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Insuring your donation: An experiment

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An Experiment

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October 2015

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Insuring Your Donation

An Experiment*

October 2015

Renate Buijze / Christoph Engel / Sigrid Hemels**

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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1. Introduction

Life is fraught with uncertainty. But many risks can be contained. If containment is not free of charge, individuals have to engage in 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 to lose 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 uncertainty about critical determinants reduces the willingness to donate.

In this paper we focus on the two sources of uncertainty that, arguably, are most important for the hesitance to donate: this risk that the donation reaches its intended goal, and the risk that giving turns 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. We interpret intermediation as insurance against the two risks mentioned, and investigate in the lab 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.[1] It would be pointless to insure against this eventuality. Yet donors face another source of uncertainty: 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 furbishing the restrooms. Anecdotal evidence suggests that such uncertainty deters quite some generosity. This, for example, occurred in 2012 when China's Red Cross was faced with 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

1 We focus on private donations, where this loss is not offset by a profitable gain in reputation, as sometimes in corporate donations.

Red Cross.[2] Arguably fund raisers could collect much more funds if they could credibly promise such risks to be contained.

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 would have to be enforced in a different jurisdiction. Even if the transaction is actually safe, would-be donors may have a harder time believing it.

Tax risk. Most countries do 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 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.[3] If, however, the charity is resident in another country than where the donor is a tax resident, the resident country of the donor may refuse the tax privilege.

In the context of the European Union (EU), this risk is palpable. In four cases the European Court of Justice (ECJ) has decided that donations to foreign charities must be given the same tax incentives as donations to domestic charities.[4] Still, the legislation of six EU Member States discriminates against donations to charities in other EU Member States.[5] Moreover, Member States are not required to automatically confer the charitable status on foreign charities with a charitable status in their Member State of origin. 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, as 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 uncertainty compounds if the recipient of the donation is located outside the EU. Art. 63 TFEU extends free movement of capital to third countries. However, in many countries the tax incentives have already been in place before 31 December 1993, for which reason the stand still clause of article 64 TFEU

2 http://edition.cnn.com/2011/WORLD/asiapcf/07/06/china.redcross/.

3 For an overview of tax incentives we refer to the country reports prepared for the EATLP 2012 conference on charities (Vanistendael 2015), the comparative study in (Heidenbauer 2011:chapter 2), the 2011 Legal and fiscal country profiles of the European Foundation Centre http://www.efc.be/programmes_services/resources/Pages/Legal-and-fiscal-country-profiles.aspx and Quick, Kruse et al. (2014).

4 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].

5 European Foundation Centre & Transnational Giving Europe 2014, "Cross-border philanthropy in Europe after Persche and Stauffer: from landlock to non-discrimination?

applies. Then the tax incentive does not have to be granted in relations with third countries. Moreover, the Mutual Assistance Directive[6] does not apply in third country situations. This may have as a result that these situations are not comparable to EU situations.[7] 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 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)[8] in Japan, the Prins Bernhard Cultuurfonds in the Netherlands,[9] Give2Asia for gifts to Asia-based educational and charitable organizations,[10] the King Baudouin Foundation United States (KBFUS) for gifts to non-profit initiatives in Europe and Africa,[11] and the Resource Foundation for gifts to innovative development programs in Latin America and the Caribbean.[12] 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.[13] 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 to choose from. 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 desired 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 the intermediary not only ceases to receive money for the charity in question, but that people stop giving to any cause the intermediary aims to promote. Hence the quality stamp of the intermediary organization essentially is a form of insuring transactions.

6 Council Directive 2011/16/EU of 15 February 2011, PbEU 2011, L 64.
7 For example: 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.
8 http://www.mecenat.or.jp/english/about-us/.
9 http://www.cultuurfonds.nl/english/the-prins-bernhard-cultuurfonds.
10 http://give2asia.org/.
11 http://www.kbfus.org/.
12 https://www.resourcefnd.org/
13 http://www.transnationalgiving.eu/tge/default.aspx?id=219948&langtype=1033.

The uncertainty about the applicability of tax incentives to cross-border 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 in this since they risk losing their own tax exempt status if they engage in collaborating with unworthy initiatives (Solomon 2008). This 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.[14] Relying on the services of such an intermediary can, therefore, also be interpreted as insurance, against the risk of not receiving the expected tax privilege.

