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Quality certifications for nonprofits, charitable giving, and donor's trust: experimental evidence

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Abstract

Quality certifications for nonprofits, charitable giving, and donor's trust: experimental evidence*

In an experiment, we test the impact of quality certificates on donations to a charity. When presented with a quality certificate, participants chose higher donations by approximately 10%. This effect is significant for donations out of prize money and actual own money donations, and not significant but positive for own money intended donations. Moreover, this effect persists over time. We also find a negative but not significant effect of information about certificate fees. We find that the certificate increases trust in the nonprofit organization. There is some evidence pointing to the causal role of trust for donation probability.

Keywords: non-profit certification, charitable giving, experiment, trust

JEL classifications: D64, C99, D81

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Introduction

Nonprofit organizations are usually not subject to strict regulations. This creates a potential for malpractice that has become evident in a number of recent scandals (Adena 2016). Nevertheless, our understanding of charitable giving suggests that donors care about the quality of the charitable product (see e.g. Vesterlund 2003). A large number of potential donors do indeed seem to search for independent information about charities performance. For example, GuideStar reported the number of users of almost 7 million between October 2014 and October 2015.¹ Charity Navigator reported over 7 million visitors in the year 2016.² A certifying agency that awards a certificate based on a set of known criteria can clearly provide a signal of quality. There are a number of such rating agencies specifically designed for nonprofits. They either award a (all-or-nothing) certificate (e.g. BBB Wise Giving Alliance in the US, CBF-Keur in the Netherlands, or DZI Spendensiegel in Germany) or use a more elaborate scoring system (bronze, silver, gold, and platinum by GuideStar or up to 4 stars plus detailed scores by Charity Navigator, both in the US). Although the market for nonprofit certification is huge, the literature on the effects of third-party ratings of charitable giving is rather sparse (see Brown, Meer, and Williams (2017) for a literature review). In this paper, we provide experimental evidence of the causal effect of an all-or-nothing certificate for donations to a charity and shed some light on the mechanism behind this effect.

We implemented a large classroom experiment with almost 500 participants in total. First, in a between-subjects design, we compare donation decisions of participants that received a standard solicitation letter versus the behavior of those who were additionally presented with a paragraph about a certificate and its label. We used a real word setting with the certificate being the German DZI Spendensiegel (henceforth DZI) and the charity being Björn Schulz Foundation³ (henceforth BSS). We chose a local charity that is not widely known especially within this age group (5% of our participants indicated having prior knowledge of the organization). The Björn Schulz Foundation assists families of children and young adults who suffer from life-threatening conditions. The DZI is the major certification agency for nonprofits in Germany (however only

¹ <https://www.guidestar.org/profile/54-1774039> (accessed 26.03.2017)

² <https://www.charitynavigator.org/index.cfm?bay=content.view&cpid=628> (accessed 26.03.2017)

³ Björn Schulz Stiftung: <http://www.bjoern-schulz-stiftung.de/> (accessed 05.04.2017).

10% of our participants indicated having known the DZI certificate before); 230 charities currently hold a DZI certificate.⁴ An organization can apply for the certificate, which costs a fee and requires an audit. It either receives the certificate or not, i.e. there is no score or rating involved. Our chosen charitable organization, BSS, carries the DZI certificate. We measure donation behavior in three different ways. Using a strategy method, we ask the participants to choose a donation between €0 and €7 for the case of being drawn in a lottery and receiving an amount of €17 with a known probability of 5% (henceforth prize money donation). We also ask participants to mark a donation between €0 and €7 that they want to make with their own money if they do not win (henceforth own money donation). Finally, we analyze actual own money donations (henceforth actual donations) that were put into the donation boxes at the end of the experiment. We find that being presented with the certificate increases donations according to all our measures by around 10% or more (statistically significant for prize money and actual donations).

We use survey questions that were specifically designed for the purpose of this experiment to measure trust in the BSS. Our results suggest that the certificate increases trust. There is also a strong correlation between trust in the BSS and donations. Since in our experiment we successfully manipulated individuals' trust, we sought to test for a causal role of trust in a charity for donations. The results from instrumental variable regressions point towards a role of trust for the probability of donation.

We also implement a small within element in our design, in which the participants are presented with the certificate for the first time (the previous control group) or reminded of the certificate (the previous treatment group). In light of that, the participants can revise their decision to give. Given that most participants do not revise their decisions, none of the within differences are significant. However, the effect of the first round treatment (certificate) persists over time for the prize money measure and is still statistically significant (between comparisons). Half of the participants in the second round are additionally informed about the costs of such a certificate (base fee of €500 plus 0.035% of collected donations). We find a nonsignificant reduction in

⁴ See <http://www.dzi.de/spenderberatung/das-spenden-siegel/> (accessed 05.04.2017).

donations, which only weakly suggests that donors might dislike this type of administrative costs, though the fee is very low in our case.

Literature

Quality Certification of Nonprofit Organizations

The problem of asymmetric information emerges in the nonprofit market because a donor cannot easily estimate how much of their donation reaches the people in need and how much is used by the nonprofit organization (NPO) to cover administrative and fund-raising costs or even fees for agencies and private expenses. Bad types of NPOs can free ride on the trust of the donors when there is no mechanism that reveals the NPO's real quality, as some prominent scandals in the nonprofit sector have demonstrated (Adena 2016). Assuming that a large number of donors care about what happens with their donations (Gneezy, Keenan, and Gneezy 2014) and thus about the quality of the final product, such scandals can undermine trust in the nonprofit sector.

Vesterlund (2003) and Andreoni (2006) present theoretical models of sequentially organized fund-raising; this type of fund-raising helps to reveal a charity's quality. A donor, who can find out the quality of a NPO on costly inspection and reveal it to the subsequent donors by choosing a high and publicly announced donation, sends a positive signal of quality. This has been confirmed in lab and field experiments (see e.g. Huck, Rasul, and Shephard 2015). Adena (2016) suggests that media organizations that are looking for stories about bad conduct can also act as a mechanism that ensures a higher level of quality in the nonprofit market and reinforces donor's trust. Svitkova and Ortmann (2005) propose a model in which a certificate serves as a quality signal for donors, who shift their donations to certified charities.

The most similar study to our is the study by Brown, Meer, and Williams (2017) who conduct an experiment in which participants can donate to one of ten charities. In one of their treatment conditions, the participants are informed about which of the charities have been approved by the State Employee Charitable Campaign (SECC) or, in another treatment, they are told about which charities have received three or four stars from the Charity Navigator. They find that the ratings have an impact on the choice of charities, and potentially on donations (the overall effect is not significant at conventional levels), though a causal interpretation concerning the impact on

donation level is difficult in their setting. In a regression discontinuity framework, Yörük (2016) estimates an effect of an additional star on the Charity Navigator rating. While he finds minor and insignificant effects overall, for small charities the effect is meaningful. Some other studies report positive correlations in observational data (see Brown, Meer, and Williams 2017 and Wong and Ortmann 2016 for a literature review). However, causal interpretations in those studies are not possible since positive quality ratings depend on higher charity quality, and higher charity quality likely results in higher donations.

While it does not primarily relate to the non-profit sector, there is experimental evidence indicating that consumers react positively to ethically certified products. For example, Hainmueller, Hiscox, and Sequeira (2015) conducted a field experiment in a US grocery store chain. They found a positive effect of the Fair Trade label on sales of certified products.

