the following, I will state five propositions
that lead to testable predictions:

**Proposition 1** Ceteris paribus, the proportion of individuals overreporting is at least as high under the rebate as under
the equivalent match rate of \( s_m = s_r / (1 - s_r) \).

**Proof** See Appendix A.3. \( \square \)

The intuition for Proposition 1 is as follows. Under both the rebate and match subsidy, the individual will donate
the entire income and will not overreport (as the individual cannot report a donation higher than the income) if she

\(^6\) It is straightforward to see that in the absence of the possibility of overreporting, the total charitable contribution, which is the
amount the charity receives because of an individual’s donation, is identical under the rebate and the match if \( s_m = s_r / (1 - s_r) \),
unless the optimal total contribution under the match is higher than the maximum possible total contribution under the rebate.
For example, if the parameters are such that it is optimal for the individual to donate her entire income under the match, the
contribution is \( I s_m \), which is higher than the maximum possible contribution of \( I s_r \) under the rebate. However, Davis et al. (2005)
show in their experiment that the observed differences in charitable contributions under the match and the rebate are mainly a
result of framing the subsidy rather than limitations of the contribution under the rebate.
prefers charitable giving over private consumption. If the individual prefers private consumption over charitable giving, she will either overreport, donate, or keep her income, depending on the parameters $p, \theta,$ and $s$.\footnote{The simply theory mainly predicts corner solutions, where the individual either overreports, donates, or keeps her entire income. While in practice individuals frequently decide to donate or overreport fractions of their income, everything else equal, there does not seem to be strong reason to assume that the individuals are generally more likely to do so under one of the two subsidy schemes. In order to predict interior solutions where the individuals overreport fractions of their income, a cost of dishonest reporting (e.g., guilt) in addition to the fine for overreporting could be introduced to the model, as pointed out by an anonymous referee.} If the individual decides to overreport, it means she either prefers private consumption over charitable giving or is indifferent between charitable giving and overreporting. If the individual prefers private consumption over charitable giving and decides to overreport, she overreports the entire income such that $g^e = I$.\footnote{If the individual is indifferent between charitable giving and private consumption, the level of overreporting is equal to her income minus the actual donation. In this case, the level of overreporting can be higher under the match than under the rebate if the marginal utility from the charitable good is high and the probability of detection and fine rates are low. That is, if there is a low level of the charitable good and there are low expected costs of overreporting, individuals could decide to donate higher amounts under the rebate and overreport higher amounts in favor of the charity under the match.} In this case, the marginal benefit of overreporting for the individual is relatively lower under the match than under the rebate, because overreporting under the match does not increase private consumption (but the total amount of the charitable good), while it directly increases private consumption under the rebate. Therefore, the proportion of individuals overreporting under the rebate is at least as high as under an equivalent match.

**Proposition 2** The proportion of individuals overreporting is weakly decreasing in the probability of detection $p$ under the rebate and match.

**Proof** See Appendix A.4. □

The individual overreports less if the probability of detection increases under both a rebate and a match subsidy, because the marginal utility of overreporting decreases as the probability of detection increases. As a consequence of the increase in the probability of detection, the individual either substitutes to donations or decides to keep her income.

**Proposition 3** Ceteris paribus, an increase in the probability of detection $p$ leads to a lower reduction of the proportion of individuals overreporting under the rebate than under the equivalent match rate of $s_m = s_r/(1 - s_r)$.

**Proof** See Appendix A.5. □

First, an increase in the probability of detection reduces the marginal benefit of overreporting under the match and the rebate leading to less overreporting. Second, if the individual prefers private consumption over charitable giving and overreports the entire income, the marginal benefit of overreporting is relatively lower under the match than under the rebate. If the individual overreports under the match, the amount the charity receives increases but private consumption remains unaffected. As subjects who face a match overreport to increase the amount the charity receives, they substitute from overreporting to donations when the probability increases. Thus, an increase in the probability leads to a larger reduction of the proportion of individuals overreporting under the match due to its relatively lower marginal benefit of overreporting, making it relatively less attractive than donations.

**Proposition 4** The proportion of individuals overreporting is weakly decreasing in the rebate subsidy rate $s_r$ and in the match subsidy rate $s_m$.

**Proof** See Appendix A.6. □
An increase in the subsidy rate increases the marginal benefit of both donations and overreporting. However, the increase in the marginal benefit of overreporting is relatively lower than the increase in the marginal benefit of donations, because the utility gain of overreporting depends on the probability of detection. In addition, the fine the individual has to pay if overreporting is detected increases with the subsidy rate. As a result of the increase in the subsidy rate, the individual either substitutes to donations or decides to keep her income.\footnote{If the marginal utility of overreporting is already negative, an increase in the probability (Proposition 2) or the subsidy rate (Proposition 4) does not have an additional effect on overreporting, since the individual either donates or keeps her income in these cases.}

**Proposition 5** *Ceteris paribus, an increase in the rebate subsidy rate $s_r$ leads to a lower reduction of the proportion of individuals overreporting than an equivalent increase in the match subsidy rate of $s_m = \frac{s_r}{1 - s_r}$.***

*Proof* See Appendix A.7. □

First, an increase in the subsidy rate leads to a substitution from overreporting to donation. If the individual prefers private consumption over charitable giving and if she overreports the entire income, the marginal benefit of overreporting for the individual is relatively lower under the match than under the rebate since overreporting under the match does not increase private consumption. Therefore, an increase in the subsidy rate leads to a larger reduction of the proportion of individuals overreporting under the match due to its relatively lower marginal benefit of overreporting making it relatively less attractive than donations (compare also Proposition 3).

The five propositions above lead to the following testable predictions:

**Prediction 1** *There is a lower proportion of individuals overreporting under the match than under the rebate.*

If Prediction 1 is true and the differences in overreporting under the rebate and the match are severe, governments which make use of a rebate subsidy may consider a switch from a rebate to a match subsidy scheme, because a match subsidy may lead to the same amount of donations at a lower cost.

Since I am also interested in whether it makes sense for governments to spend a lot of money on programs to increase the probability of detection under the rebate and the match subsidy, respectively, I test:

**Prediction 2** *An increase in the probability of detection leads to a larger reduction of the proportion of individuals overreporting under the match than under the rebate.*

Finally, I am interested in the implications of an increase in the match and rebate subsidy rate, respectively, with respect to overreporting. That is, I would like to know whether it is useful for governments to make use of high rebate and match subsidies, respectively, and thus, I test:

**Prediction 3** *An increase in the subsidy rate leads to a larger reduction of the proportion of individuals overreporting under the match than under the rebate.*

3 Experimental Design

*Design Overview* Each session of the experiment consisted of four independent parts. In the first two parts, the subjects could donate money to a well-known charity they chose at the beginning of the experiment from a list of ten charities...
which briefly described the services each provides. As the donations were subject to either a match or a rebate subsidy, the experiment had two treatments. In the first part of the experiment, called the allocation part, I elicited the subjects’ willingness to donate to charities. In this part, the subjects did not have the option to overreport the donation. In the second part, called the reporting part, I elicited the subjects’ willingness to overreport donations to charities. In the reporting part, the subjects could first donate money to their previously chosen charity and were then required to self-report their donation. The subjects had an incentive to overreport their donations as this would have increased their subsidy.

Since the donations of the subjects were either subject to a rebate or a match subsidy, I made use of a between-subject design. However, the level of the subsidy and the probability of an audit varied within the subject. In the rebate treatment, the subject received a subsidy for the donation $s_r$ of either 20%, 50%, or 75%. In the match treatment, the charity received a subsidy $s_m$ of either 25%, 100%, or 300%, since the match and the rebate imply the same net cost of giving if $s_m = s_r/(1 - s_r)$. For instance, if the rebate subsidy was 50%, and the subject donated €10 to the charity, the donation effectively only cost €5: the €10 donation minus the €5 rebate. Equivalently, if the match subsidy was 100%, and the subject donated €5, the charity received €10: the donation of €5 plus the €5 match. As the price of giving one euro to charity was either €0.80, €0.50, or €0.25, the available choices are more salient than in Eckel and Grossman (2003) and Blumenthal et al. (2012), where the price was either €0.80, €0.75, or €0.50.

The order of the allocation and the reporting parts varied across sessions. Moreover, either the first or the second part of the experiment was paid in order to avoid income effects that may influence the decision to donate in the respective second part of the experiment. Both the variation of the order of the allocation and the reporting parts and the avoidance of income effects are in opposition to the experiment on overreporting of charitable giving by Blumenthal et al. (2012). The allocation and reporting parts were completely unrelated otherwise. At the end of the experiment, the subjects drew a chip to determine whether the first or the second part of the experiment was relevant for the payoff of the subject and the charity. In general, subjects were not informed about their payments in the respective parts of the experiment until the end of the experiment.

I also elicited risk preferences and social preferences in the third and fourth parts of the experiment, respectively, where the preference elicitation was incentivized. Risk preferences were elicited by making use of the lottery by Holt and Laury (2002), where the subjects had the choice between two lotteries with different risks. I elicited social preferences by using the Social Value Orientation Slider by Murphy et al. (2011), where each subject made six decisions about allocating money between herself and another subject. At the end of the experiment, subjects answered a questionnaire, where I asked demographic and motivational questions similar to Tan and Yim (2014) and Eckel and Grossman (2003) (e.g. age, income, gender). Furthermore, the subjects performed the Machiavelli personality test developed by Christie and Geis (1970), which tries to detect cynical and manipulative behavior, and emotional detachment. In this test, subjects had to show their level of agreement with statements like “One should take action only when sure it is morally right”. Subjects received €3 for finishing the questionnaire. The responses from the preference elicitation tasks and the questionnaire were used as control variables in the regressions analysis in Section 4. The experiment was programmed and conducted in zTree (Fischbacher 2007). Since it was a one-shot experiment, the subjects had to show their clear understanding of

\footnote{I made partial use of the z-Tree code provided by Crosetto et al. (2012).}

\footnote{Blumenthal et al. (2012) neither elicit risk nor social preferences and further, do not make use of a Machiavelli test. For more details on the elicitation of social and risk preferences and the questionnaire, see the instructions in Appendix C.}
the instructions and potential payoffs of each part of the experiment. In order to avoid anchoring, the subjects had to answer control questions with randomly generated numbers on the computer, which is not considered in the experiment by Blumenthal et al. (2012). A brief overview of the experimental design is given in Table 1. The instructions of the rebate treatment, questionnaire, and Machiavelli test can be found in Appendix C.

<table>
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<th>Task</th>
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<th>Match treatment</th>
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<td>Price of giving €1</td>
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<td>€0.80, €0.50, or €0.25</td>
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</tbody>
</table>

Notes: In the allocation part I test the subjects’ willingness to donate to charities in the absence of the possibility of overreporting. Each subject made three decisions in the allocation part, since the price of giving one euro to the charity was either €0.80, €0.50, or €0.25. In the reporting part I test the subjects’ willingness to overreport donations to charities. Each subject first made three decisions to donate and then six decisions to report the donation, since the price of giving one euro to the charity was either €0.80, €0.50, or €0.25, and the probability that the experimenter would check the report was either 4% or 50%.

Allocation Part This part tries to replicate the experiment by Eckel and Grossman (2003) and find out the subjects’ willingness to donate to charities in the absence of the possibility of overreporting. Eckel and Grossman (2003, 2006) and others show that subjects perceive theoretically equivalent match and rebate subsidies differently. In particular, subjects are more likely to increase their donations in response to an increase in the match subsidy than in response to an increase in the rebate subsidy. In the allocation part, the subjects allocate an endowment of €30 between themselves and a self-chosen charity and divide their endowment similar to a dictator game. Since each subject faced three subsidy rates in a random order, they each made three decisions in the allocation part. I framed the subsidy neutrally, because I think that using neutral framing potentially decreases the differences between the rebate and match price elasticities. That is, instead of using the phrases by Eckel and Grossman (2003, 2006) “the experimenter will refund to you” and “the experimenter will match it”, I wrote “the experimenter will give to you” and “the experimenter will give to the charity”. If this part of the experiment was relevant for the payment, the subjects drew a chip to determine which of the three problems of the allocation part was taken to determine the payoff of the subject and the charity.

Reporting Part In this part of the experiment I elicit the subjects’ willingness to overreport donations to charities under the match and the rebate subsidy, respectively. First, the subjects made three decisions to allocate an endowment of €30 between themselves and a self-chosen charity, exactly like in the allocation part described above. When making these allocation decisions, the subjects knew that they would shortly have the option to misreport their donation. Afterwards,

---

12 The subjects were informed that the numbers were randomly generated.

13 The endowment \( I \) of the first two parts of the experiment was increased from €20 in the first and second session to €30 in later sessions, since the experiment took slightly longer than initially expected. I control for the level of endowment in all my regressions.
conditional on having made their allocations, the subjects reported the donations (while knowing the probability of the audit). More precisely, each subject made first three decisions to donate and then six decisions to report the donation in the reporting part, as the price of giving one euro to the charity was either €0.80, €0.50, or €0.25, and the probability that the reported donation was audited was either 4% or 50% (see Table 1). Each subject faced the different prices of giving and the different probabilities in a random order. At the end of the experiment, the subjects drew a chip numbered from 1 to 100 which determined whether their report about the allocation was audited or not. For instance, if the probability of detection was 4%, the report was audited if the drawn chip number was lower than or equal to 4. If the report was not audited, the subsidy was based on the reported donation. If the report was audited, the subsidy was based on the actual amount the subject decided to donate to the charity. If the report was audited and the subject overreported the actual donation, she had to pay a 30% penalty of the overreported subsidy, which is the subsidy rate times the overreported amount. As is common in the tax evasion literature, the experiment uses neutral wording (compare for example Alm et al. 1992). For example, instead of using the terms ‘audit’ and ‘report’, I used the terms ‘check’ and ‘inform’. If this part of the experiment was relevant for the payment, the subjects drew a chip to determine which of the six problems of the reporting part was taken to determine the payoff of the subject and the charity.