Anecdotal evidence from Transnational Giving Europe and from the King Baudouin Foundation United States (KBFUS) suggests an increase in donations channeled through such intermediaries. At the start in 2003, $852,921 was transferred through KBFUS, by 2008 this had risen to $8,707,894 and by 2013 to $15,801,941.[15] This resonates with data from TGE. At the start of their initiative in 2009 €2.946.708 was donated through TGE. In 2011 this was €4.855.9912.[16] In 2012, more than 350 organizations and 6,200 donors used the TGE and around EUR 7 Million was channeled into it.[17]

The experiment. The insurance interpretation of donation intermediaries raises two questions we experimentally address in this paper: (1) which 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 uncertainty about the donation effectively reaching the intended effect. In the *Tax* treatment, a donation reaches its stated goal with certainty, but there is uncertainty regarding the monetary incentive. In the final *Effectiveness+Tax* treatment, there are both sources of uncertainty. In the third dimension, we vary the availability of insurance. In the *NoInsurance* treatments, participants face either or both risks, and can do nothing about them. By contrast,

14 Fees vary largely among fiscal sponsors. Transnational Giving Europe, for example, charges administrative fees which are 5% of the donation if it does not exceed EUR 50,000 and 1% of the amount in excess of EUR 50,000. The maximum fee is EUR 6,500 (http://www.transnationalgiving.eu/tge/details.aspx?id=219956&LangType=1033). KBFUS charges a startup fee of $1,500 to open an American Friends Fund at KBFUS. Each year an additional management fee is charged, between 5% and 0,5% of the cumulative total of contributions within one calendar year (http://www.kbfus.org/wp-content/uploads/2013/05/EUR_AFR_american_friends.pdf).

15 http://kbfus.insight.foundationcenter.org/.

16 http://www.kbs-frb.be/content.aspx?id=291855&langtype=1033.

17 http://www.transnationalgiving.eu/tge/default.aspx?id=219948&langtype=1033.

in the *Insurance* treatments, they may buy insurance, with the premium determined by an incentive compatible mechanism (Becker, DeGroot et al. 1964).

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 of course have the advantage that we 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 insuring the efficacy, or insuring the tax privilege. Moreover in the field, the two sources of uncertainty could not be held separate. Some tax authorities have even set up charity registers, as in the USA[18] and the Netherlands.[19] If the tax authorities learn that the donations are not used as intended, in many countries they take action. Therefore tax deductibility provides information about the governance of the recipient, and thereby reduces 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 privilege. Moreover, the tax privileges are laid down in law, and could therefore not arbitrarily be withheld with 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. Actually for a reputation reason, 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 give 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 participants have engage real money, which makes their choices more credible. Of course, 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.

We find that our participants react very differently to the two risks. If there is a risk that the donation does not reach its intended goal, this seriously deters giving, compared with the *Baseline* where the donation was safe. We do, however, not find a significant reduction in donations if there is (only) the risk that the donation is 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

18 US Charities can be checked on http://www.irs.gov/Charities-&-Non-Profits/Exempt-Organizations-Select-Check.

19 Dutch Charities can be checked on http://www.belastingdienst.nl/rekenhulpen/giften/anbi_zoeken/.

only critical for the willingness to donate if the risk concerns the actual beneficiary, not if it concerns the subsidy.

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:

H_{0a}: 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 two main options. Participants might be averse against advantageous inequity (the canonical models are Fehr and Schmidt 1999, Bolton and Ockenfels 2000). 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)

$$u = e - d - \gamma \max\{\hat{d} - d, 0\} \qquad (1)$$

where e is an endowment (which may be given to them, result from productive labor or from successful investment), $d \leq e$ is a donation,[20] 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 $\gamma > 1$.[21]

Now introduce uncertainty about the donation reaching its desired effect. Given the existing experimental evidence, this is a relevant concern. Deserving recipients, like charities, get

20 For simplicity, we exclude borrowing.

21 We study donations to a charity, not to other experimental participants. The literature on donations to these recipients does not explicitly discuss a potential difference in motive. The most plausible way to capture this motive is the following: if a charity is held in high esteem, next everybody believes that money given to the charity is money well spent. Yet everybody would be individually best off if others give, while they enjoy that the charity fulfils its chosen mission. This constitutes a standard public good. Contributions to public goods are also motivated by inequity aversion and by guilt aversion (see the cited papers).

substantially more on average. While giving nothing is the mode if the recipient is another participant, the mode is giving everything if the recipient is obviously deserving the money, Figure 1.