What do the reviewed studies suggest for our experiment? Since the theoretical models and empirical studies emphasize the importance of quality signals for donations, we expect that the participants who receive the solicitation letter with the information about the certificate will, on average, choose higher donations than the participants who are not informed about the certificate. Hence, we formulate the following hypothesis:

H1: A certificate increases individual donations.

Trust in Nonprofit Organizations

Several papers suggested that trust is an important determinant of economic activities, and is related to variables like GDP growth, or trade between countries (Knack and Keefer 1997; Guiso, Sapienza, and Zingales 2004). The role of trust in charitable giving seems to be natural in this context; however, it has not been extensively studied so far. One of the reasons is the difficulty of the concept itself. The most common approach is to measure (general) trust by survey questions like such as “Generally speaking, would you say that most people can be trusted or that you can't be too careful when dealing with others?” in the World Value Survey. This approach has a downside that respondents might not respond truthfully. The other approach is to measure trust experimentally in a trust game or a gift-exchange game. Here, the amount of money donated to

the other person is regarded as an indicator of trust. This transfer is an investment that reflects the probability assigned by a sender to a positive back transfer from a receiver. Although the setting is somehow similar to that of charitable giving, in charitable giving there is no expectation of reciprocity involved. The donation level rather reflects altruism or warm glow. This means that higher donations do not necessarily reflect more trust. For example, we know that donors react to suggestions (Adena, Huck, and Rasul 2014) or different matching schemes (Adena and Huck 2017) but these mechanisms are not likely to induce more trust. In the context of this paper, higher donations to a certified organization might be a pure expression of a higher willingness to pay for a higher quality product. Therefore we cannot directly infer trust from the change in donative behavior between treatments and we turn to the survey approach.

Fehr (2009) suggests that trust is shaped by people's beliefs and preferences. Beliefs are endogenous and can be changed e.g. by varying treatment conditions of an experiment and preferences are exogenous (at least in the short term). Very little research has been done to develop and provide measurement scales for trust in charitable organizations. Most researchers focus on discussing trust in charitable organizations on a conceptual level, relying on data gathered by surveys on donation behavior and charitable giving such as the Giving in the Netherlands panel survey (GINPS) (Bekkers and Bowman 2009), the American Social Capital Community Benchmark Survey (SCCBS) (Wang and Graddy 2008), or the Japanese General Social Survey (JGSS) (Taniguchi and Marshall 2014). Some previous research has tried to measure trust in charitable organizations by measuring its antecedents, like donor attitudes towards the organization (Sargeant and Lee 2002a; Sargeant and Lee 2002b). However, it seems like only Sargeant and Lee (2004) tried to measure trust in charitable organizations directly. They operationalized trust in charitable organizations as an independent construct that is composed of different inherent factors and built a measurement scale unique to these properties. In this paper, we use a measure of trust in our chosen charity that was specifically designed for the purpose of this study and is described in detail in a technical note (Adena et al. 2017).

Bekkers (2003) studied the introduction of an accreditation system in the Netherlands. He reported that people who are aware of the accreditation system have more trust in charities and donate more. He also found general social trust to be positively correlated with charitable giving. Though the above study only uncovers correlations, we conjecture a causal path from a

certification through higher trust in the charity towards more giving. This leads us to our second hypothesis:

H2: A certificate increases individual trust in a charitable organization, and higher trust leads to higher donations.

Costs of certification

A number of studies suggest a negative impact of reported administrative expenses on donations. Most recently, Gneezy, Keenan, and Gneezy (2014), showed in a lab and a field experiment that individuals are less likely to support organizations that have higher administrative costs. Similar results have been shown in a number of empirical papers (e.g. Khanna, Posnett, and Sandler 1995; Khanna and Sandler 2000; Okten and Weisbrod 2000; Posnett and Sandler 1989; Tinkelman 2004). Therefore, we conjecture for our experiment that participants who read the information about the fee for the certificate could interpret the reported expenses as a “diversion of resources” from the actual cause and thus, on average, indicate lower donations than do participants, who do not receive information about the costs of the certification.

H3: Participants informed about the costs of certification decrease their donations.

Experimental design

Treatments and procedures

Our classroom experiment took place at universities in the Berlin area between January 30 and February 8, 2017 with almost 500 undergraduate students as participants. All participants were students from the HU Berlin, FU Berlin, TU Berlin, and University of Potsdam who took one of the introductory courses in economics.⁵ The classes and our instructions were in German. The experimental sessions took place in the last 15 minutes of a lecture in the third- and second-last

⁵ We also conducted a pilot experiment on January 11, 2017 at HWR Berlin with 21 participants.

week of the fall semester. Participants were asked if they were willing to participate in the experiment in which they would have a chance to win some money. They were also told to feel free to leave if they did not want to participate.⁶ Participants were randomly assigned to one of the treatments. Our experimental design and the numbers of questionnaires filled out are summarized in Table 1. Figure 1 presents a summary of the procedures.

Table 1: Experimental design

First stage:	Control		Certificate	
	Standard solicitation letter without any mentioning of the certification		Standard solicitation letter plus info about the certificate and its label	
N=	245		241	
Second stage:	Certificate	Certificate + Fees	Certificate	Certificate + Fees
	new information	new information	reminder	Reminder plus new information
N=	122	123	123	118

Notes: Numbers exclude questionnaires that were returned completely blank but include some item nonresponse.

In the first stage, participants in both treatment groups received a letter in which they were asked to donate to a charity (BSS). The solicitation letter was identical for both treatments except for the information about the DZI quality certificate. The control group received a standard letter while the treatment group received a letter that included an additional paragraph. This paragraph contained information that the charity was awarded a quality certificate, explained what the certificate was attesting, and was accompanied by a logo of the certificate (see Table 2 and online Appendix for the details of the letter and other instructions).

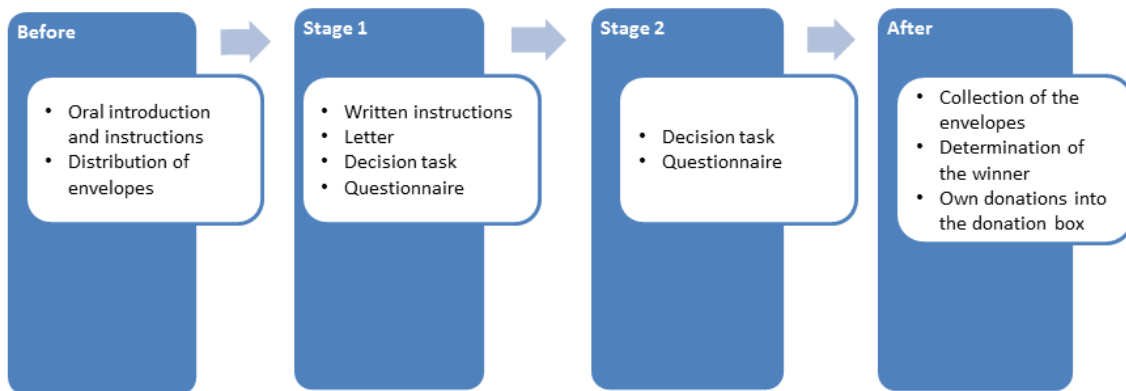
⁶ Only few participants left the classroom with the exception at the University of Potsdam where a visibly larger fraction of the class left. The potential explanation of this difference might be due to a different pre-announcement by the instructor or due to a lunchtime. We have suggested an announcement of the experiment in a lecture before.