Double Anonymity As the subjects should not feel observed by the experimenter, I implemented a double-anonymous design, which is in contrast to Blumenthal et al. (2012) yet common in the experimental tax evasion literature (see for example, Alm et al. 2010). This was done as follows. In each session, one subject was randomly chosen to be the monitor, who verified that the instructions were followed. An assistant, who was not one of the subjects, helped the monitor and answered the subjects’ questions. Both the monitor and the assistant were located in the room where the experiment was conducted. The experimenter, who was responsible for preparing the payment of the subjects and the charities, was not located in the room where the experiment was conducted. The subjects were informed that the monitor, the assistant, and the experimenter were not able to relate the decisions and the payoffs to any particular subject. Neither the monitor nor the assistant saw the subjects’ payoffs, while the experimenter did not face the subjects at all. The subjects’ anonymity towards all persons in the laboratory was also ensured when the subjects confirmed their payment, because the monitor distributed the earnings in a sealed envelope labeled with an ID number. The subjects took the money out of the envelope and received a receipt indicating the amount earned in the experiment. The subjects signed the back of this receipt to confirm that they had received this money. After the monitor had checked the back side of the receipts, the subjects put the signed receipt into new envelopes. Finally, the monitor and the experimenter posted the envelopes to the accounting department of the University of Vienna in accordance with bookkeeping regulations.

4 Experimental Results

The experimental results are presented as follows. Section 4.1 shows the sample descriptives. The levels of donations and estimated price elasticities of charitable contributions under the match and the rebate subsidy are shown in Section

14 In order to decrease the complexity of the experiment, the probability of an audit is exogenously given. In practice, taxing authorities may make use of both randomized audits (e.g. the Taxpayer Compliance Measurement Program of the IRS in the USA) and audits as a result of deviations from the reports of others (see for instance, the discussion in Andreoni et al. 1998).

15 The fine rate in the experiment by Blumenthal et al. (2012) was, at 200%, considerably higher than in this study. Taxpayers in the USA have to pay a penalty that is between 20% and 40% if they overreport the value of a donated property and the overreported subsidy is more than $5,000 (IRS 2013). Andreoni et al. (1998) also state that the fine rate for income misreporting in the USA is typically around 20%, but may be 70% if there is clear evidence of fraud.

16 The details of the double-anonymous procedure are explained in the experiment’s instructions (see Appendix C).
4.2. More importantly, Section 4.3 gives an overview of the levels of overreporting under the two treatments and tests the predictions presented in Section 2.

4.1 Sample Description

In total 100 subjects entered the laboratory. Eight of them were chosen as monitors in the respective sessions, and three subjects left the lab before the experiment finished. The subjects’ average age was over 26.\textsuperscript{17} Roughly 60% of the subjects were male. The subjects were on average risk-averse according to Holt and Laury (2002) and individualistic according to the Social Value Orientation slider by Murphy et al. (2011). Almost two thirds of the subjects came from the European Economic Area (EEA) and Switzerland. The sample is described in Table 2. In general, most subjects found that the instructions of the respective parts were clearly formulated and believed that the donated money was sent to the selected charities (see Table 11 in Appendix B).

<table>
<thead>
<tr>
<th>Subject characteristics (n = 89)</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>26.51</td>
<td>5.49</td>
<td>18</td>
<td>57</td>
</tr>
<tr>
<td>Male</td>
<td>0.61</td>
<td>0.49</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Holt and Laury switch</td>
<td>7.83</td>
<td>2.38</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>SVO angle</td>
<td>18.64</td>
<td>13.43</td>
<td>−7.8</td>
<td>61.4</td>
</tr>
<tr>
<td>Machiavelli score</td>
<td>79.70</td>
<td>13.75</td>
<td>45</td>
<td>115</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other EEA and Switzerland</td>
<td>38%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Third countries</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Holt and Laury switch reflects risk preferences and indicates the switch to the more risky option in the task of Holt and Laury (2002). SVO angle reflects social preferences and indicates the measured angle of the Social Value Orientation slider by Murphy et al. (2011). Murphy et al. classify subjects as altruists if the SVO angle is larger than $57.15^{\circ}$, as prosocial if the angle is between $57.15^{\circ}$ and $22.45^{\circ}$, as individualistic if the angle is between $22.45^{\circ}$ and $−12.04^{\circ}$, and as competitive if the angle is lower than $−12.04^{\circ}$. Machiavelli score indicates the score achieved in the test developed by Christie and Geis (1970). A high score reflects a more cynical and manipulative behavior, and a subject’s emotional detachment. Nationality indicates a subject’s nationality. Other EEA are the countries of the European Economic Area other than Austria. Third countries are countries outside of the EEA and Switzerland.

4.2 Donations

In this section, I first compare the levels of donations under the two treatments, and then estimate the price elasticities of charitable contributions. Figure 1 illustrates the distributions of the checkbook donations and shows the amounts the subjects give out of their endowment of €30 under the rebate and the match subsidy, respectively. No subject in the rebate treatment and only one subject in the match treatment gives their full endowment of €30.\textsuperscript{18} More than

\textsuperscript{17} The oldest subject was 57 years old, as the experiment was not open only to students. When comparing the means and the distributions of the variables summarized in Table 2, I cannot reject the null hypothesis that the subjects of the rebate and the match treatment are the same (p-values of two-sided t tests and Mann-Whitney U tests are always above the 10% significance level).

\textsuperscript{18} One subject in both the rebate and the match treatment gives the full amount under the endowment of €20 in the first two sessions of the experiment.
23% of the subjects do not donate in the rebate treatment under the endowment of €30, whereas roughly 9% do not donate in the match treatment.

Table 3 displays the average levels of checkbook donations under the rebate and match. Column (1) of Table 3 shows the three subsidy levels each subject faced in the allocation part. Columns (2) and (3) show the subjects’ checkbook donations under the rebate and the match, respectively. In column (2) of the first row of Table 3 we see that if the price of giving one euro to the charity is €0.80, the checkbook donation of the subjects in the rebate treatment is on average €5.64, while in column (3) we see that the checkbook donation in the match treatment is on average €6.06. When comparing the checkbook donations, I do not find significant differences between the match and the rebate treatment (see the p-values in columns (4) and (5) of Table 3). As the amounts the subjects give out of their endowment are similar under the two subsidy schemes, the charities receive higher contributions under the match due to the higher nominal subsidy rates (e.g. 50% rebate rate and 100% match rate, respectively).

In Table 4, I compare total charitable contributions under a rebate and a match, where the total contribution is the amount the charity receives because of the donation. Under the rebate subsidy, the total contribution is equal to the amount the subject decides to donate. Under the match subsidy, the total contribution is equal to the amount the subject decides to donate times the subsidy rate. In the first row of Table 4 we see that if the price of giving one euro to the charity is €0.80, the total contribution is on average €5.64 under the rebate and €7.57 under the match. If the price of giving one euro to the charity is €0.25, the charities receive €8.67 under the rebate and €30.87 under the match. In line with Eckel and Grossman (2003), I find that more money is going to the charities under the match than under the rebate subsidy under any price of giving, where the difference between the two subsidies is at least

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19 When comparing the mean under the rebate and match in column (4) of Table 3, I use a one-tailed $t$ test, where I do not assume equal variances under the two treatments. When comparing the distribution under the rebate and the match in column (5), I use a Kolmogorov-Smirnov test, since the Mann-Whitney $U$ test has limited power if a lot of observations take the value zero.

20 The average true total contribution in the reporting part (i.e. when overreporting is possible) ranges from €5.44 (high price of giving) to €8.62 (low price of giving) under the rebate and from €7.12 to €33.57 under the match. If I use a Wilcoxon signed-rank
weakly significant (see the $p$-values of the $t$ tests and the Kolmogorov-Smirnov tests in columns (4) and (5) of Table 4). The difference in the contributions between the subsidies is especially high if the price of giving one euro is low, which is largely driven by the subsidy the charity receives under the match rather than differences in the checkbook donations (compare Table 3). Generally, the higher the level of the subsidy, the larger the difference under the match and the rebate.

Table 3: Checkbook donations

<table>
<thead>
<tr>
<th>(1) Price of giving €1 to charity</th>
<th>(2) Rebate</th>
<th>(3) Match</th>
<th>(4) Equal means $p$-value</th>
<th>(5) Equal distributions $p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>€0.80</td>
<td>€5.64</td>
<td>€6.06</td>
<td>0.37</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>(0.93)</td>
<td>(0.86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.50</td>
<td>€6.71</td>
<td>€7.04</td>
<td>0.40</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>(1.02)</td>
<td>(0.82)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.25</td>
<td>€8.67</td>
<td>€7.72</td>
<td>0.73</td>
<td>0.41</td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td>(0.99)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$n = 47$</td>
<td>$n = 42$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. $n$ indicates the number of observations under a given price (e.g. €0.80). I compare checkbook donations under a rebate and a match, which is the amount the subjects give out of their endowment.

Table 4: Total contributions to charities

<table>
<thead>
<tr>
<th>(1) Price of giving €1 to charity</th>
<th>(2) Rebate</th>
<th>(3) Match</th>
<th>(4) Equal means $p$-value</th>
<th>(5) Equal distributions $p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>€0.80</td>
<td>€5.64</td>
<td>€7.57</td>
<td>0.089</td>
<td>0.073</td>
</tr>
<tr>
<td></td>
<td>(0.93)</td>
<td>(1.08)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.50</td>
<td>€6.71</td>
<td>€14.08</td>
<td>0.000</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(1.02)</td>
<td>(1.63)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.25</td>
<td>€8.67</td>
<td>€30.87</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td>(3.97)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$n = 47$</td>
<td>$n = 42$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. $n$ indicates the number of observations under a given price (e.g. €0.80). I compare total contributions under a rebate and a match, where the total contribution is the amount the charity receives because of the donation. Under the rebate subsidy, the total contribution is equal to the amount the subject decides to donate. Under the match subsidy, the total contribution is equal to the amount the subject decides to donate times the subsidy rate.

To estimate price elasticities of contributions, I make use of a tobit model:

$$\ln(\text{contributions}_{ij}) = \alpha + \beta_1 \text{rebate}_i + \beta_2 \ln(\text{price})_j + \beta_3 (\ln(\text{price}) \times \text{rebalance})_{ij} + X_{ij}'\gamma + u_{ij},$$  

(5)

test to compare the total contributions when overreporting is possible to the contributions when overreporting is not possible. I cannot reject the null hypothesis that the distributions are the same ($p$-value is above the 10% level under any price of giving).
where $i$ is the index of subjects and $j$ is the index of allocation decisions. The variable $\text{rebate}$ takes the value 1 if the subject faces a rebate subsidy and the value 0 if the subject faces a match subsidy. I control for the price of giving $\in 1$ to the charity, which is $1 - s_r$ (or equivalently, $1/(1 + s_m)$). $X$ is a vector of individual characteristics, including risk preferences, the Machiavelli score, a variable that indicates whether the subjects started with the allocation or the reporting part, subject’s age, gender and endowment, and dummies for charities. The dependent variable in columns (1) and (2) of Table 5 is the total contribution in the allocation part.\textsuperscript{21} The dependent variable in column (3) of Table 5 is the actual (true) total contribution made in the reporting part (i.e. not the claimed donation).

Table 5: Total contributions, marginal effects of a random-effects tobit model

<table>
<thead>
<tr>
<th>Dependent Variable: ln(Total Contribution+0.1)</th>
<th>(1) Allocation Part</th>
<th>(2) Allocation Part</th>
<th>(3) Reporting Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebate</td>
<td>0.070 (0.648)</td>
<td>0.239 (0.634)</td>
<td>0.499 (0.708)</td>
</tr>
<tr>
<td>$\ln(\text{Price})$</td>
<td>$-1.375^***$ (0.136)</td>
<td>$-1.393^***$ (0.137)</td>
<td>$-1.463^***$ (0.156)</td>
</tr>
<tr>
<td>$\ln(\text{Price}) \times \text{Rebate}$</td>
<td>$1.030^***$ (0.190)</td>
<td>$1.046^***$ (0.192)</td>
<td>$0.917^***$ (0.217)</td>
</tr>
<tr>
<td>Male</td>
<td>$-0.694^*$ (0.377)</td>
<td>$-0.454$ (0.374)</td>
<td>$-0.596$ (0.416)</td>
</tr>
<tr>
<td>Machiavelli</td>
<td>$-0.047^***$ (0.015)</td>
<td>$-0.035^*$ (0.016)</td>
<td></td>
</tr>
<tr>
<td>Other controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>267</td>
<td>267</td>
<td>267</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>$-384$</td>
<td>$-379$</td>
<td>$-410$</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Marginal effects are evaluated at the means. A random effect tobit model is estimated in columns (1) to (3). The dependent variable in columns (1) and (2) is the total contribution of the allocation part, which is the amount the charity receives because of the donation. The dependent variable in column (3) is the total contribution of the reporting part, which is the actual amount the charity receives because of the donation and not the reported amount. Under the rebate subsidy, the total contribution is equal to the amount the subject decides to donate. Under the match subsidy, the total contribution is equal to the amount the subject decides to donate times the subsidy rate. In column (1) I control for age, gender, and the initial endowment. In column (2) and (3) I also control for risk preferences and whether the experiment started with the allocation or the reporting part. I include a constant, and dummies for charities and sessions in all regressions.

From the second row of Table 5 we see that the match price elasticities of contributions range from $-1.38$ to $-1.46$, while from adding the second to the third row we find that the rebate price elasticities range from $-0.34$ to $-0.55$.\textsuperscript{22} The price elasticities of charitable contributions that I find are in line with the literature (see review in Huck and Rasul 2011). For instance, Eckel and Grossman (2003) find match and rebate price elasticities of $-1.07$ and $-0.34$, respectively, while Blumenthal et al. (2012) estimate slightly lower match and rebate elasticities of $-0.75$ and $-0.23$, respectively. It is not surprising that the elasticity of contributions in my study increases if the subjects also have the possibility of overreporting (column (3) of Table 5). An increase in the subsidy makes donations relatively more

\textsuperscript{21} Since I would like to estimate price elasticities and the logarithm of zero is not defined, I add 10 cents to the dependent variable. I chose 10 cents in order to be comparable to Eckel and Grossman (2003). If I add for instance 50 cents instead of 10 cents to the dependent variable, my results are hardly affected and my main findings are still the same.

\textsuperscript{22} The price elasticities of checkbook donations range from $-0.38$ to $-0.49$ under the match and $-0.32$ to $-0.51$ under the rebate (see Table 12 in Appendix B). The differences in the elasticities of checkbook donations are not statistically different under the match and the rebate due to many subjects in the experiment not adjusting their checkbook donations if the level of the subsidy increases (similar to the findings by Davis et al. (2005), Scharf and Smith (2015), and others). If the rebate subsidy rate increases, 37% of the subjects do not adjust their donations. If the match subsidy rate increases, 20% do not adjust their donations.
attractive than overreporting, and thus there is a substitution from overreporting to donation. The neutral wording of the subsidy may not be a very relevant determinant of the rebate and match price elasticity, respectively, because the price elasticities in columns (1) and (2) of Table 5 are very similar to the findings of Eckel and Grossman (2003). That is, not framing the match and rebate subsidy does not decrease the difference between the match and rebate price elasticities.

