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Insuring Your Donation

An Experiment

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Contribution Statement

There is a rich experimental literature on the determinants of consumers' generosity (summarized by a meta study one of us has published, (Engel 2011)). This literature shows, inter alia, that donations are the higher the more the recipient is deserving help; the higher the bigger the effect on the recipient; the lower the more pronounced the uncertainty. To the best of our knowledge we are the first to study – with the help of a lab experiment using a real charity, a real risk, and a real insurer – whether consumers are willing to pay for insuring them against the risk that the donation misses its intended goal, or that the donation is not rewarded by a refund. We find a pronounced willingness to pay for either insurance. But the availability of insurance only increases the frequency of donations if the risk affects the recipient's deservingness.

Abstract

An increasing fraction of donations is channeled through donation intermediaries. These entities serve multiple purposes, one of which seems to be providing donors with greater certainty: that the donation reaches its intended goal, and that the donor may be sure to get a tax benefit. We interpret this function as insurance and test the option to insure donations in the lab. Our participants indeed have a positive willingness to pay for insurance against either risk. Yet the insurance option is only critical for their willingness to donate to a charity if the uncertainty affects the proper use of their donation.

JEL: D03, D12, D64, G22, H25, H31, K34, L31
Keywords: donation, charity, donation intermediary, insurance

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I. Introduction

Life is fraught with risk. But many risks can be contained. If containment is not free of charge, individuals have to engage in a cost-benefit analysis: how much money are they willing to spend on reducing, or even eliminating, the risk? Sensitivity to risk is not a human universal. Some suffer much more, and are, therefore, willing to spend much more money on buying certainty. This heterogeneity fuels the insurance industry. For many risks, consumers may buy differently costly, differently effective protection.

All of this is standard and dealt with in microeconomics textbooks. Yet standard analysis models risk as the possibility of losing money. Now ample experimental evidence and equally rich field data demonstrate that many individuals do not only care about money. They are willing to give up money and donate to charitable organizations. Bekkers and Wiepking (2011: reviewed over 500 articles on charitable giving and identified eight mechanisms as the most important forces that drive charitable giving: (a) awareness of need; (b) solicitation; (c) costs and benefits; (d) altruism; (e) reputation; (f) psychological benefits; (g) values; and (h) efficacy. They define charitable giving as the donation of money to an organization that benefits others beyond one's own family, a definition we follow. This definition suggests that risk regarding critical determinants reduces the willingness to donate.

In this paper, we focus on the two sources of risk that, arguably, are most important for the hesitance to donate: the risk that the donation will not reach its intended goal and the risk that giving will turn out more costly than expected. We observe that more and more donations are channeled through donation intermediaries, despite the fact that this makes donations more costly, or less effective, for that matter. Intermediation can be interpreted as indirect insurance. Much like a franchise chain, the intermediary puts her reputation at risk, not only for this particular project, but for all current and future projects that it handles. In the field, the insurance effect goes hand in hand with other services, such as matching donors with projects. In the lab, we can isolate the insurance effect and test whether individuals are willing to buy insurance, and whether the availability of insurance increases the willingness to donate to a real charity.

Efficacy risk. By definition, a charitable donation reduces an individual's income and/or wealth. It would be pointless to insure against this eventuality. Yet donors face another risk: the donation may miss its stated purpose. This relates to the efficacy motive of Bekkers and Wiepking (2011: 942): the perception of donors that their contribution makes a difference to the cause they are supporting. The money that was meant to help the victims of a natural disaster ends up in the pockets of local warlords. The money that should help a museum buy a famous painting is spent on refurbishing the restrooms. Anecdotal evidence suggests that being exposed to such risk deters quite some generosity. This, for example, occurred in 2012, when China's Red Cross faced a credibility crisis due to the alleged misuse of public donations by a lady who claimed to have a senior position at a business with China's Red Cross (http://edition.cnn.com/2011/WORLD/asiapcf/07/06/china.redcross/). Arguably, fundraisers could collect more funds if they could credibly promise that such risks are kept in check. This claim has been verified both in the lab and in the field: if donors can be sure that their donation is not used for any overhead cost, but directly and completely goes to the ultimate recipient, they give substantially more (Gneezy, Keenan et al. 2014).

The efficacy risk is particularly pronounced if aid crosses national borders. It is harder to access information on risks that might materialize at the other end of the world. Straightforward safeguards, such as binding contracts, are less reliable if these have to be enforced in a different jurisdiction. Even if the transaction is actually safe, would-be donors may have a harder time believing that.

Tax risk. Most countries not only appreciate and praise generosity; they also actively support it by giving donors a tax incentive. Tax incentives reduce the cost of giving and encourage giving to eligible charities, as is also confirmed in the literature survey by Bekkers & Wiepking (2011). Tax incentives can be granted in different ways, amongst others as a tax credit (deduction of tax to be paid), deduction from taxable income (the most common tax benefit, used in many continental European countries, the USA, and Japan) or a top-up scheme, such as the UK gift aid (for the legal background see Heidenbauer 2011, Vanistendael 2015). However, if the tax incentive on a specific donation is at risk, the donation might turn out more costly. In anticipation the donor might refrain from making the donation. This risk materializes, for example, if the charity is resident in another country than where the donor is a tax resident. The resident country of the donor is then more likely to refuse the tax benefit.

In the context of the European Union (EU), this risk is palpable. In four cases, the European Court of Justice (ECJ) decided that donations to foreign charities must be given the same tax incentives as donations to domestic charities (Case C-386/04, Centro di Musicologia Walter Stauffer v. Finanzamt München für Körperschaften [2006] ECR I-08203, C-318/07, Hein Persche v. Finanzamt Lüdenscheid [2009] ECR I-00359], Case C-025/10, Missionswerk Werner Heukelbach eV v. État Belge [2011] and Case C-10/10, European Commission v. Republic of Austria [2011]). Still, the legislation of six EU Member States discriminates against donations to charities in other EU Member States (European Foundation Centre & Transnational Giving Europe 2014, Cross-border philanthropy in Europe after Persche and Stauffer: from landlock to non-discrimination?). Moreover, Member States are not required to automatically confer charitable status on foreign charities. The ECJ leaves Member States free to determine what public benefits they wish to promote through tax incentives: they may impose their own requirements on foreign charities. The only requirement which is not allowed, as it breaches the free movement of capital guaranteed by article 63 of the Treaty on the Functioning of the European Union (TFEU), is a residency requirement. Consequently, different Member States may even impose conflicting requirements.

All of this makes it cumbersome to obtain a tax benefit, even when donating within the EU (Heidenbauer 2011, Heidenbauer, Hemels et al. 2013). Regulatory risk compounds if the recipient of the donation is located outside the EU. Art. 63 TFEU extends free movement of capital to third countries. In many countries, however, the tax incentives were already in place before 31 December 1993, for which reason the standstill clause of article 64 TFEU applies. Then the tax incentive does not have to be granted in relations with third countries. Moreover, the Mutual Assistance Directive (Council Directive 2011/16/EU of 15 February 2011, PbEU 2011, L 64) does not apply in third-country situations. The result may then be that charities in non-EU Member States cannot rely on the TFEU and can be denied charitable status solely based on their residence (this for instance occurred in ECJ, 12 December 2006, Case C-446/04, Test Claimants in the FII Group Litigation v. Commissioners of Inland Revenue [2006] ECR I-11753, para 170). While in EU situations the country of the donor can use the Directive to obtain information from the country where the charity is resident, this is not necessarily the case in third-country situations (see also Hemels 2010).

Donation intermediaries as insurers. As a matter of fact, more and more donations are not directly given to the ultimate recipient, despite the fact that this makes donations more costly or, equivalently, less effective. An intermediary attracts funds, and channels them to the recipient chosen by the donor. Examples include the Kigyo Mécénat Kyogikai (focusing on donations to the arts) in Japan, the Prins Bernhard Cultuurfonds in the Netherlands, Give2Asia for gifts to Asia-based educational and charitable organizations, the King Baudouin Foundation United States (KBFUS) for gifts to non-profit initiatives in Europe and Africa, and the Resource Foundation for gifts to innovative development programs in Latin America and the Caribbean. An important European cross-border example is "Transnational Giving Europe" (TGE), a partnership between large registered charities in 18 European countries, which residents of these countries can use to give to charities in the other countries. As the examples illustrate, the intermediary organizations are mainly targeted at facilitating donations to foreign charities.

Such intermediaries serve multiple purposes. They find potential recipients. They provide would-be donors with a portfolio of recipients from which to choose. They match donors with the charities that fit their preferences best. They relieve recipients and donors from administrative burdens. They advertise particularly worthy causes. They advise recipients how to market their cause, and they advise donors how to see their charitable wishes fulfilled.

Yet, arguably, these intermediaries also help contain the risk that the donation is not, or not completely, reaching its intended goal. The intermediaries are able to fulfill this function precisely because they handle donations from multiple givers to multiple causes. Much like a brand name or a franchising chain, with every single transaction they engage their own reputation (cf. Norton 1988). If there are rumors that funds have been abused, chances are that the intermediary will not only cease to receive money for the charity in question, but that people will stop giving to any cause the intermediary aims to promote. Hence the quality stamp of the intermediary organization implicitly insures transactions. Actually, the parallel to franchising can even be extended. Franchising helps if the buyer only learns after the fact whether the good has the stipulated quality, and is then not able to verify in court that the product had already been defective when buying it. In principle this information structure creates market failure (Akerlof 1970). The franchise chain overcomes the problem. It puts brand name capital at risk, and thereby creates credible incentives for ex ante quality control. Much the same way, the donation intermediary puts her reputation capital at risk if the donation fails, and thereby credibly commits to closely supervising the implementation of the project supported by donations.