Table 2: Additional paragraph in the certificate treatment

Since 2006, the Björn Schulz Foundation has been a holder of a DZI certificate, which certifies verifiable, cost-effective and appropriate use of the funds in compliance with tax regulations. This certificate is renewed annually, reviewed and approved.



Figure 1: Summary of the procedures



At the beginning of each session oral instructions were used to introduce the experimental procedures and inform participants that more instructions would follow. Subsequently, large envelopes were distributed. Those envelopes contained further instructions, the solicitation letter in either version, a first decision sheet and a questionnaire, and a medium size sealed envelope (see Figure A1 in the online Appendix for pictures of the envelopes and instructions). In the written instructions, the participants were informed about the procedures and the chance of winning €17. In the first stage, after reading the letter, participants were asked to indicate on 18-point scales (1) how much they would donate if they won the €17 with a chance of 1/20 and (2) how much they would donate if they did not win. These two short decision-making tasks were followed by a survey to measure trust and demographics. Participants knew that, if they won, their decision would be implemented by the experimenters. Concerning own money donation, the participants were informed that at the end of the experiment they could put their own money in a

provided envelope, seal it, and then put it into a donation box. The envelopes had the same ID numbers as the questionnaires, which meant that we could match the intentions to the actual donations. The participants were also informed that, if they prefer or are short of cash, they can transfer money at a later point in time directly on the account of BSS indicating their ID.

After completing the decision-making tasks and the survey as part of the first stage treatment, participants were asked to place their sheets in the large envelope and seal it. For the second stage of the experiment, the participants were asked to open the middle size pre-sealed envelope. Depending on the treatment group, the participants either received new information or a reminder about the quality certificate. Half of the participants were also informed about the fees related to certification. The participants were then asked to indicate the two giving decisions (in the event that they won or did not win) again and were instructed that they might choose different amounts than they previously did, and that the newly indicated amount was going to be implemented if they won.

After completing the decision-making task of the second stage, the participants were instructed to put the form in the middle-sized envelope and seal it. They were expected to keep a small envelope labelled *donation*, and a sheet with bank transfer instructions and their ID. Finally, the winners were determined by rolling a 20-sided dice. The last two digits of the ID were numbers between one and twenty, and a person won if his/her last ID digits matched the the number rolled. All numbers were equally distributed, hence, the chance of winning, at 5%, was equally likely for all participants. In order to ensure anonymous payment at the end of the experiment, one experimenter prepared two envelopes—one labelled as donation and other as one to keep. This was done for each winner based on what the participant indicated in the decision-making task. Another experimenter who did not know the content of the envelopes handed them to the winners outside of the room. The winners were advised to check the amounts in the envelopes, seal the donation envelope, and put it into the donation box. Other participants could put their donation in the provided small envelope labelled *donation*, seal the envelope, and then put it in sealed donation boxes when exiting the room. This procedure was chosen to prevent social pressure and to ensure that donations were anonymous among participants.

We have chosen a classroom design being aware that we loose some control (less attention, item nonresponse, etc.). On the other hand, we gained more of external validity through own money donations.

Measuring Trust

We set to measure how much people trusted our selected charity based on the information and treatment that our participants had received during the first part of the experiment. In accordance with Sargeant and Lee (2004) we decided that trust in charitable organizations is best operationalized as a multi-faceted construct. However, we decided against a use of the questionnaire provided by them, since it was too long for our design. Our questionnaire needed to be comparatively shorter, no more than 5 to 7 items, to not distract too much from the main part of the experiment, which was the decision making task. We decided to build a smaller, but still reliable and valid measurement scale that would include different facets of what trusting a specific charitable organization encompasses. For the details of the construction of the scale see Adena et al. (2017). Our final questionnaire contained the questions presented in Table 3. They were measured on a scale from 0 to 7.

Table 3: Trust items

	Trust towards BSS	Scale range
	<i>Please indicate how much you agree with the following statements about the Björn Schulz Foundation. Please don't skip any questions and mark the checkboxes that best reflect your opinions on the Björn Schulz Foundation. There are no right or wrong answers.</i>	
1	<i>Supporting the Björn Schulz Foundation is very important to me.</i>	
2	<i>I share the values of the Björn Schulz Foundation.</i>	High
3	<i>I would ask others to support the Björn Schulz Foundation.</i>	Disagreement
4	<i>I can imagine financially supporting the Björn Schulz Foundation for a longer period of time.</i>	(0)
5	<i>I would be happy to receive further news from the Björn Schulz Foundation.</i>	- High
6	<i>I think the work of the Björn Schulz Foundation is very important.</i>	Agreement
7	<i>I am convinced that the Björn Schulz Foundation uses the donation money towards its projects in the best possible way.</i>	(7)
	General trust items	Scale range
	<i>Please answer how much you generally trust the following:</i>	
1	<i>Charitable Organizations</i>	Low Trust (0)
2	<i>People you know personally</i>	- High Trust
3	<i>People you meet for the first time</i>	(7)

Results

First stage

In the first round, the average prize money donation equaled €1.64. The distribution was skewed with 42% of the participants choosing €7. But all possible values were chosen at least once, with a tendency for the following central numbers: €7 (15%), €10 (12%), €5 (8%), €2 (6%).

In the control treatment the average prize money donation was €1.13 compared to €2.16 in the certificate treatment (see Table 4 for averages and statistical tests). This difference is statistically significant at 5% (both t-test and MWU test).⁷ While in the control treatment 38% chose to donate the maximum amount, in the certificate treatment this share equaled to 46%, and this difference is statistically significant according to a test of proportions ($p < 10\%$). Among those who chose an amount lower than €7, the certificate treatment generated higher donations as well—€8.08 versus €7.50 (difference not significant). See Figure 2 for the histogram by treatment.

The average own money donation equaled to 0.97 cents (counting nonresponse in 28 cases as zero resulted in 0.91 cents). Zero was the amount chosen most often (78%); 8% chose €5, 5% chose €2, and 3% chose €10 (the values never chosen are 6, 9, 11, 12, 14, 16, and 17). The average donation was higher in the certificate than in the control treatment (€1.05 versus 89 cents), not significantly though (see Table 4 for averages and statistical tests). The same held for the average positive donation and the share of people donating, the differences are not significant as well. Note, however, that this variable is hypothetical, since we do not enforce its realization. Therefore, there is likely more noise in this measure. Figure 3 presents a histogram of own money donations by treatment.

⁷ Note that throughout the paper we report two-sided test p-values although our hypotheses are directional. We opt for the more conservative approach, and report additionally, when appropriate, nonparametric tests.