Men donate smaller amounts, which is also in line with previous findings (e.g. Eckel and Grossman 2003). However, the coefficient loses its weak significance if I include additional control variables to the variables from Eckel and Grossman (2003) (see columns (2) and (3) of Table 5). Finally, those with low Machiavelli scores donate significantly higher amounts than those with high Machiavelli scores. In other words, subjects who are more cynical and emotionally detached according to the Machiavelli test by Christie and Geis (1970) donate smaller amounts. To summarize, the findings with respect to the true donations are in line with Eckel and Grossman (2003). However, the main focus of this paper is to determine whether taxpayers overreport charitable giving and if so, what are the differences under the rebate and the match subsidy?

4.3 Overreporting

In this section, I first compare the claimed donations and the levels of overreporting under the two treatments, and then estimate price elasticities of overreported donations.

Figure 2 illustrates the distributions of the claimed donations. Figure 3 displays the relation between the subjects’ claimed donations and the checkbook donations (from the reporting part) under the rebate and the match subsidy (endowment of €30).

Fig. 2: Distribution of claimed donations in the rebate and the match treatment
Fig. 3: Checkbook donations and claimed donations

Fig. 3 shows that many subjects do not overreport at all (see dots on diagonal). In particular, in 40% of the decisions in the rebate and 56% of the decisions in the match treatment subjects correctly report their income. The subjects neither overreport nor donate in 8% of the decisions of both the rebate and match treatment. Furthermore, the subjects claim to have donated the full endowment of €30 in more than 24% of the decisions in the rebate treatment (see left panel of Fig. 2), while no subject actually donated the entire income (see top right corner of the left panel of Fig. 3). In comparison, the subjects in the match treatment claim to have donated the €30 in only 7% of their decisions (right panel of Fig. 2), while the subjects donated the entire amount only in 1% of the decisions (top right corner of the right panel of Fig. 3). In 11% of the decisions in the rebate and 2% of the decisions in the match treatment, the subjects claim to have reported the full endowment of €30, while their actual donation is €0 (bottom right corners of Fig. 3).

In Table 6 I test whether the level of overreporting under the rebate subsidy is higher than under the match subsidy, since the subsidies create different incentives for false reporting. Panel A of Table 6 considers the decisions where the subjects underreport, overreport, and report the donation correctly, while Panel B only considers the subset of decisions where the subjects overreport. In column (3) of the first row of Panel A of Table 6 we see that if the price of giving one euro to the charity is €0.80 and the probability of detection is 4%, the subjects in the rebate treatment overreport on average €9.08, while we see in column (4) that the subjects in the match treatment overreported on average €6.84. If the price of giving one euro decreases to €0.25 and the probability of detection increases to 50%, the level of overreporting under the rebate is still €6.87, while the level of overreporting under the match shrinks to €0.76.\textsuperscript{23} A comparison of column (3) and (4) of Table 6 shows that the level of overreporting is always higher under the rebate than under the match. Column (5) of Panel A of Table 6 shows that the null hypothesis that the level of overreporting is higher under the match than under the rebate is rejected under any given price and probability by using

\textsuperscript{23} While column (3) of Table 6 shows that the level of overreporting under the rebate is in some cases slightly higher if the probability of detection is 50% than if it is 4%, these differences are not statistically significant (p-values of two-sided t-tests are above 0.74).
one-tailed $t$ tests except in the case where the price of giving is €0.80 and the probability of detection is 4%. Karlan et al. (2011) argue that the optimal match may be at or below a price of giving of €0.50. In the situations described to be optimal by Karlan et al. (2011), overreporting is significantly different under the rebate and the match.

Table 6: Levels of overreporting

<table>
<thead>
<tr>
<th>(1) Price of giving</th>
<th>(2) Probability of detection</th>
<th>(3) Rebate</th>
<th>(4) Match</th>
<th>(5) Equal means p-value</th>
<th>(6) Equal distributions p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>€1 to charity</td>
<td></td>
<td>€9.08</td>
<td>€6.84</td>
<td>0.168</td>
<td>0.696</td>
</tr>
<tr>
<td>€0.80</td>
<td>4%</td>
<td>(1.74)</td>
<td>(1.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.80</td>
<td>50%</td>
<td>€8.52</td>
<td>€5.10</td>
<td>0.069</td>
<td>0.341</td>
</tr>
<tr>
<td>€0.80</td>
<td>4%</td>
<td>(1.78)</td>
<td>(1.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.50</td>
<td>50%</td>
<td>€7.67</td>
<td>€2.50</td>
<td>0.002</td>
<td>0.014</td>
</tr>
<tr>
<td>€0.50</td>
<td>4%</td>
<td>(1.61)</td>
<td>(0.67)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.25</td>
<td>4%</td>
<td>€7.91</td>
<td>€2.23</td>
<td>0.002</td>
<td>0.046</td>
</tr>
<tr>
<td>€0.25</td>
<td>50%</td>
<td>(1.74)</td>
<td>(0.77)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>€0.25</td>
<td>4%</td>
<td>€6.12</td>
<td>€2.49</td>
<td>0.027</td>
<td>0.016</td>
</tr>
<tr>
<td>€0.25</td>
<td>50%</td>
<td>(1.58)</td>
<td>(0.96)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Conditional on overreporting

| €0.80               | 4%                            | €19.77     | €12.84    | 0.010                  | 0.026                         |
|                    |                               | (1.97)     | (2.08)    |                        |                               |
| n = 22             |                               |            |           |                        |                               |

Panel A: All decisions

| €0.80               | 50%                           | €18.77     | €12.39    | 0.033                  | 0.022                         |
|                    |                               | (2.30)     | (2.47)    |                        |                               |
| n = 22             |                               |            |           |                        |                               |

Notes: Standard errors in parentheses. $n$ indicates the number of observations under a given price (e.g. €0.80) or probability (e.g. 4%). I compare the level of overreporting under a rebate and a match, where overreporting is the reported donation minus the actual amount donated. Panel A considers the decisions where the subjects underreport, overreport, and report the donation correctly. Panel B considers only the subset of decisions where the subjects overreport.

24 The lack of statistical difference under the price of giving of €0.80 and the probability of detection of 4% in Panel A of Table 6 could also be partly due to the relatively low expected costs of overreporting, in which case it could be optimal for individuals to overreport higher amounts under the match than under the rebate (compare Footnote 8).

25 If I compare the distribution of overreporting under the match and the rebate by using Kolmogorov-Smirnov tests (compare Footnote 19), I find significant differences between the subsidies unless the price of giving is €0.80 (see column (6) of Panel A of Table 6).
If I only consider the subset of decisions where the subjects overreport in Panel B of Table 6, I find that the level of overreporting is higher under the match than under the rebate under any price of giving and probability of detection (see also significant differences in the distribution of overreporting using Mann-Whitney U tests in column (6)). We see in the last row of Table 6 that if the price of giving is €0.25 and probability of detection is 50%, the average level of overreporting is €17.64 in the rebate treatment, while it is only €2.98 in the match treatment.  

In order to estimate price elasticities and to find out more about the determinants of overreporting, I run several regressions. To estimate whether subjects overreport \(\text{overreport}_{ij} = 1\) or report honestly \(\text{overreport}_{ij} = 0\) and to test Prediction 1, I make use of a probit model:

\[
\text{overreport}_{ij} = \alpha_1 + \beta_1 \text{rebate}_i + \beta_2 \text{prob}_j + \beta_3 (\text{prob} \times \text{rebate})_{ij} + \\
\beta_4 \ln(\text{price})_j + \beta_5 (\ln(\text{price}) \times \text{rebate})_{ij} + X'_{ij} \gamma_1 + u_{ij},
\]

(6)

where \(j\) is the index of reporting decisions, \(X\) is a vector of other control variables, including risk preferences, social preferences, the Machiavelli score, a variable that indicates the nationality of the subject, the donations from the allocation part, and other control variables mentioned before. The two-part hurdle model introduced by Cragg (1971) is useful if the decision of whether to overreport \(\text{overreport}_{ij} = 1\) or not \(\text{overreport}_{ij} = 0\) differs from the decision of how much to overreport (i.e. choice of the level of overreporting given that \(\text{overreport}_{ij} = 1\)). For example, if an increase in the price of giving has no effect on the decision whether to overreport or not, but a strong effect on the level of overreporting, I am able to identify these different effects with a hurdle model. The first stage of the hurdle model is given by the probit model shown in equation (6). In the second stage of the hurdle model, I condition overreporting on positive amounts of overreporting and I assume that the variable is log normally distributed (see Wooldridge 2010):

\[
\ln(\text{overreporting})_{ij} = \alpha_2 + \delta_1 \text{rebate}_i + \delta_2 \text{prob}_j + \delta_3 (\text{prob} \times \text{rebate})_{ij} + \\
\delta_4 \ln(\text{price})_j + \delta_5 (\ln(\text{price}) \times \text{rebate})_{ij} + X'_{ij} \gamma_2 + v_{ij} \quad \text{for overreport}_{ij} = 1.
\]

(7)

While the level of overreporting depends on the level of actual donations, it cannot be higher than the endowment of €30. Therefore, I estimate the second stage of the hurdle model shown in equation (7) by making use of a tobit model. Finally, I run a tobit model and make use of both the decisions where subjects chose to overreport and those where they decide not to by estimating equation (7) with the condition \(\text{overreporting}_{ij} \geq 0\).

The results of the tobit estimation in Table 7 allow me to estimate price elasticities and sensitivity to an increased probability of detection. First, the likelihood ratio statistics indicate that random-effects models are preferable to ordinary probit and tobit models, respectively, since I reject the null hypothesis that the subject-specific effects are

---

26 If I compare whether the subjects overreported, underreported, or exactly reported the donation by using Fisher’s exact test, I only find a significant difference in reporting behavior between the rebate and match if both the probability of detection is 50% and the price of giving is either €0.50 or €0.25 (see Table 14 in Appendix B). This means that the differences between the match and the rebate found in Table 6 under a low probability are more likely due to the different levels of overreporting (see Panel B of Table 6) and less likely due to the decision whether to misreport or not.

27 To predict overreporting, Blumenthal et al. (2012) are not able to use donations from the part of their experiment where subjects did not have the possibility to overreport as a control variable. This is because the subjects in Blumenthal et al. (2012) did not face the same subsidy rates in the part of the experiment where they had the possibility of overreporting and the part where they did not have the possibility of overreporting.

28 Since the logarithm is only defined for positive values, I do not allow for underreporting and add 10 cents to the level of overreporting in my regressions. That is, the dependent variable takes the value \(\ln(0.1)\) if a subject is not overreporting. To shorten the tables, I do not report all controls in Table 7. The full estimations of equations (6) and (7) are shown in Table 15 in Appendix B.
the same across subjects (shown in columns (1) to (3) at the bottom of Table 7). Second, in line with Prediction 1, the probit analysis shows that the likelihood of overreporting is higher under the rebate than under the match (shown at the bottom of Table 7). The hurdle analysis also confirms the finding of Table 6 that the level of overreporting is significantly higher under the rebate than under the match subsidy:

**Result 1** Overreporting under the rebate is higher than under the match subsidy.

**Probability of Detection** An increase in the probability of detection leads to significantly less overreporting under the match subsidy. An increase in the probability of detection by ten percentage points under the match subsidy decreases the likelihood of overreporting by 4.83% (see column (1) of Table 7) and the levels of overreporting in the subset of decisions where the subjects overreport by 4.67% (see column (2) of Table 7), and by 9.73% in the tobit estimation (see column (3) of Table 7). The effect of the probability under the rebate is obtained by adding the coefficient of the interaction term of the probability and the rebate dummy to the coefficient of the probability. In my experiment, the probability has no significant effect on compliance under the rebate subsidy, but the effect of the probability under the match subsidy is significantly negative:

**Result 2** A higher probability of an audit under the rebate has no significant effect on overreporting, whereas a higher probability under the match has a strong negative effect on overreporting.

Subjects facing the match are less willing to bear the higher expected costs of overreporting in favor of the charity if the probability increases than subjects facing the rebate who overreport to benefit themselves financially. The negative effect of the probability of detection on the likelihood of overreporting under the match subsidy in my experiment is in line with Prediction 2 and with findings from the income-tax literature (see Alm 2012). Even though Prediction 2 states a negative effect for both the rebate and the match subsidy, it also predicts that the increase in the probability leads to a larger reduction of the proportion of overreporting under the match than under the rebate subsidy. As the interaction term of the probability and the rebate dummy is positive and significant in the probit model in columns (1) and (3) of Table 7, I have some evidence for Prediction 2. In comparison, Blumenthal et al. (2012) find the probability of detection has a negative impact on overreporting both under the match and the rebate subsidy, where the probability in their study was either 0%, 10%, or 50%. In contrast to Blumenthal et al. (2012), my study estimates higher differences in overreporting as the probability increases (in line with Prediction 2).

---

29 I make use of a random-effects model, since I want to control for variables that do not vary within the individual (e.g. risk preferences), and since there exists no fixed-effects tobit model. However, my main findings are still the same if I use fixed-effects logit and linear fixed-effects models instead of the random-effects models. The coefficients for the price and probability of the random-effects models of Table 7 and the fixed-effects models are statistically not different using two-sided $t$ tests. Similarly, if I perform Hausman tests, I cannot reject the null hypotheses that the logit and the linear random-effects and fixed-effects estimators are consistent ($p$-values are above of 0.95, see bottom of Table 16 in the Appendix B). In short, the random-effects estimators and the fixed-effects estimators produce very similar results.