The risk that tax benefits might not be given to international donations is another reason for relying on the services of an intermediary organization. If the intermediary organization itself has charitable status in the country of the donor, the donor may simply give to the intermediary organization, on the condition that the organization passes the donation on to its intended recipient. The intermediary organization may alternatively certify that a charitable initiative in another country meets all regulations and requirements. Intermediary organizations need to be very strict about this, since they risk losing their charitable status and related tax benefits if they engage in collaboration with unworthy initiatives (Solomon 2008). Relying on the services of such an intermediary can, therefore, also be interpreted as insurance against the risk of not receiving the expected tax benefit. Either service comes at a cost: a (small) part of the donation (or of the return on the endowment) is used to cover the costs of the intermediary (see, e.g. http://www.transnationalgiving.eu/en/procedure).

Anecdotal evidence from TGE and from KBFUS suggests an increase in donations channeled through such intermediaries. At the start of their initiative in 2009, € 2,946,708 were donated through TGE. In 2011, the figure rose to € 4,855,991; and by 2014, it had reached € 12,055,641. This resonates with data from KBFUS. At the start in 2003, $ 852,921 were transferred through KBFUS; by 2008, this had risen to $ 8,707,894; and by 2013, to $ 15,801,941. The size of grants transferred by KBFUS since 2003 varies from $ 48 to $ 3,700,000, with an average of $ 89,359 per grant. These figures refer to the grants made to final recipients by KBFUS. Therefore, multiple donations to one single recipient might be accumulated in these grants. Thus, the size of the average donation is likely to be below that of the average grant.

Direct insurance. In reaction to the working paper of this manuscript, we were approached by Munich Re. The company is preparing a new product that would give donors the possibility to insure directly against the risk of a donation not reaching its intended recipient. This shows that the paper is indeed timely.

The experiment. The insurance interpretation of donation intermediaries raises two questions we experimentally address in this paper: (1) What is the willingness of donors to pay for containing the risk that their generosity fails to reach its intended effect, or that they do not receive a tax benefit, or both? (2) To which degree does the availability, and the actual purchase, of such insurance increase the probability of donations?

We tackle these questions with a lab experiment. The experiment has a 2x3x2 factorial design. In the Baseline, donations have a safe effect and are rewarded by a monetary (tax) incentive with certainty. In the Effectiveness treatment, the incentive is granted with certainty, but there is a risk that the donation will not reach the intended effect. In the Tax treatment, a donation reaches its stated goal with certainty, but there is a risk that the donor will not receive a partial refund. In the final Effectiveness+Tax treatment, there are both sources of risk. In the third dimension, we vary the availability of insurance. In the NoInsurance treatments, participants face either risk or both risks, and can do nothing about this. By contrast, in the Insurance treatments, they may buy insurance, with the premium determined by an incentive-compatible mechanism (Becker, DeGroot et al. 1964).

Internal and external validity. Our experiment has been triggered by an observation from the field: donors increasingly rely on the services of donation intermediaries. One may wonder why we do not study this development with quantitative empirical methods, or run a field experiment. Both would have the advantage that we would directly study what we want to understand. External validity would not be an issue. Yet, as we have explained, these intermediaries serve multiple purposes at a time. There are no random shocks that prevent the intermediaries from serving all but one purpose, be it (implicitly) insuring the efficacy, or insuring the tax benefit. Moreover, in the field, the two sources of risk could not be held separate. Some tax authorities have even set up charity registers, as in the USA and the Netherlands. If the tax authorities learn that the donations are not used as intended, in many countries the authorities take action. Therefore tax deductibility provides information about the governance of the recipient, thus reducing the first risk we want to study.

For all charities, reputation is critical. Therefore no charity would allow us to make it publicly known that (a) some of the donations are diverted, or (b) some donors are deprived of the expected tax benefit. Moreover, the tax benefits are laid down in law, and could, therefore, not be withheld arbitrarily with a predefined probability. Consequently, we could not randomly assign would-be donors to one of the conditions. We could also not randomly offer or prevent that such donors rely on the services of a donation intermediary that shields them from either risk. For reasons of reputation, charities would most likely not even want us to make it publicly known that there is an intermediary.

A survey handed out to potential or actual donors would of course have been an option. But it would only have given us self-report data, with the inevitable loss in credibility. By contrast, in the lab we can create a donation environment with well-defined risk, and random assignment to treatment. We can make sure that participants engage real money, which makes their choices more credible. However we have to pay the inevitable price: lab experiments are less “real”. Yet, in our case, this price is small. We may study actual donations to actual charities. We are therefore much closer to the phenomenon in the field than is typical for lab experiments.

Robustness. Our experiment has been set up to investigate whether donation intermediaries may be interpreted as insurers. If true, brand name capital serves as a hostage. Insurance is indirect. For donors this has an important advantage. They need not verify afterwards whether the donation has failed. They are protected by intermediaries anticipating the negative consequences for their business if donors suspect failure. This is different with direct insurance. With direct insurance not only face risk ex ante, they also face risk ex post. They need information about the implementation of the specific project for which they have donated. Typically, in the field, ex post information will be imperfect. Even afterwards donors do not learn with certainty whether the project was successful. We capture the additional ex post risk by a supplementary treatment. In this treatment, participants ex post only receive a signal that is false with probability 20%. In the interest of clean identification, in this treatment we do, however, allow participants to buy full certainty. If they are insured, both the ex ante and the ex post risk are perfectly contained. This design makes sure that there is no more than one difference between the original effectiveness and the new signal treatment.

Indirect insurance not only relieves donors from ex post risk. Since it changes the incentives of those who handle the donation, protection is also in kind. The charity credibly commits to making sure that the donation fulfils its stated goal. This too is hard to obtain with direct insurance. It is much easier for an insurance company to pledge monetary compensation if the donation fails. The natural promise is giving the donor her money back if the donation is not successful. This is what we test in the second supplementary treatment.

In the final supplementary treatment, we combine both additional features: there is ex post risk, and if the signal is bad, the donor gets her money back. Note that ex post risk implies false positives and false negatives. It is possible that the donor receives her money back despite the fact that the donation has actually been successful (a false positive). Conversely it is possible that the donor does not receive her money back (since the signal is good) despite the fact that the donation has actually failed (a false negative).

Basic Findings. In the main experiment, we find that our participants react very differently to the two risks. If there is a risk of the donation not reaching its intended goal, this seriously deters giving, compared with the Baseline where the donation was safe. However, we do not find a significant reduction in donations if there is (only) the risk of the donation being more costly than expected. This provides information on an individual's sensitivity towards financial risk. If participants are offered the possibility to insure against either risk, they seize this opportunity, and the willingness to pay for insurance does not differ across risks. However, the opportunity to insure is only critical for the willingness to donate if the risk concerns the actual beneficiary, not if it concerns the subsidy. Interestingly, if participants can contain this risk, they do so, and their willingness to donate is no longer reduced. Providing costly insurance is an effective intervention to increase charitable giving. To the extent that donation intermediaries implicitly provide this insurance, they serve a socially beneficial function.

Descriptively, the willingness to donate is a little higher if participants get their money back when the donation fails. Willingness to donate is a little lower if donors not only face ex ante, but also ex post risk. But neither difference reaches significance. Yet if both changes are combined, willingness to donate is substantially lower, and can no longer be statistically distinguished from a situation where there is efficacy risk and no insurance option. This suggests that participants are deterred by learning that even ex post insurance does not completely contain the risk. With the supplementary treatments, we also find differences in willingness to pay for insurance. Participants are willing to pay significantly more for insurance if they get their money back, compared with the credible promise to remove the risk that the donation fails. This suggests a preference for direct over indirect insurance. We also find a higher willingness to pay for getting one's money back, compared with the same payment conditional on a potentially false signal of project failure. Yet this difference is only weakly significant.

Our paper is organized as follows: in the next section we develop the hypotheses we want to test. Section 3 presents the design of the experiment. Section 4 reports results. Section 5 concludes with discussion.

2. Hypotheses and Literature

Standard preferences. A person holding standard preferences does not donate in the first place. For such persons, buying donation insurance is pointless. This is the first reason why our null hypothesis might hold:

H0a: 1. Participants do not donate.
2. Participants do not buy insurance.

Social preferences. Now ample evidence from the field, as well as evidence from dictator games run in the lab, rejects this theoretical hypothesis. On average, individuals give non-negligible amounts, as documented in the meta-study by Engel (2011: . On average, dictators gave 28.35% of the pie. This behavior may be rationalized by social preferences. There are various options. Participants might be averse to advantageous inequity (the canonical models are Fehr and Schmidt 1999, Bolton and Ockenfels 2000). Participants might be altruistic and experience "warm glow" when helping the needy (Andreoni 1995). Participants might instead feel morally obliged to share some of their income with the needy (see the model by Dufwenberg, Gächter et al. 2011), or to give some of their income for worthy causes. Either way, they would have utility as in (1)

$$u = e - d - \gamma \max\{\hat{d} - d, 0\} \tag{1}$$

, where e is an endowment (which may be given to them, result from productive labor or from successful investment), $d \le e$ is a donation, and $\hat{d}$ is some individually or socially desirable level of donation. The max-operator excludes that individuals gain extra utility from exceeding the desirable level of generosity (which is not the focus of this paper), and γ defines how strongly the individual dislikes falling short of the target level of generosity. The individual gives exactly the amount $\hat{d}$, provided $\gamma > 1$.

Now introduce the risk that the donation does not reach its desired effect. Given the existing experimental evidence, this is a relevant concern. Deserving recipients, like charities, get substantially more on average. While giving nothing is the mode if the recipient is another participant, the mode is giving everything if the recipient obviously deserves the money; see Figure 1.

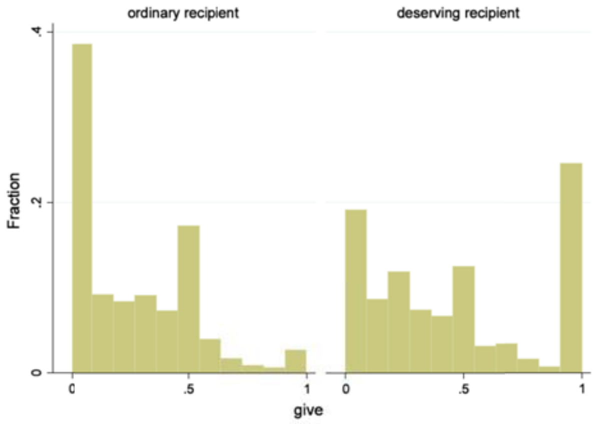

Figure 1

Choices in Ordinary Dictator Games vs. When Recipient is Deserving

For details about data generation, as well as a definition of dv and iv, see (Engel 2011).