Figure 2: Histogram of prize money donations by treatment

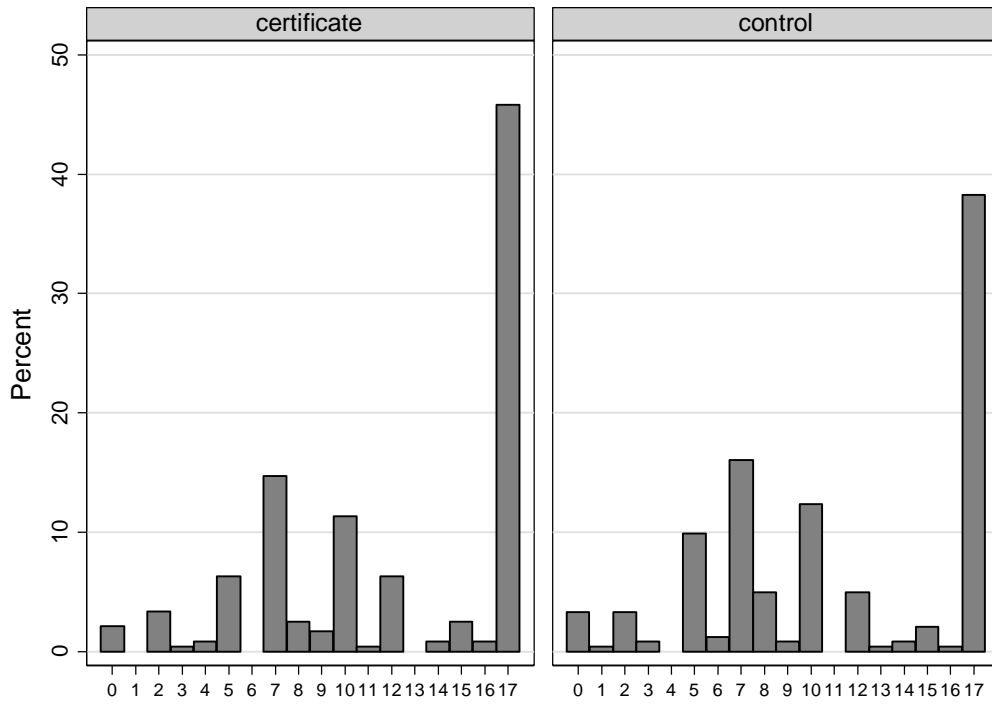


Figure 3: Histogram of own money donations by treatment

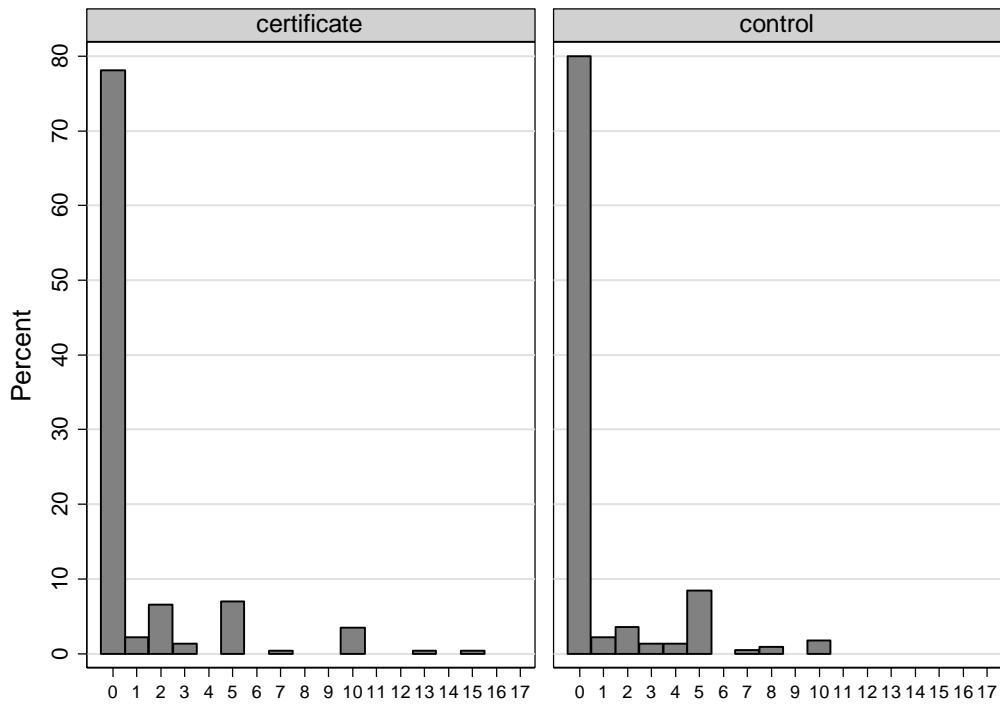


Table 4: The effect of the certificate - averages by treatment

Treatment	Prize money donation			Own money donation		
	Average (sd. error)	Average if less than €17 (sd. error)	Share of donations equal to €17	Average (sd. error)	Average if more than €0 (sd. error)	Share of positive donations
	I	II	III	IV	V	VI
Control	11.132 (0.346)	7.493 (0.288)	0.383	0.889 (0.140)	4.444 (0.373)	0.200
Certificate	12.164 (0.337)	8.078 (0.320)	0.458	1.048 (0.169)	4.780 (0.492)	0.219
t-test p-value	0.033	0.175		0.469	0.5942	
MWU-test p-value	0.036	0.175		0.621	0.9661	
Test of proportions p-value			0.0945			0.6139

Table 5: The effect of the certificate - regression results

	Prize money donation				Donation own money			
	OLS		Tobit m.e.		OLS		Tobit m.e.	
	I	II	III	IV	V	VI	VII	VIII
Certificate dummy	1.032** (0.483)	1.200** (0.489)	1.759** (0.859)	2.077** (0.870)	0.159 (0.220)	0.083 (0.224)	0.625 (0.981)	0.416 (0.986)
controls		yes		yes		yes		yes
Observations	481	454	481	454	453	430	453	430
R^2 /Pseudo R^2	0.009	0.091	0.002	0.022	0.001	0.043	0.000	0.019

Notes: marginal effects for tobit; Standard errors in parentheses; controls include age, gender dummy, relative financial situation, university dummies, whether the certificate and the organization was known before; see Appendix for full results; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 5 we additionally present results from OLS and Tobit regressions, with or without controls. Columns I and V (OLS without controls) present simple differences between the control and certificate treatment averages that are equivalent to columns I and IV of Table 4. These differences do not change much when we add control variables (column II and VI). The effect of certificate seems to be larger if we appropriately account for upper and lower censoring by using a Tobit specification.

In the Appendix, Table 18 and Table 19, we also verify potential heterogeneity of the treatment effect by gender and university. Though we find important level differences (e.g. females giving

more), we find no interaction effects, it is, the treatment works in a similar way for all, independent of observed individual characteristics.⁸

Second stage

In the second stage, the average prize money donation equaled to €1.73 (see Table 6, row 9), an increase by 9 cents from the first stage. There is a persistent difference between first-stage-control and first-stage-certificate treatment group that amounted to 89 cents (see Table 6, column I, row (3) and (6)) and that is (still) significant at 10% according to a t-test and a MWU-test. Own money donation is still higher by 7 cents in the past certificate group compared to control (see Table 6, column III, row (3) and (6)), this difference is, however, not significant.