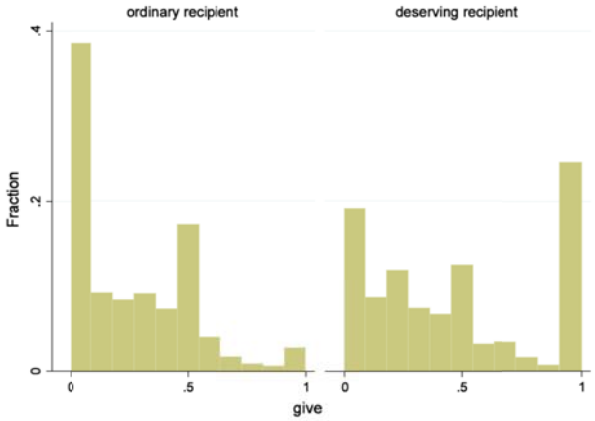

Figure 1
Choices in Ordinary Dictator Games vs. When Recipient is Deserving
for detail about data generation, definition of dv and iv, see (Engel 2011)

There are four studies that demonstrate that providing donators 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 of efficacy of the recipient are likely to promote giving.

Uncertainty about the payoff for the dictator has a negative influence on the amount she gives (OLS with reconstructed data, cons .342***, degree of uncertainty -.265***, (Engel 2011)). Uncertainty about the donation reaching its stated goal might have a comparable effect. 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).[22] 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. The higher the donation, the more utility she would have gained by actually not making a donation. The degree of betrayal 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" to abusing her generosity. Both combined effects increase the critical degree of sensitivity to inequity or morality γ. The individual donates $\hat{d}$ provided

$$\gamma > \frac{1}{p} + \frac{1-p}{p}\eta .$$

22 We will of course drop this assumption at a later point.

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

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.

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

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

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

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

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

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 uncertainty. If government has reason to believe that (5) correctly specifies utility, it might want to reduce the uncertainty about the tax benefit (q) to save on the size of the reduction (r). Likewise if there is exogenous uncertainty about the effectiveness of the donation (p), government might want to react by increasing the incentive; actually giving a subsidy through the tax system might be motivated by this uncertainty in the first place. Yet if (5) completely defines utility, would-be donors would not want to insure themselves against either source of uncertainty. They would just stop giving as soon as their individual γ is not large enough, given the subsidy and the size of either uncertainty.

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 insure that a donation serves its intended purpose. Coffman (2011) did study the use of an intermediary in decision making. He, however, does not introduce the intermediary as an insurer. Instead, he focusses on the influence of an intermediary on moral decision-making. He finds that pun-

ishment for keeping money is significantly less when an intermediary is involved. Also rewards for charitable donations decrease when there is intermediation.

There is, however, a small literature that 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 that 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. Uncertainty about 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 uncertain subsidies.

For explaining 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 $u' > 0, u'' < 0$. For our purposes, it does not matter how risk aversion is specified. We illustrate the point with constant relative risk aversion, i.e. assuming $f(\hat{u}) = \frac{\hat{u}^{1-\rho}}{1-\rho}$, with parameter $\rho > 0$ measuring the degree of aversion against risk. Figure 2 compares a risk neutral individual ($\rho = 0$) with one holding mid-sized constant relative risk aversion ($\rho = .5$). While for the former individual payoff (x-axis) and utility (y-axis) coincide, the latter individual attaches more weight to small payoffs, and less weight to large payoffs.