Previous studies demonstrate that providing donors with information on the efficacy of the recipient has a positive effect on donations (Jackson and Mathews 1995, Parsons 2003, Parsons 2007, Fong and Luttmer 2011). Furthermore, Bekkers and Wiepking (2011: report a strand of literature that demonstrates that beliefs about the efficacy of the recipient promote giving.

Risk regarding the payoff for the dictator has a negative influence on the amount she gives (OLS with reconstructed data, cons .342***, degree of risk -.265***, (Engel 2011)). The risk that the donation reaches its stated goal might have a comparable effect. This has indeed been shown and explained by the fact that the risk provides an opportunity to conceal selfish intentions (Exley 2016). Specifically, we assume that the individual knows the donation will only be effective with probability $p < 1$. At this point, we further assume that the individual is risk-neutral (with respect to this risk). On these assumptions, utility is given by (2). There are two effects: First, disutility from not being generous is conditional on generosity being effective. Moreover, if the donation is not used for its intended purpose, the individual feels betrayed. One might also interpret the final term in (2) as a measure of regret (for having wasted money on a failed donation). This could even trigger an emotional reaction. The higher the donation, the more utility the individual would have gained by actually not making a donation. The degree of betrayal/regret aversion we capture by factor η. The max operator captures that the individual is not allowed to take money from the charity. Therefore, she cannot gain utility from making a "negative donation". Both combined effects increase the critical degree of sensitivity to inequity or morality γ. The individual donates $\hat{d}$ provided $\gamma > \frac{1}{p} + \frac{1-p}{p}\eta$.

$$u = e - d - p\gamma \max\{\hat{d} - d, 0\} - (1-\mathrm{p})\eta \max\{d, 0\} \tag{2}$$

Next, introduce a tax reduction conditional on spending money for a worthy cause. Several experiments have turned the dictator game into a positive-sum game: giving helps the recipient more than it costs the donor. This significantly increases the amount given (meta-regression, cons .248***, multiplier (fraction or multiple of 1) .030*, (Engel 2011)). A tax incentive has an equivalent effect. Formally, the deduction reduces the cost of donating by a factor $r < 1$. The final term of (3) assumes that the tax incentive does not change the moral balance. Now $\gamma > 1 - r$ suffices to sustain donations.

$$u = e - d + rd - \gamma \max\{\hat{d} - d, 0\} \tag{3}$$

Now allow for the tax incentive to be risky, which is captured by probability $q < 1$ in (4). This increases the critical degree of aversion against violating the normative expectation to $\gamma > 1 - qr$.

$$u = e - d + qrd - \gamma \max\{\hat{d} - d, 0\} \tag{4}$$

Putting (2) and (4) together, i.e., allowing for both sources of risk, we have utility as in (5). This induces the critical degree of aversion to be $\gamma > \frac{1-qr}{p} + \frac{1-p}{p}\eta$.

$$u = e - d + qrd - p\gamma \max\{\hat{d} - d, 0\} - (1-\mathrm{p})\eta \max\{\mathrm{d}, 0\} \tag{5}$$

With this definition of utility, we can explain why the frequency and the amount of donations in a population decrease in the intensity of either risk. If government has reason to believe that (5) correctly specifies utility, it might want to reduce the risk regarding the tax benefit (q) to save on the size of the reduction (r). Likewise, if there is an exogenous risk regarding the effectiveness of the donation (p),government might want to react by increasing the incentive; in fact, giving a subsidy through the tax system might be motivated by this risk in the first place. Yet, if (5) completely defines utility, would-be donors would not want to insure themselves against either risk. They would just stop giving as soon as their individual γ was not large enough, given the subsidy and the size of either risk.

Insurance. To the best of our knowledge, which is confirmed by the literature review by Bekkers and Wiepking (2011: , there is no literature on the willingness to pay to ensure that a donation serves its intended purpose. Coffman (2011: studied the use of an intermediary in decision-making. However, he does not introduce the intermediary as an insurer. Instead, he focuses on the influence of an intermediary on moral decision-making. He finds that punishment for keeping money is significantly less when an intermediary is involved. Also, rewards for charitable donations decrease when there is intermediation.

However a small part of the literature tests the willingness to pay for information signals on the deservingness of the recipient. In Fong and Oberholzer-Gee (2011: , 32.8% of dictators were willing to pay for such a signal. Dictators who paid for the signal used it to withhold money from less-preferred recipients.

In the framed field experiment by Null (2011: , subjects were asked to allocate a gift among three charities. The three charities all served the same public good; however, their social benefit differed in a way undisclosed to participants. When subjects were offered to buy information on the social benefit of the charities, 40% of the subjects were willing to pay a small amount for this information. The author only provides anecdotal evidence, to the effect that participants used this information to allocate their donations to the most profitable cause.

The effects of tax incentives on charitable contributions have been studied extensively since the 1970s. A review of these studies conducted over time suggests that giving is price-elastic, at least among individuals with high income (List 2011). The meta-study by Peloza and Steel (2005: also demonstrates a price elasticity of giving, with rates between -1.11 and -1.44. Risk regarding the effectiveness of donations, however, has not been tested in the lab, to the best of our knowledge. Null (2011: is only remotely related. She abstractly characterizes the three potential recipients by differences in social benefit, by introducing uncertain matching rates, whereas we are interested in risk regarding subsidies.

In order to explain why donors might want to insure themselves against either risk, we must introduce risk aversion, i.e., we must assume utility to be a non-linear, concave function $u = f(\hat{u})$, with $u' > 0, u'' < 0$. We apply the standard insurance model by Mossin (1968: , Schlesinger (1981: , and Schlesinger (2000: . If the risk in question does not materialize, the individual receives u_0, as defined by (1). Yet individuals face a possible loss x, of which they only know the distribution $\tilde{x}$. The risk consists of the possibility of the donation missing its intended goal (2), of the expected tax incentive not being granted (4), or both (5). Note that both risks are only defined in utility space. Of course, the tax benefit is monetary in kind. But it only matters for individuals who gain utility from giving for a worthy cause. The tax benefit just reduces the cost of generosity. The insurer has the same information. The insurer offers to cover fraction $\alpha \leq 1$ of the loss, should it occur, and asks for a premium $P(\alpha) = (1 + \lambda)\alpha$, with loading factor $\lambda \geq 0$. If she buys insurance, the individual hence expects

$$u = f(\hat{u})$$
$$\hat{u} = u_0 - (1+\lambda)\alpha E(\tilde{x}) - (1-\alpha)\tilde{x} \tag{6}$$

where the second term in the second equation is the premium, and the third term is the fraction of the expected loss not covered by the insurance. The definition of u_0 and $\tilde{x}$ depends on the source of the risk. If there is no tax benefit, u_0 is given by (1). With probability p, u_0 also defines utility with (2). Yet, with counter-probability $1-p$, the individual makes a pointless donation and additionally suffers disutility from betrayal/regret, which leads to $\tilde{x} = (1+\eta)d$. Along the same lines, u_0 and $\tilde{x}$ are defined for the remaining cases. The individual finds the optimal degree of insurance α by taking the first derivative, to get

$$\frac{\partial u}{\partial \alpha} = E[f'(\hat{u}) * (\tilde{x} - (1+\lambda)\mathrm{E}(\tilde{x}))] \tag{7}$$

From the assumptions yielding risk aversion it follows that there is a unique optimum. If the premium is fair, i.e., with $\lambda = 0$, the individual buys full insurance, i.e., chooses $\alpha = 1$ (in expectation the second term in (7) is 0). If the insurance company has market power and is able to set $\lambda > 0$, the individual only buys incomplete coverage, i.e., chooses $\alpha < 1$ (in expectation the second term in (7) has a negative sign) (Mossin 1968).

This model implies that, if the premium is fair, the degree of risk aversion is immaterial. Provided the individual is not risk-neutral or even risk-seeking, she will buy full insurance, however small her aversion against risk. Yet coverage is sensitive to the degree of risk aversion if the insurance company charges a markup λ. The higher the markup, the more an individual with low risk aversion reduces coverage. If only full coverage is available, lesser individuals will buy insurance. Conversely, the more the individual is averse to risk, the less she reacts to increases in λ by reducing α, or by not buying full insurance, for that matter (Schlesinger 2000).

All of the foregoing applies standard economic theory to the purchase of insurance coverage. The purpose of our experiment is to test the willingness to pay for insurance against one of two non-standard risks: the risk of generosity missing its purpose, and the risk of not being partly reimbursed for generosity by a tax incentive. Both risks may only affect individuals who are willing to donate in the first place. In terms of our model, they require a sufficiently large γ, with sufficiency defined by the type and degree of the risk. Conceivably, individuals are generous, but not averse against either risk. This leads to an alternative version of the null hypothesis:

H0b: 1. Donations do not become more frequent if donors can insure against the risk of the donation not reaching its intended goal, or not being supported by a tax benefit.
2. Participants do not buy insurance against these risks.

That would be the second reason why our null hypothesis $\mathbf{H_0}$ holds. Now in the field, the share of donations that are channeled through intermediaries has been growing steadily. This suggests that we might find support for our main alternative hypothesis

H1: Individuals who are willing to donate have a positive willingness to pay for reducing the risk that the donation does not reach its intended goal, the risk that the donor does not receive a reward pledged by some central agency.

A further implication of our model leads to our second hypothesis:

H2: If individuals have the option to insure themselves against the risk that the donation does not reach its intended goal, the risk that the donor does not receive a reward pledged by some central agency, this increases the probability of them making a donation.

In economics, risk preferences are thought to be personality traits (see only Holt and Laury 2002). While psychological research in principle shares this view, it points to the sensitivity of risk attitudes to context (Weber, Blais et al. 2002, Blais and Weber 2006). If risk aversion is domain-specific, it can formally be expressed by $\rho = f(p,q)$: risk aversion is a function of the source and the degree of reduced motivation to give.