30 If I use claimed donations instead of overreporting as the dependent variable of equation (7), I do not find significant differences between the rebate and match treatment in the second stage of the hurdle model. This lack of statistical difference could be partly due to the effects of overreporting and actual donations canceling each other out. Nevertheless, if I make use of both the decisions where subjects chose to overreport and those where they decide not to, I find the claimed donations to be higher under the rebate than under the match ($p$-value of $z$ test is 0.004).
Table 7: Overreporting, marginal effects of random-effects models

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1) Probit Overreport ln(Overreporting+0.1)</th>
<th>(2) Hurdle ln(Overreporting+0.1)</th>
<th>(3) Tobit ln(Overreporting+0.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebate</td>
<td>22.00***</td>
<td>−6.59</td>
<td>46.81***</td>
</tr>
<tr>
<td></td>
<td>(6.20)</td>
<td>(9.00)</td>
<td>(10.86)</td>
</tr>
<tr>
<td>Probability</td>
<td>−0.483***</td>
<td>−0.467*</td>
<td>−0.973***</td>
</tr>
<tr>
<td></td>
<td>(0.185)</td>
<td>(0.272)</td>
<td>(0.347)</td>
</tr>
<tr>
<td>Probability × Rebate</td>
<td>0.518**</td>
<td>0.213</td>
<td>1.057**</td>
</tr>
<tr>
<td></td>
<td>(0.249)</td>
<td>(0.383)</td>
<td>(0.470)</td>
</tr>
<tr>
<td>ln(Price)</td>
<td>0.258***</td>
<td>0.869***</td>
<td>0.655***</td>
</tr>
<tr>
<td></td>
<td>(0.093)</td>
<td>(0.139)</td>
<td>(0.179)</td>
</tr>
<tr>
<td>ln(Price) × Rebate</td>
<td>−0.187</td>
<td>−0.499**</td>
<td>−0.402*</td>
</tr>
<tr>
<td></td>
<td>(0.122)</td>
<td>(0.193)</td>
<td>(0.236)</td>
</tr>
<tr>
<td>Male</td>
<td>0.272</td>
<td>0.154</td>
<td>0.776**</td>
</tr>
<tr>
<td></td>
<td>(0.166)</td>
<td>(0.209)</td>
<td>(0.386)</td>
</tr>
<tr>
<td>Donation Allocation Part</td>
<td>−0.009</td>
<td>−0.035**</td>
<td>−0.033*</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.014)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Rebate versus Match z Test</td>
<td>1.91*</td>
<td>2.44**</td>
<td>2.15**</td>
</tr>
<tr>
<td>Other Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>534</td>
<td>231</td>
<td>534</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>−216</td>
<td>−232</td>
<td>−677</td>
</tr>
<tr>
<td>Likelihood Ratio Test</td>
<td>96.07***</td>
<td>13.91***</td>
<td>140.43***</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Marginal effects are evaluated at the means. A random effect probit model is estimated in column (1), where the dependent variable is equal to one if the subject overreports the donation, and zero otherwise. A random effect tobit model is estimated as the second stage of a lognormal hurdle model in column (2). A random-effects tobit model is estimated in column (3). The dependent variable in columns (2) and (3) is the level of overreporting, where overreporting is the reported donation minus the actual amount donated. All analyses include controls for social and risk preferences, the Machiavelli score, initial endowment, whether the experiment started with the allocation or the reporting part, and the nationality of the subjects. I include a constant, and dummies for charities and sessions in all regressions. The z test statistic tests the null hypothesis that overreporting is the same under the match and the rebate subsidy. The likelihood ratio statistic tests the null hypothesis that each subject has the same individual effect.

**Price Elasticities** Column (1) of Table 7 shows that the price elasticity of overreported donations under the match is 0.26 for the binary decision to overreport or not. Column (3) shows that the match price elasticity is 0.66 in the tobit model, indicating that the increase in the subsidy rate has a relatively strong effect on the levels of overreporting. The rebate price elasticity of overreported donations is obtained by adding the coefficient of the price in row 4 of Table 7 to the coefficient of the interaction term of the price and the rebate dummy in row 5. The rebate price elasticity of overreported donations is not significantly different from zero in the probit and tobit models (the elasticities are 0.07, and 0.19, respectively; see columns (1) and (3) of Table 7), but the elasticity is 0.37 and highly significant if I consider only those decisions where the subjects decide to overreport (see column (2) of Table 7). This also shows that the subsidy rate is relatively less important for determining whether to overreport or not, but has a relatively high impact on the decision of how much to overreport. As stated in Prediction 3, the price elasticity of overreported donations is positive both under the match and the rebate (yet not always significant under the rebate). This is in line with Blumenthal et al. (2012) who do not measure the elasticity but find decreased overreporting under a higher subsidy rate, yet in contrast to Fack and Landais (2016) who find a negative price elasticity of overreported donations. As Fack and Landais (2016) mention, however, the price elasticities may depend strongly on the level of tax enforcement in place and, what is more, on other taxes and policy instruments. In my controlled experiment, a positive elasticity of
overreported donations is expected, since an increase in the subsidy rate leads to a substitution from overreporting to donation. The reason is that the subjects have a higher incentive to donate and their donation reports are limited by the level of the endowment (see Section 2). The decrease in overreporting as a result of an increase in the subsidy is larger under the match than under the rebate, which is in line with Prediction 3 (yet, the interaction terms of the price and rebate dummy are only significant in column (2) and weakly significant in column (3) of Table 7). Hence, we can state the following result:

**Result 3** The increase in the subsidy rate leads to a larger decrease in overreporting under the match than under the rebate subsidy.

If subjects who face a rebate overreport for selfish reasons to benefit themselves financially, they may not substitute from overreporting to donations when the subsidy rate increases. However, if subjects who face a match overreport for altruistic reasons to benefit the charity, those subjects may substitute from overreporting to donations if the subsidy rate increases, because the expected payoff for the charity is higher under donations than under overreporting. The higher price elasticities of true charitable contributions (see column (3) of Table 5) and of overreported donations (see Table 7) under the match than under the rebate confirm that the subjects are more likely to substitute from overreporting to donations under the match than under the rebate if the subsidy rate increases. In comparison, Blumenthal et al. (2012) do not find a significant difference in the effect of the subsidy on overreported donations between the match and the rebate. However, their study only compares the levels of gross overreporting under the rebate and the match, which is the amount the charity or the individual receives because of overreporting. As gross overreporting is a function of the subsidy rate, the effect of the subsidy rate on gross overreporting may not have been properly identified in the regressions by Blumenthal et al. (2012) (compare Section 4.4).

**Other Findings** Those who donate higher amounts in the allocation part overreport significantly smaller amounts in the reporting part (despite the decisions in the two parts of the experiment being unrelated). An increase in the donation by €10 in the allocation part means that the level of overreporting is roughly €3.5 lower in the reporting part, where the subject has the opportunity to both donate and to misreport (columns (2) and (3) of Table 7). Lastly, my study finds that women generally overreport less than men—both in the rebate and the match treatment (see column (3) of Table 7). This result is in contrast to Erat and Gneezy (2012), who find that men are more likely to tell a selfish lie, while women are more likely to tell an altruistic lie.

### 4.4 Robustness of Results

Instead of comparing the overreported amounts under the rebate and the match as in Table 7, it is also possible to compare (total) gross overreporting, which is the amount the charity or the individual receives because of overreporting. This has the drawback that the maximum possible gross overreporting differs under the match and the rebate because of the budget constraints of the individuals. For instance, if the endowment is €30 and the match is 100%, the subject can overreport €30 and the charity will end up with the overreported amount times the subsidy rate, which is also €30. In contrast, the maximum gross overreporting under the equivalent rebate of 50% is the full endowment times the

---

31 Blumenthal et al. (2012) are unable to control for donations in their regressions, as the subsidy rates were not equivalent in their allocation and reporting parts.
subsidy rate, which is €15. What is more, in order to estimate the reaction of overreporting as a result of an increase in the subsidy rate (i.e. price elasticities), I cannot make use of gross overreporting as the dependent variable, since gross overreporting is defined as the overreported amount times the subsidy rate. This is why my preferred specification in Table 7 uses the overreported amounts as the dependent variable.

<table>
<thead>
<tr>
<th>Table 8: Gross overreporting, marginal effects of random-effects models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable:</td>
</tr>
<tr>
<td>ln(Gross Overreporting+0.1)</td>
</tr>
<tr>
<td>Rebate</td>
</tr>
<tr>
<td>(8.16)</td>
</tr>
<tr>
<td>Probability</td>
</tr>
<tr>
<td>(0.340)</td>
</tr>
<tr>
<td>Probability × Rebate</td>
</tr>
<tr>
<td>(0.465)</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>(0.202)</td>
</tr>
<tr>
<td>Donation Allocation Part</td>
</tr>
<tr>
<td>(0.014)</td>
</tr>
<tr>
<td>Other Controls</td>
</tr>
<tr>
<td>Observations</td>
</tr>
<tr>
<td>Log Likelihood</td>
</tr>
<tr>
<td>Likelihood Ratio Test</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Marginal effects are evaluated at the means. A random-effects tobit model is estimated as the second stage of a lognormal hurdle model in column (1). A random-effects tobit model is estimated in column (2). The dependent variable in columns (1) and (2) is the level of gross overreporting, where gross overreporting is the overreported amount times the subsidy rate (i.e. how much the individual or the charity gets because of overreporting). Other controls include controls for social and risk preferences, the Machiavelli score, initial endowment, gender, whether the experiment started with the allocation or the reporting part, the donation of the allocation part, and the nationality of the subjects. I include a constant, and dummies for charities and sessions in all regressions. The likelihood ratio statistic tests the null hypothesis that each subject has the same individual effect.

Column (1) of Table 8 shows the results of the second stage hurdle model, while column (2) of Table 8 shows the result of the random-effects tobit model (the probit model is not affected by the alternative dependent variable). An increase in the probability of detection by ten percentage points under the match subsidy decreases gross overreporting by 6.3% conditional on overreporting, and decreases gross overreporting by roughly 10% in the unconditional tobit model (see columns (1) and (2) of Table 8). The coefficients of the probability under the rebate and the match in Tables 8 are not significantly different from the coefficients of Table 7 (two-sided t tests). Overall, the estimates of Table 8 are very similar to my preferred specification of Table 7.

5 Conclusion

This study uses an original experimental design to investigate tax evasion through overreporting of charitable donations. It provides a theoretical justification for a positive price elasticity of overreported donations and also produces the first experimental estimates for the elasticity, which is important for determining an effective way of subsidizing giving. Moreover, the study distinguishes between a match and a rebate subsidy. The theoretical and experimental results
show that differences in overreporting under the match and the rebate are not merely a consequence of framing, but rather due to the different incentives to overreport.

I find higher overreporting under the rebate than under the match subsidy. In addition, increases in the match subsidy rate lead to larger decreases in overreporting than do equivalent increases in the rebate subsidy rate. Furthermore, a higher audit probability does not have a significant impact on overreporting under the rebate, but leads to a quantitatively important reduction in overreporting under the match. Given the large number of taxpayers who misreport relatively small amounts of charitable donations in practice, increasing the number of audits could be a costly but ineffective option for countries using a rebate subsidy. This study’s findings of the differential impacts of increases in audit probability as well as the positive but different price elasticities of overreported donations under the two subsidy schemes are new and significant contributions. The experiment additionally confirms the finding of previous studies that the elasticity of true donations under the rebate is lower than the same elasticity under the match. Since increases in the match subsidy rate lead to larger increases in donations and decreases in overreporting than equivalent increases in the rebate subsidy rate, a match subsidy could lead to policymakers’ desired levels of donations at a lower cost.

One potential policy implication of my experiment is that increases in the subsidy rate and probability rate are more likely to lead to increases in welfare under the match than under the rebate subsidy. Government campaigns to increase the probability of detection, such as by increasing the frequency of audits, may substantially reduce overreporting under match subsidies but could have little impact under the rebate. The results indicate that due to relatively higher expected losses for governments from subsidizing overreported donations, the optimal subsidy rate is lower under the rebate than under the match. Finally, while any implications for policymakers can only be drawn cautiously, since the behavior of individuals also depends on other policy instruments and institutions, my controlled experiment strongly suggests that replacing rebate schemes with match schemes may not only have the potential to increase donations, but also to decrease overreporting of donations.

References


**Appendices**

**A Proofs**

A.1 Optimal Levels of Giving and Overreporting under the Rebate

In this section, I characterize the optimal levels of giving \( g^* \) and overreporting \( g^e^* \) as functions of the parameters \( p, \theta \), and \( s_r \) under the rebate. The individual maximizes the expected payoff given in equation (1) by choosing the level of overreported donations and true charitable donations. The Kuhn-Tucker conditions become:

\[
\frac{\partial U_r}{\partial g^e} = -s_r \theta p + s_r (1 - p) - \lambda \leq 0 
\]  
(8)

\[
\frac{\partial U_r}{\partial g} = \beta' (g) - 1 + s_r - \lambda \leq 0 
\]  
(9)

\[
\frac{\partial U_r}{\partial \lambda} = I - g - g^e \geq 0 
\]  
(10)

\[
g^e = 0 \quad \lor \quad -s_r \theta p + s_r (1 - p) - \lambda = 0 
\]

\[
g = 0 \quad \lor \quad \beta' (g) - 1 + s_r - \lambda = 0 
\]

\[
\lambda = 0 \quad \lor \quad I - g - g^e = 0, 
\]
In this section, I characterize the optimal levels of giving

\[ \lambda \]

A.2 Optimal Levels of Giving and Overreporting under the Match

\[ \text{Tax Evasion and CharitableGiving—An Experimental Approach} \]

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\[ \text{cost of overreporting} \]

\[ s \]

\[ \text{detection. The marginal benefit of overreporting depends on the level of the subsidy and is given by} \]

\[ s_r (1 - p). \]

\[ \text{I define the three thresholds from the Kuhn-Tucker conditions:} \]

\[ \hat{a}_r (p, \theta, s_r) \equiv \frac{1 - ps_r (1 + \theta)}{\beta' (g)} , \]

\[ \hat{a}_r (p, s_r) \equiv \frac{(1 - s_r)}{\beta' (g)} , \]

\[ \phi_r (\theta) \equiv \frac{1}{1 + \theta} . \]

\[ \text{For any} \{p, \theta, s_r\}, \text{there is an optimal level of donation} g^* (p, \theta, s_r) \text{and overreporting} g^{e*} (p, \theta, s_r). \]

\[ \text{The solution of the maximization problem is shown in Table 9. For instance, row 1 of Table 9 says that at the optimum, the individual does} \]

\[ \text{not donate any money to the charity} \]

\[ g^* (0) \text{but reports a donation of} I \text{(i.e. overreport its donation by} g^{e*} = I) \text{if} \]

\[ \text{the probability of detection} \]

\[ p \text{is smaller than or equal to the threshold} \phi_r (\theta) \text{and} \hat{a}_r (p, \theta, s_r) \text{is larger than one.} \]

\[ \begin{array}{c|c}
    \text{Table 9: Solution, rebate subsidy} \\
    \hline
    \text{For} & \text{Solution} \\
    \hline
    p \leq \phi_r (\theta) & \hat{a}_r (p, \theta, s_r) > 1 \text{ } g^* (\ldots) = 0, g^{e*} (\ldots) = I \\
    p \leq \phi_r (\theta) & \hat{a}_r (p, \theta, s_r) = 1 \text{ } g^* (\ldots) \in [0, I], g^{e*} (\ldots) \in [0, I] \text{ s.t. } g^* (\ldots) + g^{e*} (\ldots) = I \\
    p \leq \phi_r (\theta) & \hat{a}_r (p, \theta, s_r) < 1 \text{ } g^* (\ldots) = I, g^{e*} (\ldots) = 0 \\
    p > \phi_r (\theta) & \hat{a}_r (p, s_r) < 1 \text{ } g^* (\ldots) = 0, g^{e*} (\ldots) = 0 \\
    p > \phi_r (\theta) & \hat{a}_r (p, s_r) = 1 \text{ } g^* (\ldots) \in [0, I], g^{e*} (\ldots) = 0 \\
    p = \phi_r (\theta) & \hat{a}_r (p, s_r) = 1 \text{ } g^* (\ldots) \in [0, I], g^{e*} (\ldots) \in [0, I] \text{ s.t. } g^* (\ldots) + g^{e*} (\ldots) \leq I \\
    p = \phi_r (\theta) & \hat{a}_r (p, s_r) = 1 \text{ } g^* (\ldots) \in [0, I], g^{e*} (\ldots) \in [0, I] \text{ s.t. } g^* (\ldots) + g^{e*} (\ldots) \leq I \\
    \hline
\end{array} \]