Table 6: Second stage – averages by treatment

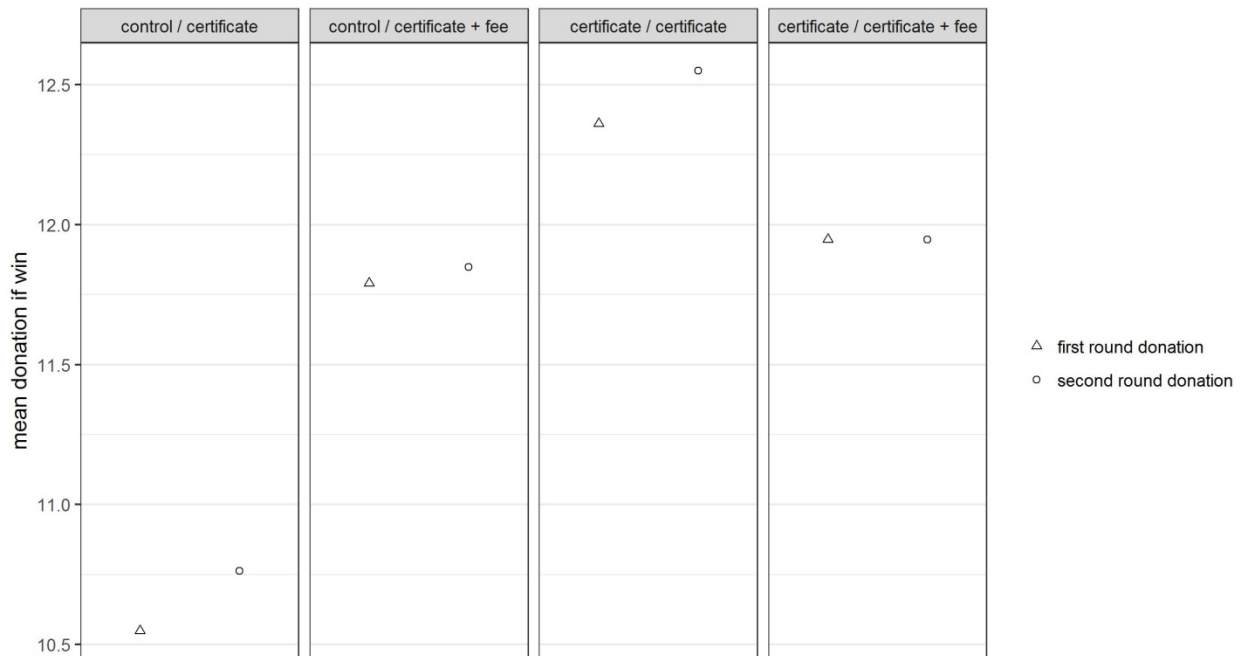
		row	Prize money donation		Δ Prize money donation		Own money donation (intention)		Δ Own money donation		Actual donations (excluding prize money)	
			I	II	III	IV	V					
First stage treatment	Second stage treatment		N	average	N	average	N	average	N	average	N	average
control	certificate	(1)	122	10.762 (.498)	122	0.213 (.176)	114	0.605 (.190)	108	0.093 (.175)	122	0.324 (.125)
	certificate + fee	(2)	121	11.818 (.503)	119	0.059 (.1669)	119	1.202 (.239)	113	-0.027 (.062)	123	0.304 (.114)
	pooled	(3)	243	11.288 (.355)	241	0.137 (.121)	233	0.910 (.155)	221	0.032 (.091)	245	0.314 (.084)
certificate	certificate	(4)	123	12.585 (.453)	122	0.189 (.109)	119	0.975 (.207)	115	-0.096 (.089)	123	0.537 (.155)
	certificate + fee	(5)	114	11.737 (.533)	112	0 (.271)	114	0.982 (.263)	110	-0.027 (.263)	118	0.653 (.230)
	pooled	(6)	237	12.177 (.348)	234	0.098 (.142)	233	0.978 (.166)	225	-0.062 (.136)	241	0.594 (.137)
pooled	certificate	(7)	245	11.678 (.341)	244	0.201 (.103)	233	0.794 (.141)	223	-0.004 (.096)	245	0.431 (.100)
	certificate + fee	(8)	235	11.779 (.365)	231	0.030 (.157)	233	1.094 (.177)	223	-0.027 (.133)	241	0.475 (.127)
pooled	pooled	(9)	480	11.727 (5.458)	475	.1178947 (.093)	466	.944206 (.113)	446	-0.016 (.082)	486	0.453 (.080)
t-test p-value		(1)=(2)		0.1370		0.5248		0.0537		0.5141		0.9074
		(4)=(5)		0.2240		0.5071		0.9817		0.8023		0.6717
		(3)=(6)		0.0743		0.8354		0.7625		0.5679		0.0821
		(1)=(4)		0.0072		-		-		-		-
		(7)=(8)		0.8394		0.3590		0.1857		0.8915		0.7826
MWU-test p-value		(3)=(6)		0.0671		-		-		-		0.1155

Notes: Δ Prize money donation= second stage prize money donation - first stage prize money donation; Δ Own money donation = second stage own money donation - first stage own money donation.

⁸ There are two exceptions for own money donations. Females give slightly more without certificate but the t-test p-value equals to 0.9. Participants of the University in Potsdam also give more in the condition without the certificate. Here the difference is statistically significant.

Concerning the second stage treatments—certificate (new information or a reminder) versus certificate plus explanation of the fee structure—the first impression is that fees information generates (not significantly) higher donations (see Table 6, column I, row (7) and (8)) or, more specifically, there is a large increase in the first-round-control group (row (1) and (2)) and a large decrease in the first-round-certificate group (row (4) and (5)). However, a closer look at the data reveals that the groups are not balanced in terms of past donations. Specifically, Figure 4 presents first and second round donations by all four treatments separately. Here, we see that the control group increases donations, both when presented with the certificate and when presented with the certification plus fees information, but the increase is smaller in the second case. For the certificate treatment, we see an increase after a reminder and no change when the reminder is coupled with the information about the fee. This suggests rather a negative effect of the fee. We present the corresponding averages in Table 6, column II, row 1, 2, 4, and 5, and present t-test p-values at the bottom of the table. The last reveal that the differences are not significant.

Figure 4: First and second round donations



Finally, in

Table 15 in the Appendix, we present the results from the within regressions that account for individual fixed effects. They also suggest a negative effect of the fee, both for the prize and own money donations, however, the effects are not significant (most participants do not change the amounts at all, see Figure 8 in the Appendix).

Actual donations

Table 6 summarizes the actual money donations that were put into the donation boxes at the end of the experiment. When we exclude prize money donations (19 winners), we are left with 53 donations.⁹ This results in a response rate of 11%. This is less than half of the intended response rate in the second stage, i.e., there is a large disparity between intentions and actions.¹⁰ On the other hand, the response rate is remarkably high given that the participants donated their own money, they did not know the charitable organization before, and the donations were anonymous. While the average (intended) own money donation equaled 0.94 cents, the average actual donation amounted to only 0.45 cents (see Table 6, row 9, columns III and V). The participants seem to have “forgotten” to donate. Either they truly forgot, or they lied both to us and to themselves about their intentions, or ended up not donating for other reasons. The disparity between intentions and actions relates to the discussion about moral wiggle room (see Dana, Weber, and Kuang 2007; Tonin and Vlassopoulos 2013), and self- and social image in charitable giving (Andreoni, Rao, and Trachtman 2017; DellaVigna, List, and Malmendier 2012; Adena and Huck 2016). However, social image should be less likely to be in play in our context, since the participants knew the procedures in advance and were aware that questionnaires and donations were anonymous and that we are able to link intentions to actual donations.

Figure 5 sheds some light on individual behavior concerning the difference between donative intentions and actions. The first take away is that most individuals either give exactly the amount indicated (dots lying on 45° line) or give nothing, although they have indicated a positive amount (dots on the dashed line indicating “forgotten” donations). Only a few individuals revised their intentions by giving more or less (but nonzero).

⁹ This includes one bank transfer but excludes €0.50 that was put into the donation box directly, i.e. without the envelope.