Donors want to do good. If the driving force is inequity aversion (Fehr and Schmidt 1999), the effect of the donation being ineffective depends on the alternative outcome. If with some probability the money ends up in the pocket of individuals who are wealthy in the first place, this money would not only be lost for its purpose. The donor would even suffer disadvantageous inequity, i.e., utility would be given by

$$u = e - d - p\beta \max\{\hat{d} - d, 0\} - (1-\mathrm{p})\alpha \max\{\pi_{j0} + d - e + d, 0\} \qquad (8)$$

where β measures the degree of aversion against being better off than the intended recipient, while α measures the degree of aversion against being exploited by the actual recipient not just receiving π_{j0}, but, in addition, the donation d not being intended for her. Both theoretically (Fehr and Schmidt 1999) and empirically (Blanco, Engelmann et al. 2011) for most individuals, $\alpha > \beta$, not so rarely by a factor 2 or more. Note further that, in (8), the individual suffers twice from the misplaced donation: her own relative payoff is reduced by this amount, and the relative payoff of the actual recipient is increased by this amount. An alternative reason for this effect is regret. Had they known in advance that the donation would fail to reach its effect, these individuals would not have given anything. It has been proposed to keep the motivating effects of risk aversion and regret aversion separate, and to capture regret by an additional term in the utility function (Braun and Muermann 2004). There is nothing wrong with that modelling strategy. But in the interest of keeping the formal framework constant and simple, we instead posit that regret aversion increases the original level of risk aversion. For both reasons we expect

H3: Willingness to pay to ensure that donations reach their intended recipient is more pronounced than willingness to pay to insure against the risk of not receiving the tax benefit.

If, by contrast, the reason for giving is an extrinsic or intrinsic norm, the effect of risk depends on the contents of the norm. Arguably, the intended recipients are no less deserving if there is an exogenous risk that some donations are lost on their way. There may be some threshold. If the risk is very pronounced, donors may refrain from giving in the first place. But otherwise one should expect them to care less, not more, about this risk, compared with the risk of not receiving the tax benefit. This yields the alternative hypothesis

H4: Willingness to pay to ensure that donations reach their intended recipient is less pronounced than willingness to pay to insure against the risk of not receiving the tax benefit.

3. Design

Main experiment. We randomly assign participants to a *Baseline* or one of six treatments (we do not have a treatment with insurance, but no risk, since this would be pointless). We hold the following elements constant: all participants decide in the role of dictator. The recipient is the same charity. We are interested in the marginal effect of risk, and of insurance, on charitable giving. Therefore we made an effort to pick a charity that almost all participants should regard as a worthy recipient. Through a survey amongst a similar student population that would be involved in the experiment, we found that they prefer charities aimed at children. We convinced the foundation Unite For Basic Rights (UFBR), which provides orphans around the world with basic needs (http://www.ufbr.nl/), to accept donations from our experiment.

The game is played one-shot. Participants receive an endowment of €5. They make a binary choice between keeping this endowment and giving €2.50 to the charity. €2.50 is chosen, since a 50-50 division shows to have significant force in gift behavior (Andreoni and Bernheim 2009, Engel 2011). If they give, the experimenter reimburses half of this amount, i.e., €1.25. In the *Baseline*, this is the whole design. It captures a donation to a well-regarded domestic charity.

In the *Effectiveness* treatments, there is a 20% probability that a donation will not reach its intended goal, but is spent on a frivolous activity. To find an undeserving goal, we pre-tested a set of six expenditure items that charities such as UFBR spend money on, but that fall outside the scope of their core charitable activities. We asked students from the same student population to rank the expenditure items. A dinner for the board members showed to be the most undeserving (See Appendix III for detail), which is the alternative use of the donation that is possible in our experiment. This is stated in the instructions. After the experiment, we transferred two separate amounts to the charity: one earmarked for their work with orphans; and another, smaller amount to be spent on a board dinner. The charity had agreed to this procedure in advance. In this treatment, we thus introduce risk on the recipient's side. The reimbursement rule is not affected.

In the *Effectiveness Insurance* treatment, participants are given the possibility to buy insurance. If they do, the risk is perfectly neutralized, i.e., the donation reaches the charitable activity with certainty. To elicit willingness to pay, we use the mechanism introduced by Becker, DeGroot and Marschak (1964). Participants state the maximum price they would be willing to pay for insurance, in the interval [€0, €1.25]. We set the upper limit at €1.25, since otherwise the cost of insurance would be above the actual cost of the donation. The computer randomly picks a number from this interval. If the stated price is at or above this number, participants buy insurance at this number. We only give feedback at the end of the experiment. Using the strategy method (Selten 1967), we ask participants to decide whether they want to donate €2.50 to the charity (a) only if they are insured against the risk that their donation is spent on the wrong activity or (b) whether they are insured or not.

In the *Tax* treatment, there is a 20% probability that participants will not receive the subsidy of €1.25 if they donate €2.50 to the charity. In this treatment, we thus introduce risk on the donor's side. In the *Tax Insurance* treatment, participants are additionally given the possibility to buy insurance against this risk. We again use the Becker – DeGroot – Marschak mechanism. The interval is again [€0, €1.25]. For this treatment, the upper bound is additionally motivated by the fact that, otherwise, participants would have to spend more on making sure they get a refund of €1.25 than the actual size of the refund, which would be very unlikely. We again use the strategy method to elicit donation choices of insured and uninsured participants.

In the *Effectiveness+Tax* treatment, there is a 10% probability that the donation will be diverted towards the dinner for board members, and a 10% probability that participants will not receive a subsidy if they make a donation. In this treatment, we thus introduce risk both on the recipient's and on the donor's side. It captures a donation to an international recipient (especially when the donor lives in the EU and donates to an entity outside the EU). In the *Effective+Tax Insurance* treatment, participants are additionally given the possibility to buy insurance. Insurance perfectly contains both risks. Procedures are as in the other two treatments. Table 1 summarizes our treatments.

In all *Insurance* treatments, participants decide whether to donate at all, to donate only conditional on actually being insured, or to donate unconditionally.

	effectiveness risk	refund risk	insurance option
Baseline	no	no	(no)
Effectiveness	yes	no	no
Effectiveness Insurance	yes	no	yes
Tax	no	yes	no
Tax Insurance	no	yes	yes
Effectiveness + Tax	yes	yes	no
Effectiveness + Tax Insurance	yes	yes	yes

Table 1
Treatments

To avoid choices in later parts of the experiment being contaminated by the realization of one of these random draws, feedback on all parts of the experiment is withheld until the very end of the experiment.

Post-experimental tests. During the main experiment, participants only know that the experiment has further parts, but do not know what these parts are about. This procedure is meant to avoid anticipation effects and hedging. After the main experiment, post-experimental tests are introduced and played out one by one.

In the main experiment, the risk is exogenous. To measure the degree by which each participant is affected by the respective risk, within subjects we repeat the experiment. Participants again receive €5. In the *Effectiveness* and *Tax* treatments, they are again asked whether they want to give €2.50 to the same charity. Yet, in the *Effectiveness* treatments, again using the mechanism introduced by Becker, DeGroot et al. (1964: , we have participants choose the minimum degree of certainty they require for the donation to reach its intended goal. Likewise, in the *Tax* treatment, we have participants choose the minimum degree of certainty they require for receiving the subsidy. In the *Effectiveness+Tax* treatments, participants independently make both choices, donating €1.25 to the charity each time. In all these additional tests, participants are first asked for the minimum required degree of certainty, but are then free not to donate at all, to donate only conditional on actually being insured, or to donate unconditionally.

Due to the limited availability of participants, we had to run the experiment in two waves, separated by two months. Analyzing the data from the first wave gave us the idea to change part 2 of the experiment for the Tax treatments. While we originally had asked for the minimum refund required, we now asked for the minimum degree of certainty required for getting the fixed refund of half the donation. When analyzing the post-experimental test, for the Tax treatments, we only report data from the second wave. We still have a total of 202 independent observations.

In the third step, the same way in all treatments, we give participants a third endowment of, this time, €2.50. Participants may invest this endowment in a profitable activity, which technically is a lottery. The lottery yields €5 with probability .8, and nothing with probability .2. Again using the Becker – DeGroot – Marschak mechanism, participants may buy insurance against this risk, stating the maximum price in the interval [€0, €2.50]. If the insurance contract is concluded, the premium is subtracted from the lottery profit. The same way as in the main experiment, we only give feedback at the end of the entire experiment, and ask participants whether they want to invest their endowment in the lottery if they are insured, and we ask the same question if they are not insured. This post-experimental test informs us about the participants' preferences for financial risk, with risk exactly specified as in the main experiment.

We finally administer the non-incentivized test for domain-specific risk preferences by Blais and Weber (2006: , the 10-item version of the Big 5 inventory (Rammstedt & John, 2007), and ask demographic questions.

Conduct. We ran the experiment at the Erasmus School of Economics Lab of the Erasmus University Rotterdam. 244 students of various majors participated in the experiment. 47.95% were female. Mean age was 22.10 years. The experiment was programmed in zTree (Fischbacher 2007). We had 15 participants in the *Baseline*, 49 participants in the *EffectivenessInsurance* treatment, 53 participants in the *TaxInsurance* treatment, 47 participants in the *Effectiveness+Tax-Insurance* treatment, 28 participants in the *Effectiveness* treatment, 28 participants in the *Tax* treatment, and 24 participants in the *Effectiveness+Tax* treatment. The number of participants per treatment is unbalanced since the number of invited participants who did not show up differs. Participants on average earned €12.90 (€14.34 on the first day of the experiment).