A.2 Optimal Levels of Giving and Overreporting under the Match

In this section, I characterize the optimal levels of giving \[ g^* \] and overreporting \[ g^{e*} \] as functions of the parameters \[ p, \theta, \] and \[ s_m \] under the match. The individual maximizes the expected payoff given in equation (3) by choosing the level of overreported donations and true charitable donations. I make use of the following notation:

\[ \beta (g (1 + s_m)) \equiv \beta (\delta_m) \]

\[ \beta (g (1 + s_m) + s_m g^e) \equiv \beta (\epsilon_m) . \]
The Kuhn-Tucker conditions become:

\[
\frac{\partial U_m}{\partial g^e} = -s_m \theta p + \beta' (\epsilon_m) s_m (1 - p) - \lambda \leq 0
\]  

(10)

\[
\frac{\partial U_m}{\partial g} = (\beta' (\delta_m) (1 + s_m) - 1) p + (\beta' (\epsilon_m) (1 + s_m) - 1) (1 - p) - \lambda \leq 0
\]  

(11)

\[
\frac{\partial U_m}{\partial \lambda} = I - g - g^e \geq 0
\]

\[
g, g^e, \lambda \geq 0
\]

Equation (10) reflects the marginal utility of overreporting one euro. The marginal cost of overreporting \(s_m \theta p\) depends on the probability of detection times the amount that has to be paid in case of detection. The marginal benefit of overreporting depends on the level of the subsidy and is given by \(\beta' (.) s_m (1 - p)\). I define the three thresholds from the Kuhn-Tucker conditions:

\[
\hat{a}_m (p, \theta, s_m) \equiv \frac{1 - s_m \theta p}{(1 + s_m) \beta' (\delta_m) + (1 - p) \beta' (\epsilon_m)},
\]

\[
\bar{a}_m (p, s_m) \equiv \frac{1}{(1 + s_m) (p \beta' (\delta_m) + (1 - p) \beta' (\epsilon_m))},
\]

and

\[
\phi_m (p, \theta) \equiv \frac{p \theta}{(1 - p) \beta' (\epsilon_m)}.
\]

For any \(\{p, \theta, s_m\}\), there is an optimal level of donation \(g^*(p, \theta, s_m)\) and overreporting \(g^{e*}(p, \theta, s_m)\). The solution of the maximization problem is given in Table 10. For instance, row 1 of Table 10 says that at the optimum, the individual does not donate any money to the charity \((g^* = 0)\) but reports a donation of \(I\) (i.e. overreport its donation by \(g^{e*} = I\)) if the threshold \(\phi_m (\theta)\) is smaller than or equal to one and \(\hat{a}_m (p, \theta, s_m)\) is larger than one.
Table 10: Solution, match subsidy

<table>
<thead>
<tr>
<th>For</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \phi_m(p, \theta) \leq 1 )</td>
<td>( \tilde{a}_m(p, \theta, s_m) &gt; 1 )</td>
</tr>
<tr>
<td>( \phi_m(p, \theta) \leq 1 )</td>
<td>( \tilde{a}_m(p, \theta, s_m) = 1 )</td>
</tr>
<tr>
<td>( \phi_m(p, \theta) \leq 1 )</td>
<td>( \tilde{a}_m(p, \theta, s_m) &lt; 1 )</td>
</tr>
<tr>
<td>( \phi_m(p, \theta) &gt; 1 )</td>
<td>( \tilde{a}_m(p, s_m) &lt; 1 )</td>
</tr>
<tr>
<td>( \phi_m(p, \theta) &gt; 1 )</td>
<td>( \tilde{a}_m(p, s_m) &gt; 1 )</td>
</tr>
<tr>
<td>( \phi_m(p, \theta) &gt; 1 )</td>
<td>( \tilde{a}_m(p, s_m) = 1 )</td>
</tr>
</tbody>
</table>

A.3 Proof of Proposition 1

Proof First, consider the marginal utility of overreporting and donations, respectively, under the rebate:

\[
\frac{\partial U_r}{\partial g_e} = -s_r \theta p + s_r \left(1 - p\right) \tag{12}
\]

\[
\frac{\partial U_r}{\partial g} = \beta'(g) - 1 + s_r. \tag{13}
\]

The marginal utility of donations in equation (13) is necessarily higher than the marginal utility of overreporting (12) if \( \beta'(.) \geq 1 \). To check whether

\[
\frac{\partial U_r}{\partial g} > \frac{\partial U_r}{\partial g_e} \tag{14}
\]

I make use of equations (12) and (13) and plug \( \beta'(.) = 1 \) into inequality (14), which simplifies to:

\[
\theta > -1,
\]

which is true, since \( \theta \) is non-negative. That is, even in the case where \( \beta'(.) = 1 \), the marginal utility of donations in equation (13) is necessarily higher than the marginal utility of overreporting (12). This means that there will be overreporting under the rebate if and only if \( \beta'(.) < 1 \).

Similarly, there never will be overreporting under the match if \( \beta'(.) \geq 1 \). To see this, consider the marginal utility of overreporting and donations under the match:

\[
\frac{\partial U_m}{\partial g_e} = -s_m \theta p + \beta'(\epsilon_m) s_m \left(1 - p\right) \tag{15}
\]

\[
\frac{\partial U_m}{\partial g} = (\beta'(\delta_m) (1 + s_m) - 1) p + (\beta'(\epsilon_m) (1 + s_m) - 1) (1 - p). \tag{16}
\]
The marginal utility of donations in equation (16) is necessarily higher than the marginal utility of overreporting (15) if $\beta'(.) \geq 1$. To check whether

$$\frac{\partial U_m}{\partial g} > \frac{\partial U_m}{\partial g^e}$$

(17)

I make use of equations (15) and (16) and plug $\beta'(.) = 1$ into inequality (17), which simplifies to:

$$\theta > -1,$$

which is true, since $\theta$ is non-negative. This means that there will be overreporting under the match if and only if $\beta'(.) < 1$.

Second, in equilibrium, there is overreporting if the marginal utility of overreporting is higher than or equal to the marginal utility of donations, and if the marginal utility of donations is positive:

$$\frac{\partial U}{\partial g^e} \geq 0.$$

Everything else equal, there will be a higher proportion overreporting under the rebate than under the match if the ratio of the marginal utility of overreporting to the marginal utility of donations is higher under the rebate than under the match:

$$\frac{\partial U_r/\partial g^e}{\partial U_r/\partial g} > \frac{\partial U_m/\partial g^e}{\partial U_m/\partial g}.$$ (18)

To see this, I plug in the marginal utilities:

$$\frac{\partial U_r/\partial g^e}{\partial U_r/\partial g} = -s_r \theta p + s_r (1 - p) \beta'(g_i) - 1 + s_r$$

(19)

$$\frac{\partial U_m/\partial g^e}{\partial U_m/\partial g} = \frac{-s_m \theta p + \beta'(\epsilon_m) s_m (1 - p)}{(\beta'(\delta_m) (1 + s_m) - 1) p + (\beta'(\epsilon_m) (1 + s_m) - 1)(1 - p)}.$$ (20)

If I plug in the equivalent subsidy rate $s_m = s_r/(1 - s_r)$, equation (20) becomes:

$$\frac{\partial U_m/\partial g^e}{\partial U_m/\partial g} = \frac{s_r (-p \theta + \beta'(\epsilon_m) (1 - p))}{-1 + s_r + p \theta \delta_m + (1 - p) \beta'(\epsilon_m)}.$$ (21)

Everything else equal, the marginal utility of donations at the optimum is the same under the match and the rebate for the individual who donates (as this implies no overreporting or indifference between overreporting and donations; compare the optimal $g^e*$ and $g^*$ in Appendices A.1 and A.2) and thus, the denominators of equations (19) and (21) are identical. In comparison, if there is overreporting and if the individual prefers private consumption over charitable giving, the marginal utility of overreporting is higher under the rebate than under the match (see numerators of equations (19) and (21)), since a necessary condition for overreporting is $\beta'(.) < 1$. Ceteris paribus, this means that inequality (18) must hold if there is overreporting and if the individual prefers charitable giving and hence, the proportion of individuals overreporting under the rebate is as least as high as under the equivalent match rate of $s_m = s_r/(1 - s_r)$. $\square$
A.4 Proof of Proposition 2

Proof In equilibrium, there is overreporting if the marginal utility of overreporting is higher than or equal to the marginal utility of donations, and if the marginal utility of overreporting is positive:

\[ \frac{\partial U}{\partial g_e} \geq \frac{\partial U}{\partial g} \geq 0. \]

That is, the individual overreports if the marginal utility of overreporting is greater than zero and if the ratio of the marginal utility of overreporting to the marginal utility of donations (i.e. the marginal rate of substitution of overreporting for donations) is equal to or greater than one:

\[ \frac{\partial U_r}{\partial g_e} \geq 1, \]  \hspace{1cm} (22)  
\[ \frac{\partial U_m}{\partial g_e} \geq 1. \]  \hspace{1cm} (23)

The marginal rate of substitution of overreporting for donations under the rebate is given by equation (19) and the marginal rate of substitution of overreporting for donations under the match under the equivalent subsidy rate of \( s_m = s_r/(1 - s_r) \) is given by equation (21).

The marginal utility of donations is not affected by an increase in the probability of detection under the rebate (see denominator of equation (19)). In comparison, the marginal utility of overreporting decreases with increased probability: the marginal cost of overreporting \( s_r \theta \) increases and the marginal benefit of overreporting \( s_r \) decreases (see numerator of equation (19)). As a result, an increase in the probability \( p \) reduces the proportion of individuals overreporting under the rebate. Similarly, the marginal utility of donations at the optimum is not affected by an increase in the probability under the match for the individual who donates (as this implies no overreporting or indifference between overreporting and donations; compare the optimal \( g^\ast_e \) and \( g^\ast \) in Appendix A.2) and thus, the denominator of equation (21) is not affected by \( p \). However, the marginal utility of overreporting decreases with the increase in the probability: the marginal cost of overreporting \( s_r \theta \) increases and the marginal benefit of overreporting \( s_r \beta'(\varepsilon_m) \) decreases, as \( \beta(.) \) is concave (see numerator of equation (21)). As a result, an increase in the probability \( p \) reduces the proportion of individuals overreporting under the match. □

A.5 Proof of Proposition 3

Proof In equilibrium, there is overreporting if the marginal utility of overreporting is higher than or equal to the marginal utility of donations, and if the marginal utility of overreporting is positive. I use equations (19) and (21) to compare an increase in the probability of detection under the equivalent match and rebate subsidy rates. At the optimum, the marginal utility of donations is not affected by an increase in the probability \( p \) for the individual who donates (see Proof of Proposition 2). The marginal cost of overreporting, \( s_r \theta \), is the same under the rebate and match. However, we see at the numerators of equations (19) and (21) that if there is overreporting and if the individual prefers private consumption over charitable giving, the marginal benefit of overreporting \( (s_r \text{ and } s_r \beta'(\varepsilon_m)) \) under the rebate and the match, respectively) is lower under the match than under the rebate, since a necessary condition for
overreporting is $\beta'(.) < 1$ and $\beta(.)$ is increasing and concave. Ceteris paribus, an increase in the probability, $p$, leads to a larger reduction in the proportion of individuals overreporting under the match due to its relatively lower marginal benefit of overreporting leading to a substitution for donations (see the condition for overreporting, inequality (23)).

A.6 Proof of Proposition 4

Proof In equilibrium, there is overreporting if the marginal utility of overreporting is higher than or equal to the marginal utility of donations, and if the marginal utility of overreporting is positive. We see in equations (19) and (21) that if there is overreporting, the marginal utility of overreporting and donations increase as a result of an increase in the subsidy rate $s_r$, since $\beta(.)$ is increasing and concave. However, the marginal utility of overreporting increases relatively less than the marginal utility of donations as a result of an increase in the subsidy rate. If the subsidy rate increases, not only the marginal benefit of overreporting ($s_r \beta'(\epsilon_m)$ under the rebate and the match, respectively) but also the marginal cost of overreporting ($s_r \theta$) increases (see equations (12) and (15)). As a result, an increase in the subsidy rate $s_r$ reduces the proportion of individuals overreporting under the rebate and the match. □

A.7 Proof of Proposition 5

Proof In equilibrium, there is overreporting if the marginal utility of overreporting is higher than or equal to the marginal utility of donations, and if the marginal utility of overreporting is positive. I use equations (19) and (21) to compare an increase in an equivalent match and rebate subsidy rate. If the subsidy rate $s_r$ increases, the marginal utility of donations increases in the same manner under the rebate and the match for the individual who donates at the optimum (as this implies no overreporting or indifference between overreporting and donations; compare the optimal $g^{**}$ and $g^*$ in Appendices A.1 and A.2) and thus, the denominators of equations (19) and (21) are identical. However, we see at the numerators of equations (19) and (21) that if there is overreporting and if the individual prefers private consumption over charitable giving, the marginal utility of overreporting is lower under the match than under the rebate, since a necessary condition for overreporting is $\beta'(.) < 1$, and $\beta(.)$ is increasing and concave. Ceteris paribus, an increase in the subsidy rate, $s_r$, leads to a larger reduction in the proportion of individuals overreporting under the match due to its relatively lower marginal benefit of overreporting leading to a substitution to donations (see the condition for overreporting, inequality (23)). □
B Additional Tables

Table 11: Understanding of the instructions

<table>
<thead>
<tr>
<th>Understanding items (n = 89)</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>The instructions of the allocation part were clearly formulated.</td>
<td>6.16</td>
<td>1.30</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>The instructions of the reporting part were clearly formulated.</td>
<td>5.62</td>
<td>1.56</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>The instructions of part 3 were clearly formulated.</td>
<td>6.33</td>
<td>1.32</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>The instructions of part 4 were clearly formulated.</td>
<td>6.42</td>
<td>1.23</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>The procedures followed in this experiment preserved my anonymity.</td>
<td>6.34</td>
<td>1.26</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>The money I passed to my selected charity will be transferred to the charity.</td>
<td>5.97</td>
<td>1.58</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

Notes: Responses to the understanding items are from 1 (strongly disagree) to 7 (strongly agree). Part 3 refers to the risk elicitation task. Part 4 refers to the social preference elicitation task.