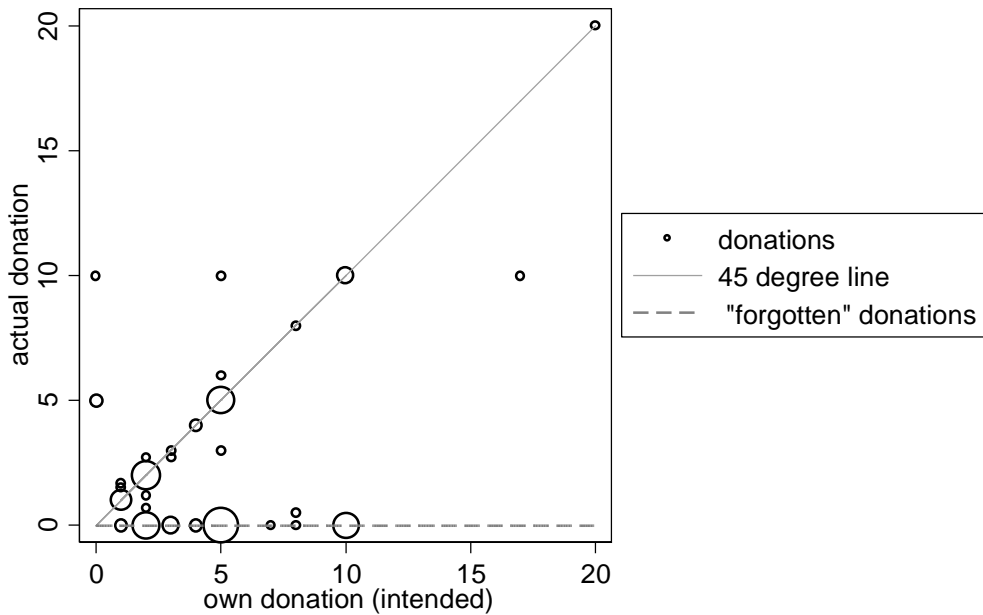
¹⁰ The intended rate equaled to 24% (excluding item nonresponse) and to 23% (setting nonresponse to zero).

Table 7: Actual money donations - summary

	Actual prize money donations	Actual own money donations (donation box)	Actual own money donations (bank transfer)	Total
Average positive (in €)	14.11	4,23 ^a	10	7.01
N=	18 [*]	52	1	69 ^b
Sum (in €)	254	220	10	484 ^c

Notes: ^{*} one additional person chose zero donation (total number of winners is 19); ^a Average including zeros (return) but excluding prize money donations equals to 0.45 cents. ^b Two people donated both prize and own money. ^c Only €0.5 could not be matched. The pilot generated additional €30 (including € prize money) resulting in total donations of €23.5.

Figure 5: Actual own money donations versus intentions in the second round



There is a long lasting effect of the certificate information given in the first stage on the actual donations at the end of the study (excluding prize money donations). In Table 6 (column V, rows 3 and 6), we see that the first-round certificate treatment group donates almost twice as much as the first-round control group (31 cents versus 59 cent). The difference is significant at 10% according to a t-test, and an MWU test yields a p-value equal to 0.12. Table 8 shows analogous results from OLS and Tobit regressions with and without controls.¹¹

Table 8: The effect of the certificate on actual money donations

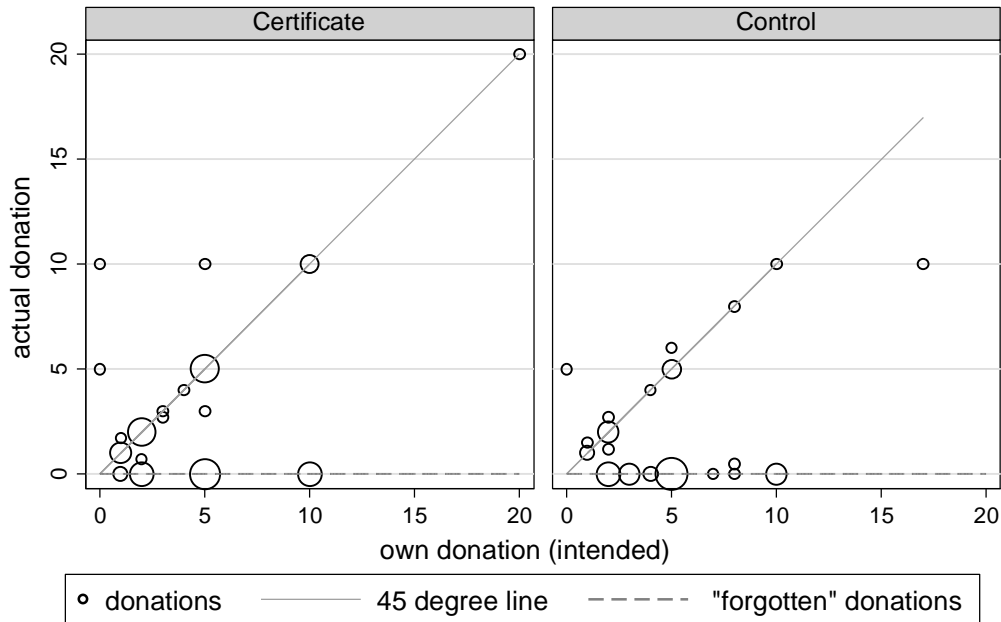
	Actual own money donations			
	OLS		Tobit m.e.	
Certificate (first round)	0.280*	0.322**	2.280*	2.868**
	(0.161)	(0.162)	(1.357)	(1.413)
controls		yes		yes
Observations	486	457	486	457
R^2 / Pseudo R^2	0.006	0.028	0.005	0.027

Notes: marginal effects for Tobit; Standard errors in parentheses; controls include age, gender dummy, relative financial situation, university dummies, whether the certificate and the organization were known before; see Appendix for full results; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Our finding of a significant effect of the certificate treatment on actual donations while the effect on own money (intended) donations was not significant is likely to be explained by fewer “forgotten” donations in the certificate group—in Figure 6, left panel, we see more dots at the 45° line than at the y=0 line.

¹¹ A specification with additional certificate fee dummy and an interaction effect yields no significant effects, and is thus not presented but can be provided on request.

Figure 6: Actual own money donations versus intentions in the second round by treatment



Mechanism: Trust

We have conjectured that a certificate might positively influence trust in the charity. On the other hand, we do not expect any effect of the certificate awarded to BSS on trust in charitable organizations in general or on trust in other people. In the following, we operationalize our trust measure by taking the average of seven items concerning trust in BSS (BSS trust score) and three items concerning trust in general (general trust score) listed in Table 3.¹² The certificate treatment results indeed in a higher average BSS trust score (see Table 9, Column I). The difference

¹² We admit that the last reflects general trust only partially and the two types of questions (charities versus people) are very dissimilar.

between treatment and control group is statistically significant at 10% according to a t-test. The MWU test yields p-value of 10%. On the other hand, we find no effect on the general trust, as expected, and the average in the certificate treatment is even slightly lower than in the control treatment. In the Appendix, Table 16 and Table 17, we additionally show the averages by treatment for each item separately. Though they are not significant separately, the pattern remains the same: in the certificate treatment, there are higher averages for all items concerning trust in BSS and lower averages for all items concerning general trust.