4. Results

Donation rate. Figure 2 shows our main result, the effect of treatment on donation rates. As expected, in all treatments a substantial fraction of participants donates, which is why we refute our first null hypothesis $\mathbf{H_{0a}}$ of no donations. We first compare the *Baseline* with the *NoInsurance* treatments. In the *Baseline*, 73.3% of all participants donate, while only 39.3% do if there is a 20% risk that the money is actually used for a board dinner (Mann Whitney, N = 43, p = .0354), and only 37.5% if there is both this risk (with probability 10%) and the risk that there is no refund (again with probability 10%, Mann Whitney, N = 39, p = .0354). By contrast, if there is only a 20% risk of a donor not receiving €1.25 in return, still 60.7% donate, and there is no significant difference from the *Baseline* (Mann Whitney, N = 43, p =

.4135). We thus also refute our second null hypothesis $\mathbf{H_{0b}}$ of positive donations, but no treatment differences, and have

> *Result 1: The risk that the donation fails to reach its intended purpose deters donations, while the risk that it costs twice as much does not.*

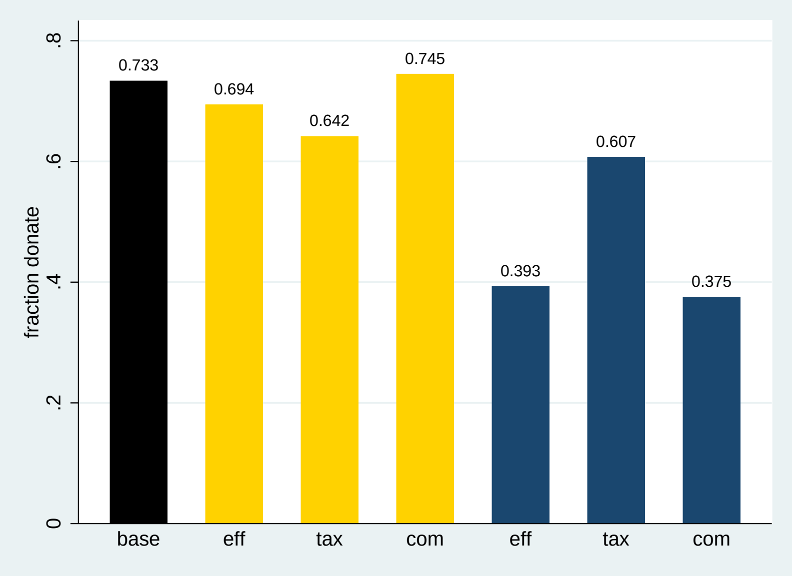

Figure 2
Treatment Effect on Donation Rates

black: *Baseline*, gold: *Insurance*, blue: *NoInsurance*

base: Baseline, eff: risk that donation is used to finance board dinner, tax: risk that donor does not receive subsidy of 1.25€, com: both risks combined (but with half the probability each).

We now turn to the effect on donation rates of giving participants the option to insure against either risk. Recall that, in these treatments, participants had two options: they either could donate unconditionally, or only on the condition that they actually were insured. In the remaining treatments, this distinction did not exist. Figure 2 and the following tests work with a dummy variable, which is 1 whenever a participant decided to donate, whether conditionally or not. Visibly donation rates in the *Baseline* and in all *Insurance* treatments are very similar. We do not find a significant difference between the *Baseline* and either treatment (Mann Whitney: *Baseline* vs. *EffectivenessInsurance*, N = 64, p = .7715; *Baseline* vs. *TaxInsurance*, N = 68, p = 5101; *Baseline* vs. *Effectiveness+Tax-Insurance*, N = 62, p = .9309). We do not find any treatment differences either between the Baseline and any one of the Insurance treatments in a parametric logit model. By contrast, we do find a significant effect of the insurance option in the *Effectiveness* treatments (*Effectiveness* vs. *EffectivenessInsurance*, N = 77, p = .0104) and in the *Effectiveness+Tax* treatments (*Effectiveness+Tax* vs. *Effectiveness+Tax-Insurance*, N = 71, p = .0026), while we do not find a significant effect of the insurance option if the risk is confined to the tax refund (*Tax* vs. *TaxInsurance*, N = 81, p =

.7621). We thus have partial support for our alternative hypothesis $\mathbf{H_2}$: the insurance option is critical for the risk of the donation failing to reach its intended goal, but it is not critical for the risk of the donation turning out more expensive than expected. We thus have

> *Result 2: The option to insure against the risk of a donation failing to reach the intended goal increases the willingness to donate.*

In the *Insurance* treatments, participants could not only buy insurance. They also had the option either to donate unconditionally or conditionally. Table 2 shows that participants used this option quite intensively. But we see a treatment difference. In the *TaxInsurance* treatment, 28.30% are only willing to donate if, through insurance, the tax refund is safe. By contrast, in the *EffectivenessInsurance* treatment, 48.97% are only willing to give if they can be sure that their donation is not spent on a board dinner. In the *Effectiveness+Tax-Insurance* treatment, even 59.57% make their donation conditional on either risk being removed, Table 2.

	Effectiveness	*Tax*	*Effectiveness+Tax*
no donation	15	19	12
conditional donation	24	15	28
unconditional donation	10	19	7

Table 2

Conditional vs. Unconditional Donation Choices in the Insurance Treatments

As the regression in Table 3 demonstrates, we do indeed find a significant difference in the propensity to donate unconditionally between the *TaxInsurance* and the remaining *Insurance* treatments: participants are much less willing to ignore the risk that their donation might reach the intended recipient, compared with the risk of not receiving the tax benefit. Comparing the *Tax* and the *Effectiveness+Tax* treatment, we further find that participants are also less willing to donate at all. In this treatment, the insurance option thus increases the willingness to donate even above the level present if there is only the risk of the donation turning out more costly. All of this is further evidence that participants truly care about the risk that the money might be misspent, while they are not particularly concerned about the cost of the donation.

	no donation	unconditional donation
Effectiveness	-.706 (.477)	-1.111* (.511)
Effectiveness+Tax	-1.084* (.488)	-1.623** (.546)
cons	.236 (.345)	.236 (.345)
N	149	

Table 3

Treatment Effect on Donation Choices in the Insurance Treatments

multinomial logit

base outcome: donation only if participant is insured

reference category: treatment with (only) tax risk

effectiveness: treatment with effectiveness risk

effectiveness+tax: treatment with both an effectiveness and a tax risk

standard errors in parenthesis

** p < .01, * p < .05

Buying insurance. Figure 3 visibly supports $\mathbf{H_1}$: whenever they have the option, participants are willing to buy insurance. For all treatments, we reject $\mathbf{H_{0a}}$, which expected participants not to buy insurance at all. (In testing against this null hypothesis, we face a technical challenge. The theoretical expectation is at the limit of the support. In the spirit of a confidence interval, we react by reporting the lowest positive amount (in steps of 5 cents) that is still rejected at conventional levels. It is 25 Cents in the Effectiveness treatment (signrank test, N = 49, p = .0030), 30 Cents in the Tax treatment (N = 53, p = .0329) and 30 Cents as well in the *Effectiveness+Tax* treatment (N = 47, p = .0192)). Given that the willingness to donate is so much more sensitive to the insurance option if the risk concerns effectiveness, one might also expect participants to be less willing to spend additional money on insuring the tax refund. Yet Figure 3 does not convey this impression. And indeed, we do not find any treatment effects on the willingness to pay for insurance, whether we use nonparametric or parametric statistics.

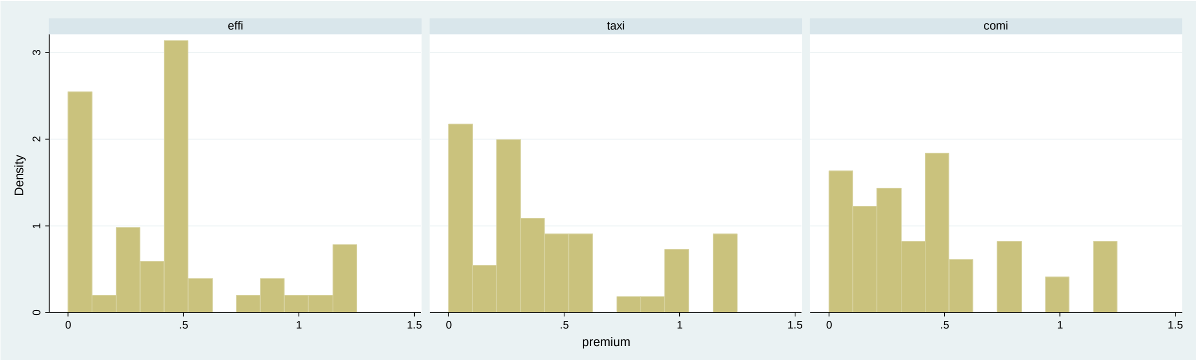

Figure 3
Willingness to Pay for Insurance

effi: *EffectivenessInsurance* treatment; taxi: *TaxInsurance* treatment;
comi: *Effectiveness+Tax Insurance* treatment

We thus neither support **H3** (participants pay more to ensure that the donation serves its *purpose*) nor **H4** (participants pay more to ensure that the donation is cheaper) and conclude:

> *Result 3: The willingness to pay for insurance against the risk of a donation not reaching its intended goal, or not being subsidized, is substantial and does not differ between these risks.*

Explanations. The regressions of Table 4 cast further light on our main finding. If there is no insurance option, participants are less willing to donate if there is a risk of the donation not reaching its intended purpose, compared with the risk of there being no tax refund (model 1, main effect of *Effectiveness*). However, the effect disappears with the insurance option (the interaction effect completely neutralizes the main effect; strictly speaking, one cannot directly read the neutralizing effect of insurance off the net effect since the statistical model is non-linear. Yet in all models, the average marginal effect of effectiveness is insignificant if insurance is available). The strongest predictor of a risky donation is unconditional willingness to donate. Participants who are willing to accept any degree of either risk in the first post-experimental test are also much more likely to donate in the main experiment (models 2-4). By contrast, the *degree* of risk the individual participant is willing to accept when given a choice does not explain donations in the main experiment. This suggests that insurance is not important for attenuating either risk, but for excluding it altogether. Donations under risk are moderated by the donor's sensitivity to financial (model 4) and to ethical risk (model 5). Interestingly, the more participants are sensitive to either risk, *the more* they are likely to make a donation to the charity. This suggests that participants put themselves into the shoes of potential recipients and are guided by how they would feel were they in distress and deprived of help.