Table 12: Checkbook donations, marginal effects of a random-effects tobit model

<table>
<thead>
<tr>
<th>Dependent Variable: ln(Checkbook Donation+0.1)</th>
<th>(1) Allocation Part</th>
<th>(2) Allocation Part</th>
<th>(3) Reporting Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebate</td>
<td>−0.040</td>
<td>0.092</td>
<td>0.305</td>
</tr>
<tr>
<td>(0.582)</td>
<td>(0.575)</td>
<td>(0.623)</td>
<td></td>
</tr>
<tr>
<td>ln(Price)</td>
<td>−0.382***</td>
<td>−0.390**</td>
<td>−0.493***</td>
</tr>
<tr>
<td>(0.121)</td>
<td>(0.123)</td>
<td>(0.140)</td>
<td></td>
</tr>
<tr>
<td>ln(Price) × Rebate</td>
<td>0.059</td>
<td>0.062</td>
<td>−0.015</td>
</tr>
<tr>
<td>(0.170)</td>
<td>(0.174)</td>
<td>(0.194)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>−0.652*</td>
<td>−0.456</td>
<td>−0.555</td>
</tr>
<tr>
<td>(0.339)</td>
<td>(0.340)</td>
<td>(0.366)</td>
<td></td>
</tr>
<tr>
<td>Machiavelli</td>
<td>−0.041**</td>
<td>−0.020**</td>
<td></td>
</tr>
<tr>
<td>(0.014)</td>
<td>(0.014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>267</td>
<td>267</td>
<td>267</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>−375</td>
<td>−369</td>
<td>−399</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Marginal effects are evaluated at the means. A random effect tobit model is estimated in columns (1) to (3). The dependent variable in columns (1) and (2) is the checkbook donation of the allocation part, which is the amount the subjects give out of their endowment. The dependent variable in column (3) is the checkbook donation of the reporting part, which is the amount the subjects give out of their endowment and not the reported amount. Under the rebate subsidy, the total contribution is equal to the amount the subject decides to donate. Under the match subsidy, the total contribution is equal to the amount the subject decides to donate times the subsidy rate. In column (1) I control for age, gender, and the initial endowment. In column (2) and (3) I also control for risk preferences and whether the experiment started with the allocation or reporting part. I include a constant, and dummies for charities and sessions in all regressions.
Table 13: Total contributions, marginal effects of a random-effects tobit model (full estimations)

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1) Allocation Part</th>
<th>(2) Allocation Part</th>
<th>(3) Reporting Part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ln(Total Contribution + 0.1)</td>
<td>ln(Total Contribution + 0.1)</td>
<td>ln(Total Contribution + 0.1)</td>
</tr>
<tr>
<td>Rebate</td>
<td>0.070 (0.648)</td>
<td>0.239 (0.634)</td>
<td>0.461 (0.705)</td>
</tr>
<tr>
<td>ln(Price)</td>
<td>-1.375*** (0.136)</td>
<td>-1.393*** (0.137)</td>
<td>-1.466*** (0.156)</td>
</tr>
<tr>
<td>ln(Price) × Rebate</td>
<td>1.030*** (0.190)</td>
<td>1.046*** (0.192)</td>
<td>0.918*** (0.217)</td>
</tr>
<tr>
<td>Age</td>
<td>0.040 (0.034)</td>
<td>0.010 (0.034)</td>
<td>0.037 (0.038)</td>
</tr>
<tr>
<td>Male</td>
<td>-0.694* (0.377)</td>
<td>-0.454 (0.374)</td>
<td>-0.530 (0.417)</td>
</tr>
<tr>
<td>ln(Endowment)</td>
<td>-2.409 (2.111)</td>
<td>-2.975 (2.191)</td>
<td>0.063 (2.475)</td>
</tr>
<tr>
<td>Machiavelli</td>
<td>-0.047*** (0.015)</td>
<td>-0.033* (0.017)</td>
<td></td>
</tr>
<tr>
<td>Holt and Laury switch</td>
<td>-0.069 (0.077)</td>
<td>-0.112 (0.086)</td>
<td></td>
</tr>
<tr>
<td>Allocation Part</td>
<td>-0.113 (0.657)</td>
<td>0.095 (0.728)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>267</td>
<td>267</td>
<td>267</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>-384</td>
<td>-379</td>
<td>-409</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. Marginal effects are evaluated at the means. A random-effects tobit model is estimated in columns (1) to (3). The dependent variable in columns (1) and (2) is the total contribution of the allocation part, which is the amount the charity receives because of the donation. The dependent variable in column (3) is the total contribution of the reporting part, which is the actual amount the charity receives because of the donation and not the reported amount. Under the rebate subsidy, the total contribution is equal to the amount the subject decides to donate. Under the match subsidy, the total contribution is equal to the amount the subject decides to donate times the subsidy rate. I include a constant, and dummies for charities and sessions in all regressions.
<table>
<thead>
<tr>
<th></th>
<th>(1) Price of giving</th>
<th>(2) Probability of detection</th>
<th>(3) Rebate</th>
<th>(4) Match</th>
<th>(5) Fisher’s test p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>€0.80</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4% underreporting</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exact reporting</td>
<td>20</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overreporting</td>
<td>22</td>
<td>23</td>
<td></td>
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</tr>
<tr>
<td>50% underreporting</td>
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<td></td>
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<tr>
<td>exact reporting</td>
<td>17</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overreporting</td>
<td>22</td>
<td>18</td>
<td></td>
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<tr>
<td>€0.50</td>
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</tr>
<tr>
<td>4% underreporting</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exact reporting</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overreporting</td>
<td>21</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% underreporting</td>
<td>9</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exact reporting</td>
<td>15</td>
<td>25</td>
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</tr>
<tr>
<td>overreporting</td>
<td>23</td>
<td>16</td>
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<tr>
<td>€0.25</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4% underreporting</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exact reporting</td>
<td>21</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>overreporting</td>
<td>20</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50% underreporting</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>exact reporting</td>
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</tr>
<tr>
<td>overreporting</td>
<td>19</td>
<td>11</td>
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<td></td>
</tr>
</tbody>
</table>

Notes: I compare the number of decisions under which whether the subjects underreport, overreport, or report the donation correctly under the rebate and match subsidy. I compare the proportion under a certain price of giving (e.g. €0.80) and probability (e.g. 4%).
Table 15: Overreporting, marginal effects of random-effects models (full estimations)

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1) Probit</th>
<th>(2) Hurdle</th>
<th>(3) Tobit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overreport</td>
<td>ln(Overreporting+0.1)</td>
<td>ln(Overreporting+0.1)</td>
<td></td>
</tr>
<tr>
<td>Rebate</td>
<td>22.00***</td>
<td>-6.59</td>
<td>46.81***</td>
</tr>
<tr>
<td>Probability</td>
<td>-0.483***</td>
<td>-0.467*</td>
<td>-0.973***</td>
</tr>
<tr>
<td>Probability \times Rebate</td>
<td>0.518**</td>
<td>0.213</td>
<td>1.057**</td>
</tr>
<tr>
<td>ln(Price)</td>
<td>0.258***</td>
<td>0.869***</td>
<td>0.655***</td>
</tr>
<tr>
<td>ln(Price) \times Rebate</td>
<td>-0.187</td>
<td>-0.499**</td>
<td>-0.462*</td>
</tr>
<tr>
<td>SVO</td>
<td>0.190***</td>
<td>-0.084</td>
<td>0.430***</td>
</tr>
<tr>
<td>SVO \times Rebate</td>
<td>-0.219***</td>
<td>0.019</td>
<td>-0.456***</td>
</tr>
<tr>
<td>SVO^2</td>
<td>-0.00856***</td>
<td>0.00125</td>
<td>-0.0187***</td>
</tr>
<tr>
<td>(SVO \times Rebate)^2</td>
<td>0.0087**</td>
<td>0.0039</td>
<td>0.018**</td>
</tr>
<tr>
<td>SVO^3</td>
<td>0.0001***</td>
<td>0.00000008</td>
<td>0.0002***</td>
</tr>
<tr>
<td>(SVO \times Rebate)^3</td>
<td>-0.00009*</td>
<td>-0.00007</td>
<td>-0.0002*</td>
</tr>
<tr>
<td>Machiavelli</td>
<td>0.195**</td>
<td>-0.406*</td>
<td>0.475**</td>
</tr>
<tr>
<td>Machiavelli \times Rebate</td>
<td>-0.519***</td>
<td>0.257</td>
<td>-1.082***</td>
</tr>
<tr>
<td>Machiavelli^2</td>
<td>-0.0013**</td>
<td>0.0029**</td>
<td>-0.0031**</td>
</tr>
<tr>
<td>(Machiavelli \times Rebate)^2</td>
<td>0.0032***</td>
<td>-0.0022</td>
<td>0.0065***</td>
</tr>
<tr>
<td>ln(Endowment)</td>
<td>0.214</td>
<td>6.514***</td>
<td>2.008</td>
</tr>
<tr>
<td>Holt and Laury switch</td>
<td>0.601**</td>
<td>-0.943</td>
<td>1.363**</td>
</tr>
<tr>
<td>(Holt and Laury switch)^2</td>
<td>-0.0379***</td>
<td>0.0649*</td>
<td>-0.0815**</td>
</tr>
<tr>
<td></td>
<td>(1) Probit</td>
<td>(2) Hurdle</td>
<td>(3) TOBIT</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Male</td>
<td>0.272</td>
<td>0.154</td>
<td>0.776**</td>
</tr>
<tr>
<td></td>
<td>(0.166)</td>
<td>(0.209)</td>
<td>(0.386)</td>
</tr>
<tr>
<td>Allocation Part</td>
<td>0.439</td>
<td>−1.452***</td>
<td>0.734</td>
</tr>
<tr>
<td></td>
<td>(0.271)</td>
<td>(0.361)</td>
<td>(0.640)</td>
</tr>
<tr>
<td>Donation Allocation Part</td>
<td>−0.00923</td>
<td>−0.0352***</td>
<td>−0.0333*</td>
</tr>
<tr>
<td></td>
<td>(0.00838)</td>
<td>(0.0136)</td>
<td>(0.0181)</td>
</tr>
<tr>
<td>Austria</td>
<td>−0.366*</td>
<td>−0.428*</td>
<td>−0.725</td>
</tr>
<tr>
<td></td>
<td>(0.218)</td>
<td>(0.257)</td>
<td>(0.478)</td>
</tr>
<tr>
<td>Third Countries</td>
<td>−0.364*</td>
<td>−0.605***</td>
<td>−0.838*</td>
</tr>
<tr>
<td></td>
<td>(0.190)</td>
<td>(0.216)</td>
<td>(0.436)</td>
</tr>
<tr>
<td>Observations</td>
<td>534</td>
<td>231</td>
<td>534</td>
</tr>
<tr>
<td>Log Likelihood</td>
<td>−216</td>
<td>−232</td>
<td>−677</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Marginal effects are evaluated at the means. A random-effects probit model is estimated in column (1), where the dependent variable is equal to one if the subject overreports the donation, and zero otherwise. A random-effects tobit model is estimated as the second stage of a lognormal hurdle model in column (2). In column (3) a random-effects tobit model is estimated. The dependent variable in columns (2) and (3) is the level of overreporting, where overreporting is the reported donation minus the actual amount donated. I include a constant, and dummies for charities and sessions in all regressions.
Table 16: Fixed-effects and random-effects models

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>(1) Logit Overreport ln(Overreporting+0.1)</th>
<th>(2) Linear ln(Overreporting+0.1)</th>
<th>(3) Linear ln(Overreporting+0.1)</th>
</tr>
</thead>
</table>

**Panel A: Fixed-effects**

<table>
<thead>
<tr>
<th>Probability</th>
<th>−0.423*** (0.151)</th>
<th>−0.393 (0.280)</th>
<th>−1.137*** (0.398)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability × Rebate</td>
<td>0.450** (0.227)</td>
<td>0.083 (0.383)</td>
<td>1.087** (0.548)</td>
</tr>
<tr>
<td>ln(Price)</td>
<td>0.228*** (0.075)</td>
<td>0.898*** (0.140)</td>
<td>0.837*** (0.199)</td>
</tr>
<tr>
<td>ln(Price) × Rebate</td>
<td>−0.164 (0.106)</td>
<td>−0.573*** (0.191)</td>
<td>−0.581** (0.272)</td>
</tr>
<tr>
<td>Donation Allocation Part</td>
<td>−0.006 (0.008)</td>
<td>−0.044** (0.020)</td>
<td>−0.025 (0.022)</td>
</tr>
</tbody>
</table>

**Panel B: Random-effects**

<table>
<thead>
<tr>
<th>Probability</th>
<th>−0.502*** (0.200)</th>
<th>−0.443 (0.278)</th>
<th>−1.137*** (0.400)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability × Rebate</td>
<td>0.533** (0.262)</td>
<td>0.131 (0.381)</td>
<td>1.087** (0.548)</td>
</tr>
<tr>
<td>ln(Price)</td>
<td>0.268*** (0.102)</td>
<td>0.900*** (0.140)</td>
<td>0.830*** (0.198)</td>
</tr>
<tr>
<td>ln(Price) × Rebate</td>
<td>−0.199 (0.128)</td>
<td>−0.573*** (0.189)</td>
<td>−0.588** (0.271)</td>
</tr>
<tr>
<td>Donation Allocation Part</td>
<td>−0.009 (0.009)</td>
<td>−0.035** (0.016)</td>
<td>−0.030 (0.019)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>534</th>
<th>231</th>
<th>534</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hausman test p-value</td>
<td>0.951</td>
<td>0.956</td>
<td>0.999</td>
</tr>
</tbody>
</table>

Notes: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1. The dependent variable in column (1) is equal to one if the subject overreports the donation, and zero otherwise. The dependent variable in columns (2) and (3) is the level of overreporting, where overreporting is the reported donation minus the actual amount donated. Overreporting in column (2) is conditioned on positive amounts of overreporting. The random-effects regressions include a rebate dummy, as well as controls for gender, social and risk preferences, the Machiavelli score, initial endowment, whether the experiment started with the allocation or the reporting part, and the nationality of the subjects. I include a constant, and dummies for charities and sessions in all regressions.
C Instructions Rebate Treatment

General Instructions

You have been asked to participate in a study of decision making. The study consists of **FOUR INDEPENDENT PARTS**. You will receive compensation for your participation, which will be paid to you in cash at the end of the study. The experiment is funded by The Vienna Center for Experimental Economics, which is an institution of the University of Vienna. Please do not talk during the study.