Table 9: The effect of certificate on trust in the charity and general trust

	N	BSS trust score I	General trust score II
control	244	3.751 (.068)	4.046 (.064)
certificate	240	3.920 (.068)	3.983 (.061)
t-test p value		0.0790	0.4804
MWU p-value		0.1048	0.4232

Notes: two-sided t-test. Note that we take average of nonmissing entries. 20 participants skipped one of the questions (or the answer was not clear), and one participant skipped 3 questions but there is no specific pattern of nonresponse. However, if we exclude those 21 participants with positive nonresponse, t-test p-value increases to 0.1640.

Table 10: Trust and donations – regression results

	Prize money donation		Own money donation			Actual donation			
BSS trust score	1.131*** (0.222)	1.064*** (0.242)	0.498*** (0.102)	0.460*** (0.113)	0.252*** (0.073)	0.261*** (0.083)			
General trust score	0.834*** (0.247)	0.513* (0.270)	0.063 (0.114)	-0.124 (0.126)	0.037 (0.081)	-0.029 (0.092)			
controls		yes		yes		yes			
Observations	481	481	454	453	453	430	484	484	457
R ²	0.051	0.023	0.154	0.050	0.001	0.079	0.024	0.000	0.051

Notes: results from OLS regressions, standard errors in parentheses; controls include first-round-certificate treatment dummy, age, gender dummy, relative financial situation, university dummies, whether the certificate and the organization was known before; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10 presents results from OLS regressions that indicate positive correlations between trust in our chosen charity and donations for all three measures: prize money, own money, and actual donations. General trust is positively correlated with prize money donations.

Figure 9 in the Appendix additionally shows scatterplots of the average BSS trust score or the general trust score against prize money donations, and adds locally weighted scatterplot smoothing that suggests positive correlation as well.

Our design may potentially allow us to identify the causal effect of trust on donations. Since our certification treatment exogenously affects trust, the IV regression with a certification treatment dummy as an instrument for trust is a promising approach. However, we need to assume that there is no direct effect of the certificate on the donation level (or donation probability), i.e. all the effect goes through trust in BSS. This assumption is of course debatable. Beyond that, unfortunately, our treatment manipulation appears too weak, rendering the first stage F-statistics less than 5 and pointing towards a weak instrument problem. In Table 11, we present results of the second stage instrumental variables regressions. The dependent variables is amount donated (including zeros) in first three columns (coefficients from linear regressions) and donation dummy in last three columns (marginal effects after probit regressions). Panel A presents results from regressions without controls and panel B with additional controls. The presented coefficients are mostly not significant, although they are all positive. Only the results for actual donations dummy are statistically significant at 1%, and the coefficients on prize money dummy with controls at 5%. Though, one needs caution in interpreting those results. Applying Fehr (2009) view of trust implies that our experimental condition only changes the belief part of the trust variable leaving preferences part unchanged. This suggests the use of general trust as a second instrumental variable. Specifically, trust in other people should not have any direct impact on donations to BSS. On the other hand, general trust is highly correlated with trust in BSS (see Figure 9, Panel C). This helps to increase precision and likely overcome weak instrument bias (F statistics are now all greater than 10). The results are presented in Table 11, Panel C (without controls) and D (with controls). All coefficients decrease in magnitude, and the coefficient on prize money donations (amount donated) turns significant, while all coefficients on donation dummy in Panel D are significant. This suggests that trust has a causal impact on probability to donate.

Table 11: Causal role of trust for donations - IV regressions

Dependent variable:	Amount donated			Probability of giving		
	Donation (incl. zero)			Dummy =1 if donation>0		
	Prize money donation	Own money donation	Actual donation	Prize money donation	Own money donation	Actual donation
Panel A: Instrument for trust: certificate dummy; without controls						
BSS trust score	5.866 (3.739)	0.760 (1.028)	1.899 (1.308)	0.837** (0.375)	0.394 (0.637)	0.876*** (0.178)
Observations	481	453	484	481	453	484
F-stat first stage	3.31	4.53	3.10			
Panel B: Instrument for trust: certificate dummy; with controls						
BSS trust score	8.499 (6.200)	0.711 (1.207)	2.442 (2.012)	0.870** (0.359)	0.535 (0.686)	0.979*** (0.092)
Observations	481	453	484	481	453	484
F-stat first stage	3.30	3.30	3.27			
Panel C: Instrument for trust: certificate dummy and general trust score; without controls						
BSS trust score	2.477*** (0.655)	0.223 (0.299)	0.196 (0.209)	0.432 (0.264)	0.299 (0.190)	0.378* (0.196)
Observations	481	453	484	481	453	484
F-stat first stage	34.62	30.25	35.44			
Panel D: Instrument for trust: certificate dummy and general trust score; with controls						
BSS trust score	2.709*** (0.745)	0.266 (0.302)	0.233 (0.190)	0.517** (0.245)	0.359* (0.200)	0.505** (0.198)
Observations	481	453	484	481	453	484
F-stat first stage	11.74	10.50	11.90			

Notes: standard errors in parentheses; first three columns present coefficients obtained with the LIML estimator (ivregress liml in stata) and last three columns marginal effects at means obtained from the ML estimator (ivprobit in stata); controls include controls include age, gender dummy, relative financial situation, and university dummies; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Discussion

Main results

We find evidence that quality certification has a positive impact on donation level, i.e. in favor of our first hypotheses. To our knowledge, this is a first paper that experimentally shows a causal relationship of this kind. The magnitude of the effect is around 10%. This combined with the low costs of obtaining such a certificate strongly suggests that nonprofit organizations should invest in certification. It also calls for governments interested in raising overall donation levels to establish or support a (voluntary) system of accreditation for nonprofits.

The puzzling part of our findings is that we find an effect of a certificate that 90% of the participants indicated never having heard of before! We also do not find any significant level effects of knowing the certificate before (see Table 13 and Table 14 in the Appendix) nor any interaction effect between the treatment and knowing the certificate before (not presented here). This creates a potential for abuse with non-existing or unreliable certificates.

Concerning our second hypothesis, we find that a certificate increases trust in BSS as measured with the scale that was specifically designed for this purpose. We also see strong positive correlations between trust in BSS and donations. Results from an instrumental variables estimations suggest a causal relationship between trust and probability of giving.

The effect of certificate costs seems to be negative, but it is not significant. Although we do not reject our third hypothesis, the evidence in favor of it is weak. It is likely that the fees for a DZI certificate are in a range that appears less relevant to donors (€500 basis fee plus 0.035% of collected donations). This supports previous conclusion that nonprofit organizations should invest into certification even more.