	model 1	model 2	model 3	model 4	model 5
effectiveness	-1.094* (.429)	-1.262* (.493)	-2.421* (1.073)	-1.237* (.511)	-1.170* (.542)
insurance	-.042 (.430)	.375 (.555)	-.161 (1.433)	.386 (.565)	.377 (.594)
effectiveness*insurance	1.451* (.564)	1.249^{+} (.711)	1.494 (1.524)	1.189^{+} (.718)	1.178 (.745)
willingness to donate in part 2 of the experiment		2.269*** (.362)		2.305*** (.372)	2.291*** (.375)
maximum degree of risk accepted in part 2 of the experiment			-2.417 (2.084)		
willingness to pay for insuring private project				.576* (.260)	.613* (.270)
aversion against taking ethical risk					.676* (.280)
cons	$.624^{+}$ (.321)	$-.745^{+}$ (.405)	4.608 (1.882)	-1.241* (.488)	-3.937** (1.200)
N	244	202	129	202	202

Table 4

Explaining Donation Choices in Main Experiment With Multiple Risk Measures

(binary) logit

dv: dummy that is 1 if participant is willing to make a donation in the main experiment, either conditionally or unconditionally

model 1: all data; models 2,4 and 5: part 2 asks for the maximum willingness to accept either risk; model 3: participants have not categorically refused to take risk in part 2 of the experiment

Effectiveness+Tax treatments: choice in post-experimental test refers to risk that donation does not reach the intended recipient

effectiveness: treatment exposes participants to effectiveness risk

insurance: treatment gives participants option to insure against the respective risk

standard errors in parenthesis

*** $p < .001$, ** $p < .01$, * $p < .05$, $^{+}$ $p < .1$

5. Robustness: Direct Insurance

Design. Our experiment has been motivated by the growing market share of donation intermediaries. We have interpreted these intermediaries as indirect insurers against two risks: that the donation does not reach its intended recipient and that the donation is not rewarded by a tax benefit. If intermediaries fulfil this function, insurance is provided indirectly: the intermediary puts her brand reputation at risk. This makes the implicit promise to donors credible that either risk is contained. In the introduction we have mentioned that a prominent insurance company considers introducing direct insurance against the efficacy risk. With direct insurance, two features of the main experiment limit external validity.

It will be difficult, if not impossible, for an insurance company to guarantee that a donation truly reaches the intended recipient. It would be much more natural for the insurance to offer financial compensation. Compensation may also be attractive for donors. It gives them the option to decide whether they want to donate a second time if the first donation has failed, and to which cause. This is captured by our *MoneyBack* treatment.

In the main experiment, afterwards the donor learns with certainty whether the donation was effective. Since we have been interested in understanding the effect of indirect, ex ante insurance, this was not a limitation of the design. Yet with a direct, ex post insurance, this feature of the design becomes important. It is hard to imagine that a donor truly learns with certainty whether the donation was effective. More realistically, the donor will normally only have indications of success or failure. This we capture by the second supplementary treatment, the Signal treatment. In this treatment, would be donors face ex ante and ex post risk. Specifically ex post they only receive a signal that is false with probability 20%. Hence if they receive a good signal, there is still a 20% probability that the project failed. And if they receive a bad signal, there is a 20% probability that the project was effective regardless. The presence of ex post risk distinguishes the signal treatment from the original *EffectivenessInsurance* treatment. Since the two treatments only differ by this one feature, we can identify the effect. In the interest of this identification, in this treatment we maintain the effect of insurance. If a participant is insured, this completely removes ex ante and ex post risk.

Direct insurance requires verification. The insurance company only promises to step in if the insured risk has truly materialised. This is for the insured person to show. However, if that was what the insurance contract stipulates, few donors would want to buy insurance. The donor will hardly ever be in a position to prove failure, to the requisite standard. To be marketable, the insurance contract would have to condition on a mere signal of failure. This we capture by our last supplementary treatment. In the *MoneyBackSignal* treatment, the insurance contract conditions on the presence of the bad signal, which again is false with probability 20%. We also keep that the good signal is false with probability 20%. Hence in this treatment insurance is incomplete. There is a 20% probability that the project failed and there is no insurance coverage. However there is also a 20% probability that the project was successful and the insurance nonetheless steps in. The combination of this definition of the insurance contract with insurance directly helping the ultimate recipient would have been very artificial. If the signal is false, the recipient in question would have to receive help twice: once from the donor and once more from the insurance company. We avoid this artificiality by combining conditioning on the signal with giving the donor her money back if the signal was bad.

In all three supplementary treatments all remaining features of the design, including all post-experimental tests, were as in the main experiment. We ran the additional treatments in the same lab as the main experiment, in June 2016. We had 26 new participants in the *Money-Back* treatment, 31 new participants in the Signal treatment, and 26 new participants in the *MoneyBackSignal* treatment. They on average earned 12.64 € in the *MoneyBack* treatment, 13.20 € in the Signal treatment, and 13.56 € in the *MoneyBackSignal* treatment.

Results. Figure 4 reports the probability of making a donation (conditionally or unconditionally) in the supplementary treatments, and compares this to the *Baseline* and to the original *Effectiveness* treatments, without and with insurance.

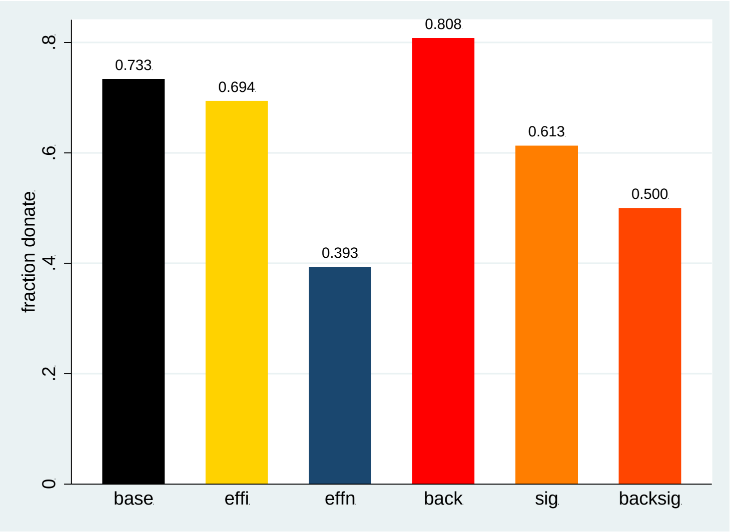

Figure 4
Treatment Effect on Donation Rates

black: *Baseline*, gold: *EffectivenessInsurance*, blue: *EffectivenessNoInsurance*, red: *MoneyBack*, orange: *Signal*, dark orange: *MoneyBackSignal*

We find a significant difference between the *Effectiveness* and the *MoneyBack* treatment (Mann Whitney, N = 54, p = .0021) and a weakly significant difference between the Effectiveness and the *Signal* treatment (N = 59, p = .0942): in both treatments, the insurance option increases the likelihood of donations. Interestingly, this is not the case in comparison between the *Effectiveness* and the *MoneyBackSignal* treatment (N = 54, p = .4328). This suggests that donors care about certainty, not just about risk reduction. We have explained why indirect insurance via a large donation intermediary is better placed to provide (quasi-)certainty. It may have a comparative advantage over direct insurance.

We also find a significant difference between the *MoneyBack* and the *Signal* treatment (N = 52, p = .0209). Recall that, in both treatments, insurance is complete. The difference can therefore not result from the fact that the *Signal* treatment exposes participants to ex post risk; they can perfectly neutralize this risk. The difference must follow from a positive preference for getting the money back if the donation has failed. This suggests that participants value the freedom to decide again if their first donation was not successful.

> *Result 4: If insurance does not perfectly contain the risk that a donation fails to reach its intended recipient, the availability of insurance does not significantly increase the willingness to donate.*

Figure 5 shows that, with the supplementary treatments, we also find differences in the willingness to pay for insurance. This willingness is significantly more pronounced in the *MoneyBack* treatment than in the *EffectivenessInsurance* treatment (Mann Whitney, N = 75, p = .0098). This is a further hint that donors value the freedom to make a second decision if the first donation has failed. Consistent with this explanation, the willingness to pay in the *MoneyBack* treatment is also significantly higher than in the Signal treatment (N = 57, p = .0063). It is also significantly higher in the *MoneyBack* than in the *MoneyBackSignal* treatment (N = 52, p = .0109). This is consistent with donors valuing (quasi) complete certainty, which they only get in the *MoneyBack* treatment.