To insure your complete anonymity, you drew an ID number from a bag when entering the lab. One person drew a three-digit ID number. This person will be the monitor in this session. The monitor will receive the average payoff of the participants in this session. The monitor will verify that the instructions of all parts of the experiments will be followed. The monitor is in the room where the experiment is conducted during the experiment. **The monitor cannot associate your decisions and your payoffs with your person.** Also, you will not be informed about the decisions and the payoffs of the other participants.

*The person responsible for your payment, called the experimenter, is located in a different room.* The experimenter cannot associate your decisions and payoffs with your person, since the experimenter never faces the participants. **Your anonymity towards the experimenter will always be insured, also after the experiment. An assistant guides and assists the monitor, and will answer your questions.** The assistant is located in the room where the experiment is conducted and does not leave this room until the end of the experiment. The assistant will never see your ID numbers. If you have questions during the experiment, hide your ID number and raise your hand. The assistant will come to your seat.

Your earnings will be determined at the end of the experiment, after you have finished all four parts. **Your anonymity is also insured when you confirm your payment.** The monitor will distribute your earnings in a sealed envelope which will be labeled on the front with your ID number. How the anonymous payment is made, is explained on the next page.
Anonymous Payment

At the end of the experiment, you will receive a receipt where you confirm your payment. This receipt needs to be sent to the accounting department of the University of Vienna because of bookkeeping regulations. Nevertheless, we want to maintain your anonymity towards all persons in the laboratory. For this reason, the payment will be done in the following way.

1. You will receive a receipt that has the following text on the front side:

"I confirm with my signature on the back side of this receipt to have received the amount of XX.XX EUR.

I participated in Session XX of Experiment 2013_005. The financial summary of this session will arrive separately at DLE Finanzwesen und Controlling."

The back side of the receipt will state:

"Name_ _ _ _ _ _

Place, date_ _ _ _ _ _ Signature_ _ _ _ _ _""

2. The experimenter will put the receipt and your money in an envelope. The experimenter will put a sticker with your ID number on top of the envelope and will seal the envelope.

3. The experimenter will hand over the envelope for the payment, and a new empty, colored envelope to the monitor. (The experimenter will not enter the room where the experiment is conducted.) The colored envelope will have the address of the accounting department of the University of Vienna on top of it.

4. You will receive the envelopes from the monitor.

5. You will be asked to take your money out of the envelope and to sign the back of the receipt. You should also remove the sticker with your ID number from the envelope.

6. The monitor will check the signature. IMPORTANT: The monitor will not see the front side of the receipt. That is, the monitor will not know how much money you earned.

7. You will be asked to put the signed receipt in the new colored envelope and to seal the envelope.

8. The monitor and the experimenter will go to the nearest mailbox and will drop the envelopes in the mailbox for these receipts to be sent to the accounting department.

Selection of Charity

In part 1 and 2 of the experiment, you are asked to allocate money between yourself and a charity organization.

Before you start with part 1 of the experiment, you are going to see a list of ten charities with a brief description of the services each provides on the computer screen. You are asked to select one, and only one, of these ten charities.
– You will earn money in either part 1 or part 2 of the experiment. Otherwise, part 1 and part 2 are completely unrelated!

After you have finished all four parts of the experiment, you will draw a chip numbered from 1 to 100 to determine which part is relevant for your payment. If the drawn chip number is between 1 and 50, part 1 is relevant for your payment. If the drawn chip number is between 51 and 100, part 2 is relevant for your payment.

– In any case, you will earn money for part 3 and part 4 of the experiment.
Part 1

General Description of Part 1

In part 1 of the experiment, you are asked to allocate money between yourself and the charity organization you selected. For each allocation problem you are given an endowment of €30 by the experimenter. You are asked to allocate this money between yourself and the charity. For every euro you pass to the charity, the experimenter will give money to you. The amount of money the experimenter gives to you differs in the three allocation problems.

1. In one problem, the experimenter will give to you €0.20 for every euro you pass to the charity. For instance, if you pass €X to the charity (where X can contain cent amounts), the experimenter will give to you €0.20 times X.

2. In one problem, the experimenter will give to you €0.50 for every euro you pass to the charity. For instance, if you pass €X to the charity (where X can contain cent amounts), the experimenter will give to you €0.50 times X.

3. In one problem, the experimenter will give to you €0.75 for every euro you pass to the charity. For instance, if you pass €X to the charity (where X can contain cent amounts), the experimenter will give to you €0.75 times X.

Note that you will see these problems in a random order. For instance, it is possible that in the first problem, the experimenter will give to you €0.75 for every euro you pass to the charity; in the second problem, €0.20 for every euro you pass; and in the third problem, €0.50 for every euro you pass.

Important Note: In all decisions you can choose any amount to keep and any amount to pass, but the amount you keep plus the amount you pass must equal your endowment of €30.

Payment of Part 1

Before you start making your three choices, we explain to you exactly how these choices will affect your earnings.

- Remember from the instructions at the beginning that you will earn money in either part 1 or part 2 of the experiment. Otherwise, part 1 and part 2 are completely unrelated! After you have finished all four parts of the experiment, you will draw a chip numbered from 1 to 100 to determine which part is relevant for your payment. If the drawn chip number is between 1 and 50, part 1 is relevant for your payment. If the drawn chip number is between 51 and 100, part 2 is relevant for your payment.

- In part 1 of the experiment, you are asked to make three choices and record these in the two final columns of the table with the three allocation problems that you will see on the computer screen. However, only one of the three choices will be used in the end to determine your earnings if part 1 of the experiment will be paid to you. We will determine your earnings in the following way. After you have finished all four parts of the experiment, the monitor and the assistant will come to your desk. Then, you will be asked to draw a chip numbered from 1 to 3 from a bag held by the monitor to select which of the three problems, i.e. which of the allocation decisions, determines your payment and the payment of the charity.

- If the chip number is 1, problem 1 will determine the payment.
- If the chip number is 2, problem 2 will determine the payment.
- If the chip number is 3, problem 3 will determine the payment.
After you have drawn the chip number, the assistant will type in your chip number on the password-protected computer screen. Note that each problem has an equal chance of being selected in the end. Even though you will make three decisions, only one of these will end up affecting your earnings. However, you will only know which problem will be chosen for your payment after you have finished all four parts of the experiment.

– If part 1 is relevant for your payment, you will be paid in cash according to the amount you decided to pass to the charity in that problem (i.e. you will get the money you keep, plus the money the experimenter gives additionally to you).

– The experimenter will also calculate the money passed to the charity organization (i.e. the charity will get the money you pass to the charity) after you have finished all four parts of the experiment. If part 1 is relevant for your payment, the charity organization you selected will receive an online bank transfer according to the amount you decided to pass to it. The monitor will verify the bank transfer.

Summary of Part 1

– You are asked to make three choices in this part of the experiment.

– For each decision problem you are asked to choose how much money you pass to the charity you selected and how much money you keep for yourself.

– For every euro you pass to the charity, the experimenter will give to you either €0.20, €0.50, or €0.75, depending on the allocation decision as explained above.

– You may choose different allocations in different problems, and you may revise your decisions and make them in any order. When you have made your final decisions, click on "OK" and wait until the experiment continues.

Understanding Part 1

Part 1 of the experiment will start shortly. Before you start with the allocation problems of part 1, you are asked to answer some questions on the computer. With these questions, we just want to make sure that you have complete understanding of how the allocation problem works.

– Your answers will not count towards any payment. You should nevertheless take the questions seriously, since you may gain experience in answering these questions. This experience helps you to make decisions when part 1 starts.

– You are going to see a table with three allocation problems. Note that the numbers that occur in this example on the screen have been randomly generated. They are not meant as examples of "good" or "bad" choices. They only serve to illustrate how part 1 works.

– Do not worry if you have difficulties with finding the answers. The computations you are asked to do here will be done by the computer during the experiment. We will explain the solutions later on.

Are there any questions?

Now you may begin answering the questions on the computer. Remember that you are not allowed to talk with anyone during the entire experiment; raise your hand if you have a question.
Part 2

General Description of Part 2

In part 2 of the experiment, you are asked to make 1. an allocation decision and 2. an information decision.

1. **You are asked to allocate money between yourself and a charity organization.** You are going to see a table with three allocation problems on the *Decision Screen*. You are asked to make an allocation decision for each problem. For each allocation problem you are given an endowment of €30 by the experimenter. You are asked to allocate this money between yourself and the charity you selected.

2. **You are asked to inform the experimenter about your allocation on the *Information Screen*.** For every euro you inform the experimenter to have passed to the charity, the experimenter will give money to you. The amount of money the experimenter gives to you differs in the problems and is either €0.20, €0.50, or €0.75 as explained below.

   - On the *Decision Screen*, you are going to see a table with three allocation problems. You are asked to make an allocation decision for each problem and record these decisions in the two final columns of the table.
   - On the *Information Screen*, you are going to see a table with six problems. On the *Information Screen*, you will be asked to inform the experimenter about your allocation made on the *Decision Screen*. You will make six decisions and record these in the two final columns, but only one of the six choices will be used in the end to determine your earnings.
   - After you finished all four parts of the experiment, you will draw a chip numbered from 1 to 100 to determine whether your information on the *Information Screen* (not on the *Decision Screen*) will be checked or not. Your information will be checked if your drawn chip number is lower than or equal to a threshold number. This threshold number differs in the problems and is either 4 or 50, as explained below.
   - If your information is checked, the experimenter will give money to you according to the amount you decided to pass to the charity (*Decision Screen*).
   - **You have to pay a fee to the experimenter if, and only if, your information is checked AND the amount you inform the experimenter to have passed to the charity (**Information Screen**) is higher than the amount you decided to pass to the charity (**Decision Screen**).** The fee is some amount of money multiplied by the difference between the amount you inform the experimenter to have passed to the charity (on the *Information Screen*) and the amount you decided to pass to the charity (on the *Decision Screen*). The amount of money that is multiplied differs in the problems and is either €0.06, €0.15, or €0.23, as explained below.

Details of Part 2

The amount of money the experimenter gives to you and the possible fee differs in the problems:

1. In one problem, the experimenter will give to you **€0.20** for every euro you inform the experimenter to have passed to the charity. For instance, if you inform the experimenter to have passed €X to the charity (where X can contain cent amounts), the experimenter will give to you **€0.20** times X.

   The possible fee in this case is **€0.06** multiplied by the difference between the amount you inform the experimenter...
to have passed to the charity (on the Information Screen) and the amount you decided to pass to the charity (on the Decision Screen).

2. In one problem, the experimenter will give to you €0.50 for every 100 cents you inform the experimenter to have passed to the charity. For instance, if you inform the experimenter to have passed €X to the charity (where X can contain cent amounts), the experimenter will give to you €0.50 times X.

The possible fee in this case is €0.15 multiplied by the difference between the amount you inform the experimenter to have passed to the charity (on the Information Screen) and the amount you decided to pass to the charity (on the Decision Screen).

3. In one problem, the experimenter will give to you €0.75 for every euro you inform the experimenter to have passed to the charity. For instance, if you inform the experimenter to have passed €X to the charity (where X can contain cent amounts), the experimenter will give to you €0.75 times X.

The possible fee in this case is €0.23 multiplied by the difference between the amount you inform the experimenter to have passed to the charity (on the Information Screen) and the amount you decided to pass to the charity (on the Decision Screen).

Note that you will see these problems in a random order. For instance, it is possible that in the first problem, the experimenter will give to you €0.75 for every euro you inform the experimenter to have passed to the charity; in the second problem, €0.20 for every euro you inform the experimenter; and in the third problem, €0.50 for every euro you inform the experimenter.

**Important Note:** In all decisions you can choose any amount to keep and any amount to pass, but the amount you keep plus the amount you pass must equal your endowment of €30.

The threshold that determines whether your information will be checked or not differs in the problems:

1. In three problems, your information will be checked if your drawn chip number is lower than or equal to 4.
2. In three problems, your information will be checked if your drawn chip number is lower than or equal to 50.

You will see these threshold numbers in a random order. For instance, it is possible that the threshold number is 50 in the first three problems, and 4 in the last three problems.

**Important Note:** Whether your information will be checked or not is independent of the information you provide on the Information Screen.
Payment of Part 2

Before you start making your three choices, we explain to you exactly how these choices will affect your earnings.

– Remember from the instructions at the beginning that you will earn money in either part 1 or part 2 of the experiment. Otherwise, part 1 and part 2 are completely unrelated! After you have finished all four parts of the experiment, you will draw a chip numbered from 1 to 100 to determine which part is relevant for your payment. If the drawn chip number is between 1 and 50, part 1 is relevant for your payment. If the drawn chip number is between 51 and 100, part 2 is relevant for your payment.

– In part 2 of the experiment, you are asked to make six choices on the Information Screen. However, only one of the six choices will be used in the end to determine your earnings if part 2 of the experiment will be paid to you. We will determine your earnings in the following way. After you have finished all four parts of the experiment, the monitor and the assistant will come to your desk. Then, you are asked to draw a chip numbered from 1 to 6 from a bag held by the monitor to select one of the six problems on the Information Screen to determine your payment and the payment of the charity.

   – If the chip number is 1, problem 1 will determine the payment.
   – If the chip number is 2, problem 2 will determine the payment.
   ...
   – If the chip number is 6, problem 6 will determine the payment.