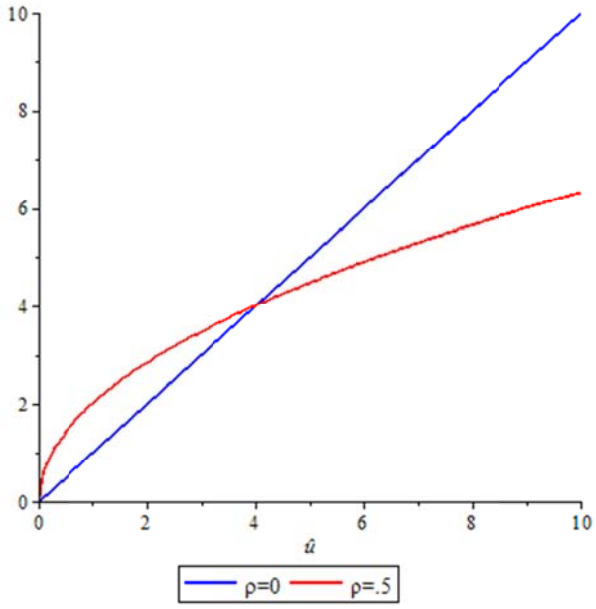

Figure 2
Utility of Risk Neutral vs. Risk Averse Individual

We apply the standard insurance model by Mossin (1968), Schlesinger (1981), 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 that the donation misses its intended goal (2), that the expected tax incentive is not 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

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

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 uncertainty. If there is no tax privilege, 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, 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 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 this 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 uncertainty.[23] Conceivably, individuals are generous, but not averse against either risk. This leads to an alternative version of the null hypothesis:

H_0: 1. Donations do not become more frequent if donors can insure against the risk that the donation does not reach its intended goal, or that it is not supported by a tax benefit.
2. Participants do not buy insurance against these risks.

That would be the second reason why our null hypothesis **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

H_1: Individuals who are willing to donate have a positive willingness to pay for reducing
a) the risk that the donation does not reach its intended goal,
b) 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:

23 In the experiment, we choose $\hat{d} << e$, so that the budget constraint does not affect the choice to buy insurance. The premium only reduces the donor's payoff.

H_2: If individuals have the option to insure themselves against
a) the risk that the donation does not reach its intended goal,
b) the risk that the donor does not receive a reward pledged by some central agency.
this increases the probability that they make 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,[24] 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 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. Further note 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 will 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

H_3: 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 uncertainty 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

24 Which is equivalent to γ in (1) if recipients are surely worse off than the potential donor.

threshold. If the uncertainty 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

H_4: 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 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 uncertainty, and of insurance against uncertainty, on charitable giving. Therefore we made an effort to pick a charity that next 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 Stichting Unite For Basic Rights (UFBR), which provides orphans around the world with basic needs,[25] 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 does not reach its intended goal but is spent on a frivolous activity. To find an undeserving goal, we have 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 have asked students from the same student population to rank the expenditure items. A dinner for the board members showed to be most undeserving,[26] which is the alternative use of the donation that is possible in our experiment. In this treatment, we thus introduce uncertainty at the side of the recipient. 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

25 http://www.ufbr.nl/
26 See Appendix III for detail.

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 do not receive the subsidy of 1.25 € if they donate 2.50 € to the charity. In this treatment, we thus introduce uncertainty at the side of the donor. 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 is diverted to the dinner for board members, and a 10% probability that participants do not receive a subsidy if they make a donation. In this treatment, we thus have uncertainty both on the side of the recipient and on the side of the donor. 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.

	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 that choices in later parts of the experiment are 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 uncertainty is exogenous. To measure the degree by which each participant is affected by the respective uncertainty, 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, each time engaging a donation of 1.25 € to the charity. 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.[27]

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 profit from the lottery. The same way as in the main experiment, we only give feedback about the mechanism at the end of the entire experiment, and ask participants whether they want to invest their endowment into the lottery if they are insured, and if they are not. This post-experimental test informs us about participants' risk preferences, with uncertainty 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 Big5 inventory (Rammstedt & John, 2007), and ask demographic questions.

Conduct. We have run 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 has been 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

27 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.

participants in the *Tax* treatment, and 24 participants in the *Effectiveness+Tax* treatment. Participants on average earned 12.90 € (14.34 € at the first day of the experiment).