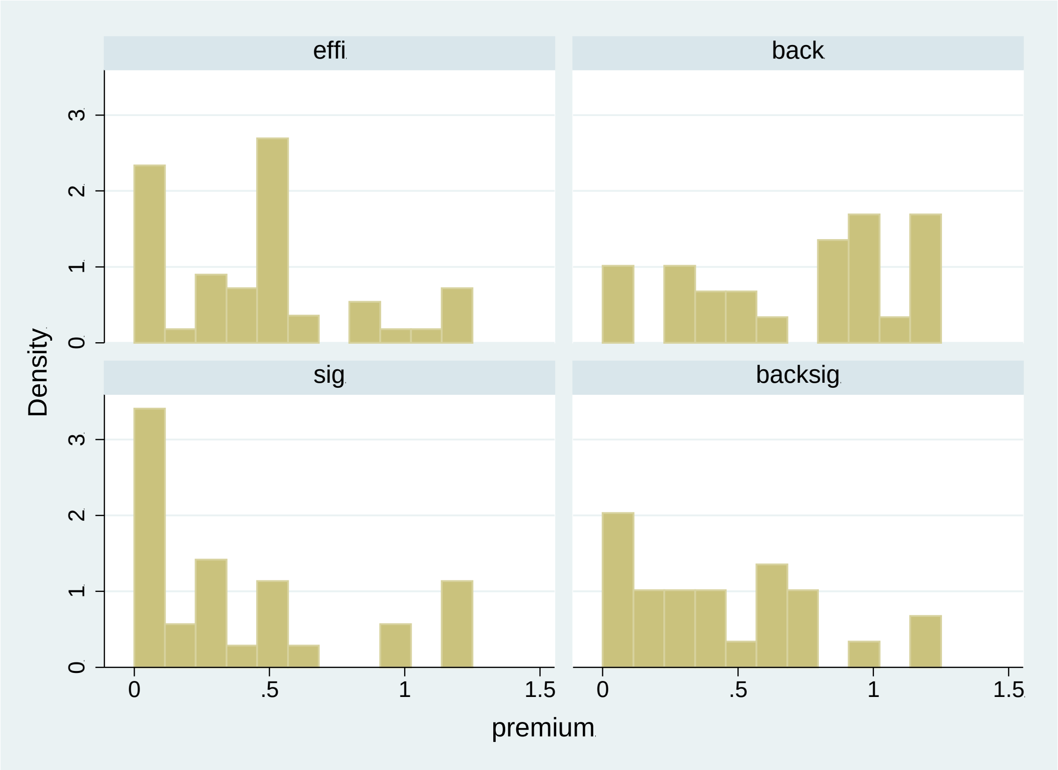

Figure 5
Willingness to Pay for Insurance

effi: *EffectivenessInsurance* treatment; back: *MoneyBack* treatment;
sig: *Signal* treatment; backsig: *MoneyBackSignal* treatment

We conclude

> *Result 5: If donors get their money back in case the donation fails to reach its intended goal, they have a higher willingness to pay for insurance, compared with an insurance that directly serves the recipient.*

6. Conclusion

In the lab and in the field, many individuals are willing to give for worthy causes. It is quite common for government to trigger people's generosity by promising a reward, usually through the tax system. However, a donor often cannot be perfectly sure that the recipient truly deserves her help. And quite frequently, the governmental reward is also fraught with risk. This holds in particular for transnational donations, since in most legal orders the taxation of international transactions is complicated. Arguably, either risk affects individuals' willingness to donate. If this concern were serious, it would call for intermediation. At a fee, some intermediary would relieve would-be donors from these risks. Actually a growing industry does precisely this, mainly for cross-border donations. In this paper, we interpret their activity as (indirect) insurance and test its relevance in the lab.

We find that the willingness to pay for insurance against either risk is indeed pronounced, and does not differ between the two risks. This is noteworthy since participants give up even more of their own income just to make sure that their donation is not subverted into an undesired channel, or that there is no negative surprise on the cost side. Individually, either insurance is thus equally desirable. Socially, however, only insurance against the risk of the donation not reaching its intended goal matters. If no such insurance is available, a substantial fraction of donations is deterred by the prospect that the funds might be abused. By contrast, the risk that the donation might, after the fact, turn out more expensive does not deter giving. Post-experimental tests suggest: participants do not dread the degree of either risk; they pay for absolute certainty. Moreover, choices are explained by the individual's sensitivity towards financial and towards ethical risk. This suggests that participants put themselves into the situation of the recipient and imagine how they would feel were they deprived of dearly needed help.

Donation intermediaries are a very effective solution, because they help charities credibly commit to policing donations. Donors need not worry about ex post verifying donation failure. They can be (quasi) certain that no mishap will occur. In response to the first draft of this paper, we have been approached by a major insurance company that considers offering direct insurance for the effectiveness risk. Quite likely the insurance contract would offer compensation if the donation has failed. In a supplementary treatment, we find that participant's willingness to pay for getting their money back is significantly more pronounced. In this dimension, direct insurance outperforms indirect insurance. Yet direct insurance can hardly commit to quasi certainty. Realistically it must condition on easily verifiable signals for success of failure. In another supplementary treatment we find that the residual risk not only significantly reduces willingness to pay. We even no longer find a significant gain in willingness to donate, compared with a setting with no insurance option. This suggests a comparative advantage of indirect over direct insurance.

In the interest of cleanly identifying effects, and of comparing the effects of either risk with each other, we have operationalized both contingencies as risks in the sense of Knight (1921: . We thus have precisely defined what might (at worst) happen and how probable this is. Out there in the field, would-be donors will often not have that much knowledge, or they will at least lack confidence in the signals they discern. They may dread that the tax credit will not be paid out, but will have a hard time estimating the likelihood of this happening. It might be even more difficult for them to anticipate the possibly many ways that a donation fails to achieve what the donor had intended it for. Either way, the donor would not only face risk, but uncertainty, in the form of ambiguity. A solid body of experimental evidence shows that the average individual is averse to ambiguity, even more than she is averse to mere risk (Ellsberg 1961, Heath and Tversky 1991, Loughran, Paternoster et al. 2011). Hence a more realistic definition of the contingencies should even exacerbate the normative problem, increase the demand for insurance, and heighten the socially beneficial effect of making insurance available. Yet ultimately these are empirical questions, to be tested in new experiments.

Again in the interest of identification, in our Baseline the donation is 100% effective. In the field, many charities rely on the help of volunteers. But at least a small administrative overhead is hard to avoid. If there is no support with tax money, or by some special donor who supports the organization as such, each donation must contribute to this overhead. Prevoyant donors might be aware of this, and accept the resulting loss in donation efficacy as inevitable. This observation triggers another follow-up question: is insurance the only intervention that increases donations, or could mere transparency do the trick?

A typical donor does not make a yes or no decision. She may decide how much to give. It seems quite plausible that donors reduce the amount if they face risk. This might also hold for the risk not to receive a tax benefit. Had we given our participants a wider action space, we might also have found an effect of tax risk. On the other hand we note that the marginal tax rate implied by our tax risk treatments (50 %) is higher than the tax rate most individuals face in most countries. The risk of losing a more realistic, smaller tax benefit might be less likely to deter donations. However, it must be noted that there are several countries with a tax rate similar to the rate we used. For example, the maximum tax rate in the Netherlands is 52% for income exceeding EUR 66,421.

We find that participants are more likely to donate if they are given the opportunity to insure against the risk of the donation not reaching its intended purpose. This is particularly remarkable against the background of a recent finding by Exley (2016: . She had found that participants exploit this risk as an excuse for making a selfish choice. Our data show that this socially undesirable effect cannot only be contained if insurance is available. Actually the same participants that otherwise might have fallen for a selfish choice are even willing to spend extra money to make sure that their excuse is absent.

We find that participants are as willing to insure the tax risk as they are willing to insure the effectiveness risk. Yet, the availability of insurance against the former risk does not increase participants' willingness to donate in the first place, while it does for the latter risk. This difference might result from donation choices being driven by yet another social preference. Participants might donate in the interest of preserving their self-image as good, responsible citizens (Ariely, Bracha et al. 2009, Bénabou and Tirole 2011). If they accept the subsidy, the opportunity cost of giving is reduced. At the same time, however, a donation of the same size feels less worthy and, therefore, has a smaller positive effect for self-image. In the decision to donate, these two effects might cancel each other out. Since we have no individual specific measure for the sensitivity towards self-image concerns, we can only flag this explanation out as a question for further research.

There is nothing normatively wrong with making sure that participants get the tax benefits they expected. But our experiment suggests that this aspect of donation intermediaries' business only serves a distributional purpose. This is different with the risk that some of the donations might be subverted. Individuals not only care about this risk (and therefore have a positive willingness to pay to exclude it); if this risk is not contained, quite a few participants stop giving in the first place. If government cares about donations, it therefore has reason to support the business of donation intermediaries, and to make sure that they do a proper job. Efficiency is not an undisputed category if individuals are allowed to have social preferences. But if one applies the category, one could also state our main result the following way: if they contain the risk that the donations fail their intended purpose, donation intermediaries not only serve a distributional purpose; they are efficient.

For Online Publication

Appendix I

Instructions

General Instructions

You are now taking part in an experiment. If you read the following instructions carefully, you can, depending on your decisions, earn a considerable amount of money. It is therefore important that you take your time to understand the instructions.

Please do not communicate with the other participants during the experiment. Should you have any questions please raise your hand and ask us.

All your choices remain **completely anonymous.**

The experiment consists of **three parts** and a questionnaire. You will receive instructions for later parts of the experiment at the beginning of each part. Choices in all parts are **completely independent** from choices in other parts of the experiment.

Part 1

Unite for Basic Rights (UFBR) is a Dutch charity organization that believes that every child has the right to a childhood. Children should not have to worry about food. They should have access to food and should be able to play and laugh. Unfortunately, this is not obvious for orphans living in poverty. Unite for Basic Rights wants to help orphans from across the world that live in poverty. By realizing its goal in collaboration with Dutch youngsters UFBR also raises awareness on this issue amongst youngsters in the Netherlands. Up to today, UFBR has helped orphans in Morocco, Surinam and Turkey.

You receive an endowment of 5€. You are free to keep the money, or to donate half of your endowment, that is 2.50€, to UFBR. All donations will be transferred to UFBR directly after the experiment.

<in the Baseline>

If you decide to donate 2.50€ to UFBR, you receive a refund of half this amount, that is of 1.25€. Hence UFBR receives 2.50€, while you only pay 1.25€ and keep 3.75€ of your endowment.

<in the EffectivenessInsurance, EffectivenessNoInsurance, MoneyBack, Signal and MoneyBack Signal treatments>

With probability 20% donations actually go to the board members of the UFBR for a dinner.

Whether this happens is decided at the very end of the experiment. For each participant, the computer makes a separate random draw.

<*in the EffectivenessInsurance, EffectivenessNoInsurance and MoneyBack treatments*>

You will be informed about the actual recipient of your donation at the end of the entire experiment.

<*in the Signal and MoneyBackSignal treatments*>

You will not be informed about the actual recipient of your donation. But at the end of the experiment, you will receive a note. It either reads: “no news” or “it seems your donation has been used to finance a board dinner”. If it reads “no news”, the probability that the donation has-as planned-been used to help orphans is 80%; with 20% probability the donation has actually been used for a board dinner. If the note reads “it seems your donation has been used to finance a board dinner”, the probability that the donation has been used for a board dinner is 80%; with 20% probability the donation has actually been used to help orphans.