After you have drawn the chip number, the assistant will type in your chip number on the password-protected computer screen. Note that each problem on the Information Screen has an equal chance of being selected in the end. Even though you will make six decisions on the Information Screen, only one of these will end up affecting your earnings. However, you will only know which problem will be chosen for your payment after you have finished all four parts of the experiment.

– If part 2 is relevant for your payment, you will be paid in cash in the selected problem.

– If your information is not checked, your payment will be the following:

   You will receive the money you decided to keep (Decision Screen) PLUS the money the experimenter gives to you according to the amount you inform the experimenter to have passed to the charity (Information Screen).

– If your information is checked, your payment will be the following:

   You will receive the money you decided to keep (Decision Screen) PLUS the money the experimenter gives to you according to the amount you decided to pass to the charity (Decision Screen). If your information is checked AND the amount you inform the experimenter to have passed to the charity (Information Screen) is higher than the amount you decided to pass to the charity (Decision Screen), you also have to pay a fee. (Note, this fee will be subtracted from your earnings.)

– The experimenter will also calculate the money passed to the charity organization (i.e. the money you decided to pass to the charity) after you have finished all four parts of the experiment. If part 2 is relevant for your payment, the charity...
organization you selected will receive an online bank transfer according to the amount you decided to pass to it. The monitor will verify the bank transfer. Note, the charity will always receive the money you decided to pass to the charity as you will have indicated on the Decision Screen.

Summary of Part 2

1. You are asked to make three choices on the Decision Screen. For each decision problem, you are asked to choose how much money you pass to the charity and how much money you keep for yourself.

2. You are asked to make six choices on the Information Screen. For each decision problem, you are asked to inform the experimenter about how much money you have passed to the charity and how much money you have decided to keep for yourself.

   - For every euro you inform the experimenter to have passed to the charity, the experimenter will give to you either €0.20, €0.50, or €0.75 (depending on the problem as explained above).

   - If your drawn chip number is lower than or equal to either 4 or 50 (depending on the problem as explained above), the information you provide on the Information Screen will be checked.

   - You have to pay a fee to the experimenter if, and only if, there is a check AND the amount you inform the experimenter to have passed to the charity (on the Information Screen) is higher than your amount you decided to pass to the charity (on the Decision Screen).

   - The possible fee is either €0.06, €0.15, or €0.23 (depending on the problem as explained above) multiplied by the difference between the amount you inform the experimenter to have passed to the charity (Information Screen) and the amount you decided to pass to the charity (Decision Screen).

   - You may choose different allocations in different problems, and you may revise your decisions and make them in any order. When you have made your final decisions, click on "OK" and wait until the experiment continues.

Understanding Part 2

Part 2 of the experiment will start shortly. Before you start with part 2, you are asked to answer some questions on the computer. With these questions, we just want to make sure that you have complete understanding of how the allocation and information decisions in part 2 work.

   - Your answers will not count towards any payment. You should nevertheless take the questions seriously, since you may gain experience in answering these questions. This experience helps you to make decisions when part 2 starts.

   - You are going to see two screens, a Decision Screen and an Information Screen. First, on the Decision Screen you are going to see a table with three problems. Then, on the Information Screen you are going to see a table with six problems.

   - Note that the numbers that occur in the examples on the screens have been randomly generated. They are not meant as examples of "good" or "bad" choices. They only serve to illustrate how part 2 works.

   - Do not worry if you have difficulties with finding the answers. The computations you are asked to do here will be done by the computer during the experiment. We will explain the solutions later on.
Are there any questions?

Now you may begin answering the questions on the computer. Remember that you are not allowed to talk with anyone during the entire experiment; raise your hand if you have a question.

Part 3

General Description of Part 3

– In part 3 of the experiment, you are going to see a table with a list of ten choices between two options.
– You have the choice between Option A (left column) and Option B (right column) in each decision row and you are asked to indicate the option you prefer by either clicking on Option A or Option B.
– However, you are just asked to click on one of the decision rows of the table with the understanding that if you click on Option A or Option B in any row, all rows above your selected row are automatically selected as Option A (to count as your choice), and all rows below your selected row are automatically selected as Option B (to count as your choice).
– Your preferred options will have an orange background. You will be able to revise your choice until you click "OK".

Payment of Part 3

Before you start making your ten choices, we explain to you how these choices will affect your earnings.

– After you have finished all four parts of the experiment, the monitor and assistant will come to your desk. Then, you will draw a chip numbered from 1 to 10 from a bag to select which of the ten rows determines your payment. If the drawn chip number is 1, the first row will be chosen for your payment.
  – If the chip number is 1, row 1 will determine the payment.
  – If the chip number is 2, row 2 will determine the payment.
  ...  
  – If the chip number is 10, row 10 will determine the payment.

That is, only one of the ten rows will end up affecting your earnings. Note that each of the ten rows has an equal chance of being selected in the end. Even though you will make ten decisions, only one of these will end up affecting your earnings. However, you will only know which decision row will be chosen for your payment after you have finished all four parts of the experiment.
– Then, you draw a second chip from 1 to 100 to determine your payment for the option you chose in the selected row (see the description of Option A and Option B in each row on the screen).
– After you have drawn the chip number, the assistant will type in your chip number on the password-protected computer screen.
– That is, your payment from this part is determined by your choice in the selected row and the drawn second chip number.

Summary of Part 3

– You have the choice between Option A and Option B in each of the ten decision rows.
– However, if you click on Option A or Option B in any row, all rows above your selected row are automatically selected as Option A, and all rows below your selected row are automatically selected as Option B.
– Your preferred options will have an orange background.
– You will draw a chip numbered from 1 to 10 to determine which of the ten rows will be selected for your payment. Then, you will draw a second chip from 1 to 100 to determine your payment for the option you chose in the selected row.

Understanding Part 3

Part 3 of the experiment will start shortly. Before you start with part 3, you are asked to answer some questions on the computer. With these questions, we just want to make sure that you have complete understanding of how the problem in part 3 works.

– Your answers will not count towards any payment. You should nevertheless take the questions seriously, since you may gain experience in answering these questions. This experience helps you to make decisions when part 3 starts.
– You are going to see a table with a list of ten choices between two options. Note that the choices of Option A and Option B that occur in this example on the computer screen are randomly generated. The choices are not meant as examples of "good" or "bad" choices. They only serve to illustrate how part 3 works.
– Do not worry if you have difficulties with finding the answers. The computations you are asked to do here will be done by the computer during the experiment. We will explain the solutions later on.

Are there any questions?

Now you may begin answering the questions on the computer. Remember that you are not allowed do talk with anyone during the entire experiment; raise your hand if you have a question.

Part 4 and Questionnaire

Description of Part 4

– In part 4 of the experiment, you have been randomly matched by the computer with another person in this room. This person will be referred to as person A (see Fig. 4). Person A will be randomly matched with somebody else in this room (not you!), namely person B. At the same time, person C, who is neither person A nor person B, is matched with you. You will not be informed about who this other persons are, and the other persons will not be informed about you. All of your choices are completely confidential.
– You are asked to make six decisions about distributing money between you and person A. For this purpose, you are asked to answer six questions on the computer. In each question, you are asked to distribute money between yourself and person A. Please select your preferred distribution by clicking on the respective position on the line for each of these questions. You can select only one distribution for each question. Your decisions will determine amounts of money to be paid to you and person A.
At the same time, *person C* is asked to make six decisions about distributing money between *person C* and you. The decisions of *person C* will determine amounts of money to be paid to you and *person C*.

In short, you give money to *person A*, *person A* gives to *person B*, *person B* gives to *person C*, and *person C* gives money to you.

There are no right or wrong answers, this is all about personal preferences. After you have made up your mind, click on your preferred option. As you will see, with your choices you determine both the amount of money you receive as well as the amount of money *person A* receives.

![Fig. 4: Matching Payment of Part 4](image)

**Payment of Part 4**

Before you start making your six choices, we explain to you exactly how these choices will affect your earnings for this part of the experiment.

- After you have finished this part of the experiment, the computer will randomly select one of the six decisions you made for your payment and the payment of *person A*. At the same time, the computer will randomly select one of the six decisions *person C* made for *person C*'s payment and for your payment.
- In short, your payment is the money you keep plus the money *person C* gives to you. Remember that the person that you are giving money (*person A*) differs from the person that is giving money to you (*person C*).

**Questionnaire and Payment**

- You are asked to fill in a questionnaire. Please note that this questionnaire will be used for research purposes only. If you finish the questionnaire, you will get €3 for filling in the questionnaire.
- While you are completing the questionnaire, the experimenter will determine your compensation. You will receive your compensation in an anonymous way, as explained at the beginning of the experiment. Please, take a look at the *General Instructions* that you received at the beginning of the experiment. Here, we just summarize the most important parts of these instructions.
- Remember, you are asked to sign the back side of the receipt. Then, you are asked to put the signed receipt in the new colored envelope and you are asked to to seal the envelope.
While you are completing the questionnaire, the experimenter will also calculate the total money passed to each of the charities. The experimenters will make out checks for these amounts, and the monitor will place them in addressed and stamped envelopes.

Note, the monitor will not see how much each individual passed to the charity. The monitor observes only the aggregated amounts passed to the charity. The monitor and the experimenter will go to the nearest mailbox and drop the envelope in the mailbox. After the monitor has signed a form that verifies that the study was conducted according to instructions, the monitor is free to leave.

Are there any questions?

Please do not talk with anyone while filling out the questionnaire; raise your hand if you have a question.

**Questionnaire**

**Motivation Questionnaire**

Please evaluate the following statements:

1. strongly disagree, 2 = somewhat disagree, 3 = slightly disagree, 4 = no opinion, 5 = slightly agree, 6 = somewhat agree, 7 = strongly agree

1. The instructions of part 1 were clearly formulated. (Please take the instructions of part 1 if you do not remember the content of part 1.)
2. The instructions of part 2 were clearly formulated. (Please take the instructions of part 2 if you do not remember the content of part 2.)
3. The instructions of part 3 were clearly formulated. (Please take the instructions of part 3 if you do not remember the content of part 3.)
4. The instructions of part 4 were clearly formulated. (Please take the instructions of part 4 if you do not remember the content of part 4.)
5. The procedures followed in this experiment preserved my anonymity.
6. The money I passed to my selected charity will be transferred to the charity.
7. I received plenty of time to carry out the task.
8. I was motivated to do well on the task.
9. The task was fun to perform, motivating me to achieve a payoff as high as possible.
10. I considered the experiment as fairly complex.
11. My payoff is determined not only by my own decision, but also by the decisions of the other players.
12. When making my decision, I thought about what other players might do.
13. Finally, please describe how you generated your decisions in the experiment.
Demographic Data Questionnaire

1. Birth: In what year were you born?

2. Household Budget: Who in your household would you consider to be primarily in charge of expenses and budget decisions?
   1=self, 2=spouse, 3=parent, 4=other(specify), 5=do not know.

3. Gender: What is your gender? 1= male, 2 = female

4. Relationship Status: What is your relationship status? 1=married, 2=in a relationship, 3=single, 4=divorced, 5=widowed, 6=other.

5. Employment: How would you best describe your current employment situation? 1=full-time employment outside of university, 2=part-time employment outside of university, 3=student only, 4=work at university as research assistant, 5=other.

6. Household Income: Please indicate the category that best describes your household income from all sources before all taxes in 2012. 1=5,000 and under, 2=5,001-10,000, 3=10,001-20,000, 4=20,001-30,000, 5=30,001-45,000, 6=45,001-60,000, 7=60,001-75,000, 8=75,001-100,000, 9=over 100,001, 10=Don’t know.

7. Number in Household: How many people are in your household? (Yourself and those who live with you and share your income and expenses)

8. Own Income: Your own income from all sources before taxes in 2012. Do not include income from other household members. 1=5,000 and under, 2=5,001-10,000, 3=10,001-20,000, 4=20,001-30,000, 5=30,001-45,000, 6=45,001-60,000, 7=60,001-75,000, 8=75,001-100,000, 9=over 100,001, 10=Don’t know.

9. Income Source: How do you receive your income? 1=fixed source (salary, pension), 2=hourly rate, 3=hourly rate plus tips, 4=loans/scholarships, 5=parents, 6=other.

10. Student Status: What is your student status? 1=full-time student, 2=part-time student taking less than 10 hours per semester, 3=other, non-student.

11. Study: What is your major? Indicate your field of study.

12. Years of study so far.

13. Which of the following programs are you following? 1=bachelor 2=diploma 3=master 4=doctorate 5=faculty or other non-student.

14. Tuition Fee: Do you pay tuition fee (not ÖH fee)? 1=yes, 0=no

15. Tuition Source: Who is primarily responsible for your living expenses while you are attending your studies? 1=self, 2=parent, 3=shared between self and parent, 4=scholarship/grant, 5=loans, 6=combination/other, 7=not applicable.


17. Country background: Please state the country where you were raised. (1=Austria, 2=other EU country or Switzerland, Liechtenstein, Norway, Iceland, 3 other European country 4 other)

18. Have you ever had a course related to game theory or decision theory?

Machiavellian IV personality test

In the following you will find a list of statements. Please read them carefully and answer them to what extent you agree or disagree. Even if in some cases you would like to say that your answers depend on the circumstances, you should only choose
one of the answers. Since all your responses are anonymous, you can answer freely. There is nobody on whom you need to make a good impression. The results can be only used if you answer very honestly.

1=strongly disagree, 2=somewhat disagree, 3=slightly disagree, 4=no opinion, 5=slightly agree, 6=somewhat agree, 7=strongly agree

1. Never tell anyone the real reason you did something unless it is useful to do so.
2. The best way to handle people is to tell them what they want to hear.
3. One should take action only when sure it is morally right.
4. Most people are basically good and kind.
5. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.
6. Honesty is the best policy in all cases.
7. There is no excuse for lying to someone else.
8. Generally speaking, people will not work hard unless they are forced to do so.
9. All in all, it is better to be humble and honest than to be important and dishonest.
10. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which carry more weight.
11. Most people who get ahead in the world lead clean, moral lives.
12. Anyone who completely trusts anyone else is asking for trouble.
13. The biggest difference between most criminals and other people is that the criminals are stupid enough to get caught.
14. Most people are brave.
15. It is wise to flatter important people.
16. It is possible to be good in all respects.
17. Barnum was wrong when he said that there’s a sucker born every minute.
18. It is hard to get ahead without cutting corners here and there.
19. People suffering from incurable diseases should have the choice of being put painlessly to death.
20. Most people forget more easily the death of their parents than the loss of their property.