4. Results

Donation rate. Figure 3 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 that a donor does not receive 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.*

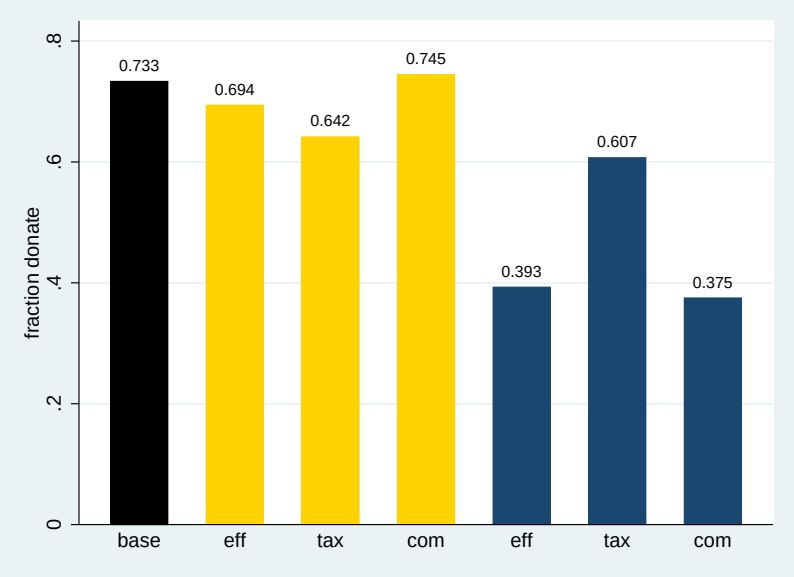

Figure 3
Treatment Effect on Donation Rates
black: *Baseline*, gold: *Insurance*, blue: *NoInsurance*
base: Baseline, eff: risk that donation is used to finance board dinner, tax: risk that donor does not receive subsidy of 1.25€, com: both risks combined (but with half the probability each)

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 do-

nate unconditionally, or only on the condition that they actually are insured. In the remaining treatments this distinction did not exist. Figure 3 and the following tests work with a dummy variable that 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).[28] 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. *Tax-Insurance*, N = 81, p = .7621). We thus have partial support for our alternative hypothesis $\mathbf{H_2}$: the insurance option is critical for the risk that the donation fails to reach its intended goal, but it is not for the risk that the donation turns out more expensive than expected. We thus have

> *Result 2: The option to insure against the risk that a donation fails 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 to either donate unconditionally or conditionally. Table 2 shows that participants have 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.

	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 not to receive the tax benefit. In comparison between 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 that the donation turns out

28 We also do not find any treatment differences between the *Baseline* and any one of the *Insurance* treatments in a parametric logit model.

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 4 visibly supports $\mathbf{H_1}$: whenever they have the option, participants are willing to buy insurance. For all treatments we reject $\mathbf{H_{0a}}$ that expected participants not to buy insurance at all.[29] Given the willingness to donate is so much more sensitive to the insurance option if the risk concerns effectiveness, one might expect that participants are also less willing to spend additional money on insuring the tax refund. Yet Figure 4 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.

29 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).

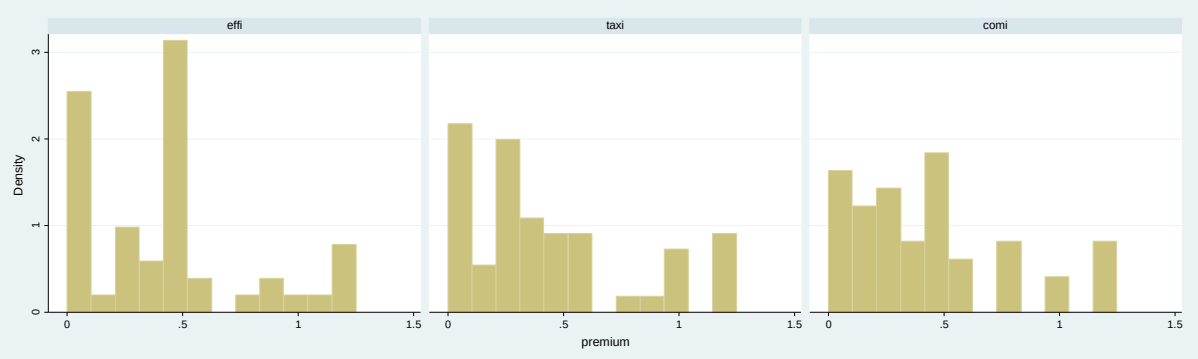

Figure 4
Willingness to Pay for Insurance
effi: *EffectivenessInsurance* treatment; taxi: *TaxInsurance* treatment;
comi: *Effectiveness+Tax Insurance* treatment

We thus neither support **H_3** (participants pay more to ensure that the donation serves its purpose) nor **H_4** (participants pay more to ensure that the donation is cheaper) and conclude:

> *Result 3: The willingness to pay for insurance against the risk that a donation does not reach its intended goal, or that it is not 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 the recipient of the donation is uncertain, compared with uncertainty about the tax refund (model 1, main effect of Effectiveness). However the effect disappears with the insurance option (the interaction effect completely neutralizes the main effect). The strongest predictor of a donation when there is uncertainty about the deservingness of the recipient or about the effective cost of the 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 participants 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 uncertainty 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
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. Conclusion

In the lab and in the field, many individuals are willing to give for worthy causes. Not so rarely, government aims at triggering people's generosity by promising a reward, usually through the tax system. Yet often a donor cannot be perfectly sure that the recipient truly deserves her help. And quite frequently, the governmental reward is also fraught with uncertainty. This in particular holds for transnational donations since in most legal orders the taxation of international transactions is complicated. Arguably, either uncertainty affects individuals' willingness to donate. If this concern was 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 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 at the cost side. Individually, either insurance is thus equally desirable. But socially, only insurance against the risk that the donation does not reach its intended goal matters. If no such insurance is available, a substantial fraction of do-

nations 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.

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 do not only care about this risk (and therefore have a positive willingness to pay to exclude it); if this risk is not contained, quite some 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 do not only serve a distributional purpose; they are efficient.

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

<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>
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. 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. 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.

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€. With probability 20% 10% the donation is used for the board dinner. With probability 20% 10% there is no refund of 1.25€. 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 of the donation being spent on the board dinner. of the refund being lost. 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 all NoInsurance tretments>

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 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 TaxInsurance & TaxNoInsurance treatment>
You may again decide to give 2.50€ to UFBR.

<in the EffectivenessInsurance & EffectivenessNoInsurance treatment>
You may again decide to give 2.50€ to UFBR.

All donations made on your first choice are given to UFBR with certainty.

<in the TaxInsurance & TaxNoInsurance treatment and in Part 2.1 of the Effectiveness+Tax-Insurance & Effectiveness+TaxNoInsurance treatment >
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 1.25€. UFBR always receives 1.25€2.50€. 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.

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

<in the Baseline>
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.

If so, you will be asked to state the minimum percentage of certainty you require for donating 1.25€, ranging from 0% (there is never a refund) to 100% (it is cer-

tain 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 63 Cents1.25€. 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 2.50€.5€.

<in all NoInsurance tretments>
Example: You receive 5€ 5€ 2.50€ and decide to donate 2.50€ 2.50€ 1.25€. The minimum percentage of certainty you require for receiving a refund of 63 cents is 80%. The computer decides that the level of certainty is 85%. UFBR thus receives 2.50€ 2.50€ 1.25€. With probability 15% there is no refund of 2.50€ 2.50€ 1.25€. The computer decides that this risk does not materialize. You receive 63 cents 1.25€ 1.25€ refund on top of the 2.50€ 2.50€ 1.25€ of the endowment you keep. Your total profit is thus 3.75€ 3.75€ 1.88€.

As your second choice,

<in the EffectivenessInsurance & EffectivenessNoInsurance treatment and in Part 2.1 of the Effectiveness+Tax-Insurance & Effectiveness+Tax-NoInsurance treatment>
You may again decide to give 2.50€ 1.25€ to UFBR. If you decide to donate 2.50€ 1.25€ to UFBR, you receive a refund of 63 cents 1.25€. Hence UFBR receives2.50€ 1.25€, while you only pay 62 cents 1.25€ and keep 1.88€ 3.75€ of your endowment. 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. If so, you will be asked to state the minimum percentage of certainty you require for donating2.50€ 1.25€, ranging from 0% (it is totally uncertain whether the donation is spent on help for orphans living in poverty) to 100% (it is certain that the donation is spent on help for orphans living in poverty). The donation costs you 62 cents 1.25€. Your donation will only be executed if the level of certainty 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 is spent on orphans living in poverty with the level of certainty indicated by the computer. 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 2.50€ 5€.

Example: You receive 5€ 5€ 2.50€ and decide to donate 2.50€ 2.50€ 1.25€, which costs you 62 cents 1.25€ 1.25€ 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 63 cents 1.25€ 1.25€ refund on top of the 2.50€ 2.50€ 1.25€of the endowment you keep. Your total profit is thus 3.75€ 3.75€ 1.88€.

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.