<*in the TaxInsurance & TaxNoInsurance treatment*>

If you decide to donate 2.50€ to UFBR, you receive a refund of half this amount, that is of 1.25€. Hence UFBR receives 2.50€, while you only pay 1.25€ and keep 3.75€ of your endowment. Yet with probability 20% there is no refund of 1.25€. Whether this happens is decided at the very end of the experiment. For each participant, the computer makes a separate random draw. In case you have decided to make a donation, you will be informed at the end of the entire experiment whether you actually have to pay 2.50€ or only 1.25€.

<*in the Effectiveness+Tax-Insurance & Effectiveness+Tax NoInsurance treatment*>

With probability 10% donations actually go to the board members of the UFBR for a dinner. Whether this happens is decided at the very end of the experiment. For each participant, the computer makes a separate random draw. You will be informed about the actual recipient of your donation at the end of the entire experiment.

If you decide to donate 2.50€ to UFBR, you receive a refund of half this amount, that is of 1.25€. Hence UFBR receives 2.50€, while you only pay 1.25€ and keep 3.75€ of your endowment. Yet with probability 10% there is no refund of 1.25€. Whether this happens is decided at the very end of the experiment. For each participant, the computer makes a separate random draw. In case you have decided to make a donation, you will be informed at the end of the entire experiment whether you actually have to pay 2.50€ or only 1.25€.

<*in all Insurance treatments, and the MoneyBack, Signal, and MoneyBackSignal treatments*>

You may insure yourself against this risk through the services of Transnational Giving Europe. Transnational Giving Europe ensures that donations reach their intended goal. The insurance premium is transferred to Transnational Giving Europe immediately after the experiment.

<*in all Insurance and the Signal treatment*>

If you buy insurance, your donation goes to UFBR to be used for helping orphans living in poverty and not for the board members' dinner with certainty.

<*in the MoneyBack treatment*>

If you buy insurance, you receive 1.25€ in case the computer has decided that your original donation is used for financing a board dinner. You may keep this amount, or decide to donate it again. The second donation will not be used to finance the board dinner.

<in the MoneyBackInsurance treatment>

If you buy insurance, you receive 1.25€ in case the note reads "it seems your donation has been used to finance a board dinner". You may keep this amount, or decide to donate it again. The second donation will not be used to finance the board dinner.

<*in all Insurance treatments, the MoneyBack, Signal and MoneyBackSignal treatments*>

The cost of this insurance (the premium) is determined the following way: You will be asked to state the maximum price in cents you are willing to pay for insurance, ranging from 0€ to 1.25€. The computer will randomly pick a number from this interval, with probability 1/3 from the interval 0€ to 0.2€, with probability 1/3 from the interval 0.2€ to 0.6€, and with probability 1/3 from the interval 0.6€ to1.25€. If the maximum price you have indicated is at or above the number picked by the computer, you are insured. You pay the number of cents picked by the computer. If the maximum price you have indicated is below the number picked by the computer, you are not insured. In that case, you do not have to pay for insurance.

<in all Effectiveness, all MoneyBack and the Signal treatment>

If you decide to donate 2.50€ to UFBR, you receive a refund of half this amount, that is of 1.25€. Hence UFBR receives 2.50€, while you only pay 1.25€ and keep 3.75€ of your endowment.

Example: You receive 5€ and decide to donate 2.50€.

<in the Effectiveness, MoneyBack and Signal treatments>

With probability 20% the donation is used for the board dinner.

<in the Tax treatments>

With probability 20% there is no refund of 1.25€.

<in the Effectiveness+Tax treatments>

With probability 10% the donation is used for the board dinner. With probability 10% there is no refund of 1.25€.

<in the Insurance, MoneyBack and Signal treatments>

But you are willing to insure yourself against this risk by paying a maximum premium of 1€. The computer decides that the cutoff for the insurance is 0.20€. This means that you are insured against the risk

<in the EffectivenessInsurance, MoneyBack and Signal treatments>

of the donation being spent on the board dinner.

<in the TaxInsurance treatment>

of the refund being lost.

<in the Effectiveness+TaxInsurance treatment>

of the donation being spent on the board dinner and of the refund being lost.

<in the Insurance and the Signal treatment>

UFBR receives 2.50€. You pay 0.20€ for the insurance premium and receive 1.25€ refund on top of the 2.50€ of the endowment you keep. Your total profit is thus 3.55€.

<in the MoneyBack treatments>

You receive 1.25€. You pay 0.20€ for the insurance premium. If you decide to donate again, you receive 1.25€ refund on top of the 2.50€ of the endowment you keep. Your total profit is thus 3.55€.

<in all NoInsurance treatments>

The computer decides that these risks do not materialize. UFBR receives 2.50€, which is spent on helping orphans that live in poverty. You receive 1.25€ refund on top of the 2.50€ of the endowment you keep. Your total profit is thus 3.75€.

<in all treatments>

In the control question another example is given, for you to solve. After the control question you yourself have to indicate what you are willing to pay under certain circumstances.

Part 2

In this part of the experiment, you again receive 5€.

<in the Effectiveness+Tax-Insurance & Effectiveness+Tax NoInsurance treatment>

You may twice decide to give 1.25€ to UFBR.

<in the remaining treatments>

You may again decide to give 2.50€ to UFBR.

<in the Baseline, the Tax treatments>

All donations are given to UFBR with certainty. In this part of the experiment, you may make your donation conditional on a refund from the experimenter. UFBR always receives 2.50€. The higher the refund, the less you have to pay for your donation, and the larger the part of your 5€ that you keep for yourself.

<in the Effectiveness, MoneyBack and Signal treatments>

In this part of the experiment, you may make your donation conditional on the level of certainty that the donation reaches its intended goal. The larger the percentage of certainty you require, the smaller the chance that the donation might be spent on a board dinner, but also the smaller the chance the donation is executed.

<in the Effectiveness+Tax treatments>

All donations made on your first choice are given to UFBR with certainty. In this part of the experiment, you may make your donation conditional on the level of certainty that you receive a refund of 63 cents. UFBR always receives 1.25€. The larger the percentage of certainty you require, the smaller the chance that you do not receive the refund, but also the smaller the chance the donation is executed.

As your second choice, you may again decide to give 1.25€ to UFBR. You may make your donation conditional on the level of certainty that the donation reaches its intended goal. The larger the percentage of certainty you require, the smaller the chance that the donation might be spent on a board dinner, but also the smaller the chance the donation is executed.

We proceed the following way: You decide whether in principle you want to donate.

<in the Baseline and the Tax treatments>

<in the Effectiveness+Tax treatment, first choice: divide all amounts by 2>

If so, you will be asked to state the minimum refund in cents you want for donating 2.50€, ranging from 0€ to 2.50€. Your donation will only be executed if the refund is above or at the minimum refund you require. The computer will randomly pick a number from this interval, with all numbers being equally likely. If the number picked by the computer is above the minimum refund you have indicated, you receive a refund as large as the number picked by the computer. The donation is made. Note that the number picked by the computer cannot be above 2.50€ Hence if you choose 2.50€ you effectively decide not to donate. If the minimum refund you have indicated is above or at the number picked by the computer, you do not make a donation either.

Example: You receive 5€ and decide to donate 2.50€. The minimum percentage of certainty you require for receiving a refund of 1.25€ is 80%. The computer decides that the level of certainty is 85%. UFBR thus receives 2.50€. With probability 15% there is no refund of 1.25€. The computer decides that this risk does not materialize. You receive 1.25€ refund on top of the 2.50€ of the endowment you keep. Your total profit is thus 3.75€.

<in the Effectiveness, MoneyBack and Signal treatments>

<in the Effectiveness+Tax treatment, second choice: divide all amounts by 2>

If so, you will be asked to state the minimum percentage of certainty you require for donating 2.50€, ranging from 0% (there is never a refund) to 100% (it is certain that you receive the refund). Your donation will only be executed if the level of certainty picked by the computer is larger than the percentage you indicate.

The computer will randomly pick a number from this interval, with all numbers being equally likely. If the number picked by the computer is at or above the minimum percentage of certainty you have indicated, the donation is executed and with the level of certainty indicated by the computer you receive a refund of 1.25€. If the level of certainty picked by the computer is below the level of certainty you require, you do not make a donation. In that case you will keep the 5€.

Example: You receive 5€ and decide to donate 2.50€, which costs you 1.25€. The minimum percentage of certainty you require is 80%. The computer decides that the level of certainty is 85%. UFBR thus receives 1.25€. With probability 15% the donation is spent on a board dinner. The computer decides that this risk does not materialize. Your donation is spent on orphans living in poverty. You receive 1.25€ refund on top of the 2.50€ of the endowment you keep. Your total profit is thus 3.75€.

<in all treatments>

In the control questions another example is given, for you to solve. After answering the control questions you yourself have to indicate whether you want to make a donation to UFBR and what percentage of certainty you require under certain circumstances.

Part 3

In this part of the experiment, you receive an endowment of 2.50€. You may invest your net endowment into an investment fund. With probability 80%, the net endowment is doubled. With probability 20% the net endowment is lost.

You may insure yourself against this risk. If you buy insurance, you receive twice your net endowment with certainty. The cost of this insurance (the premium) is determined the following way: You will be asked to state the maximum price you are willing to pay for insurance, ranging from 0€ to 2.50€. The computer will randomly pick a number from this interval, with all numbers being equally likely. If the maximum price you have indicated is at or above the number picked by the computer, you are insured. You pay the number of cents picked by the computer**. The net endowment is 2.50€ minus the cost of the insurance.** If the maximum price you have chosen is below the number chosen by the computer, you are not insured. In that case, you do not have to pay for insurance. If you have not invested any money into your investment fund, you receive 2.50€ with certainty. If you have invested into your investment fund, the computer decides by a random draw whether you lose your endowment. This happens with probability 20%. With probability 80% you receive 5€.

Part 4

In conclusion, we have a number of questions. You cannot earn additional money by answering them. We nonetheless ask you to read them carefully, and to answer them honestly. We repeat that all answers you give are treated anonymously.

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