Prize money versus own money and actual donations

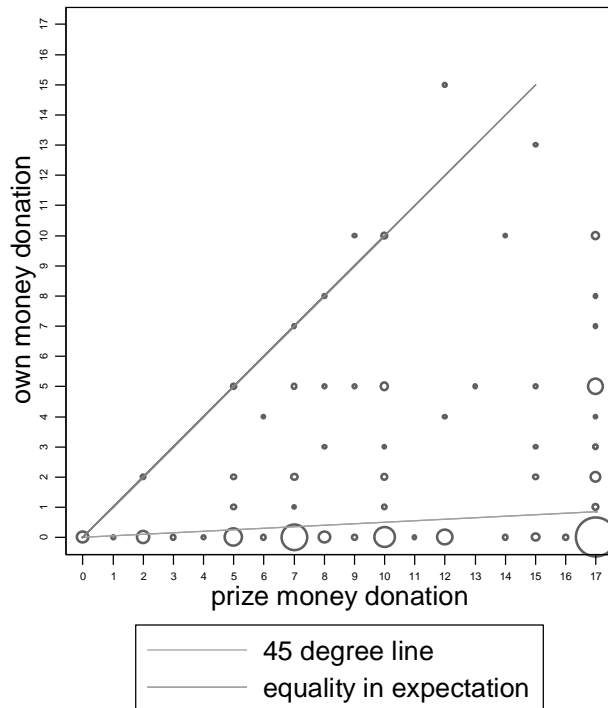
Though not designed to test the house money effect, our study makes a contribution to this literature. The potential effect of house money and the influence on participants' behavior in lab

and field experiments have been discussed in a number of papers. The “house money effect” was primarily introduced by Thaler and Johnson (1990), who discussed the influence on risk behavior of prior gains and losses. Prior gains increase the willingness to accept gambles. Prior losses decrease the willingness to accept gambles and makes possible financial compensation more attractive. This was labeled the house money effect. According to Thaler and Johnson (1990), prior realizations do have an effect on future risky decision-making. Several studies compared the effect of house money (windfall gain) versus own money in lab and field experiments. Since participants in the lab experiments often receive a budget for their decisions from an experimenter (particularly in public good games etc.), the potential existence of a house money effect raises the question of external validity and distortion of results (Ackert et al. 2006; Carlsson, He, and Martinsson 2013; Cherry, Kroll, and Shogren 2005; Clark 2002). Clark (2002) found no evidence for a house money effect in a laboratory experiment on public goods, where participants either received windfall money or used their own endowments. However, a reanalysis of Clark’s data by Harrison (2007) that used more advanced statistical methods showed that there is a windfall gain effect data. Carlsson, He, and Martinsson (2013) found some evidence for the house money effect in a dictator game, which took place in two different settings—lab and field. In both cases the participants’ donation is higher, if the participants received a windfall endowment rather than an earned endowment. The absolute and relative difference is larger in the lab than in the field. Reinstein and Riener (2012) demonstrated in a 2x2 charitable giving experiment that, in addition to the house money effect, tangibility plays an important role for the behavior of the participants. Participants holding cash were less likely to donate it to a charity than participants with promised endowments. The participants were also less likely to donate in general, if they had earned the endowment previously.

The question of the house money effect is especially relevant for inferences from laboratory experiments about charitable giving, because in reality private individuals have to contribute out of their own preexisting income. Our classroom experiment came closer to external validity since we asked for actual donations. At the same time we also have a measure similar to windfall money. The difference is that our prize money was distributed by means of a lottery with a chance of 1/20 of winning €17. Since our participants made both decisions at the same time, we have both measures (prize money and own money) for each person. On the negative side, this created some potential for shifting between the two donations types. For example, it is possible

that participants considered both decisions as substitutes, and shifted towards a donation type that has the lower price. Figure 7 shows the relationship between prize money and own money donations. In line with the house money effect, we see that almost all circles lie below the 45° line (93% of participants) or even below the line that marks the equality of both measures in expectation (75% of participants).

Figure 7: Relationship between prize money and own money donations



While the average prize money donation (see Table 12) is approximately 12 times higher than own money donation, it is significantly lower in expectation (i.e. accounting for the 5% chance of winning) and comes much closer to actual donations (difference only marginally significant).¹³ Since a very high share of participants choose zero own donations, the distribution makes it difficult to understand potential treatment differences in usually sized laboratory experiments. This is the reason why researchers concerned with charitable giving prefer to offer participants

¹³ Note, however, that donors are constrained at expected prize money of 85 cents (17/20).

windfall money. Since our treatment resulted in effects of similar magnitudes for all three measures (though treatment differences were not significant in case of own money), we conclude that the use of prize money is a valid approach.

Table 12: Average donations according to different measures

Prize money (first stage)	(1)	11.653 (0.250)
Prize money (in expectation, first stage)	(2)	0.583 (0.012)
Own money (first stage)	(3)	0.969 (0.110)
Actual money	(4)	0.446 (0.083)
	(1)=(3)	0.0000
	(2)=(3)	0.0004
Paired t-test p-values	(3)=(4)	0.0000
	(2)=(4)	0.0965

Notes: The averages reported are from a sample that has no missing values according to prize money and own money measure (453 participants).

Conclusions

In a classroom experiment, we established a causal relationship between certification and donations. Specifically, we found that information about a certificate awarded to a charitable organization increased donations towards such an organization. Our findings strongly suggest that nonprofits should invest in certification. They also call for governments interested in raising overall donation levels to establish or support a (voluntary) system of accreditation for nonprofits. Most importantly, the gains in additional donations in a range of around 10% are much higher than the costs of such a certification (in the case of the DZI certificate the fee amounts to a fraction of a percentage point of donations collected). Moreover, donors do not seem to be very sensitive to these costs (the effect of informing donors about these costs is negative but not significant) although the literature in general suggests negative effects of administrative costs. Finally, we find that a certificate increases trust in a charitable organization that holds such certificate, and that there is a positive correlation between trust and donations. Our research points to the causal role of trust for probability of charitable giving.

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Appendix: Additional results and full tables

Table 13: Full table to Table 5: The effect of the certificate - regression results

	Prize money donation				Donation own money			
	OLS		Tobit m.e.		OLS		Tobit m.e.	
certificate	1.032** (0.483)	1.200** (0.489)	1.759** (0.859)	2.077** (0.870)	0.159 (0.220)	0.083 (0.224)	0.625 (0.981)	0.416 (0.986)
age		0.152 (0.110)		0.274 (0.195)		0.039 (0.051)		0.166 (0.216)
Financial situation		0.453** (0.186)		0.802** (0.328)		0.179** (0.086)		0.955** (0.395)
gender		-1.183** (0.494)		-2.062** (0.878)		-0.679*** (0.226)		-2.161** (0.995)
uni=HU		-3.318** (0.865)		-6.785*** (1.633)		0.670* (0.393)		2.906 (1.914)
uni=FU		-1.409* (0.841)		-3.171** (1.601)		0.382 (0.384)		1.922 (1.889)
uni=Potsdam		-3.819*** (0.909)		-7.418*** (1.705)		0.223 (0.416)		1.947 (1.989)
certificate not known		0.016 (0.821)		0.506 (1.442)		0.247 (0.387)		0.675 (1.785)
BSS not known		1.828 (1.180)		3.243 (2.033)		-0.012 (0.556)		-2.272 (2.157)
Observations	481	454	481	454	453	430	453	430
R^2	0.009	0.091			0.001	0.043		
Pseudo R^2			0.002	0.022			0.000	0.019

Notes: marginal effects for tobit; Standard errors in parentheses; controls include age, gender dummy, relative financial situation, university dummies, whether the certificate and the organization was known before; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 14: Full table to Table 8: The effect of the certificate on actual money donations

		Actual own money donations			
		OLS		Tobit m.e.	
Certificate stage)	(first	0.280*	0.322**	2.280*	2.868**
		(0.161)	(0.162)	(1.357)	(1.413)
age			0.039		0.373
			(0.036)		(0.290)
Financial situation			0.158**		1.343**
			(0.061)		(0.531)
gender			0.020		0.045
			(0.164)		(1.358)
uni=HU			0.208		0.965
			(0.288)		(2.588)
uni=FU			0.184		1.304
			(0.280)		(2.501)
uni=Potsdam			0.069		1.370
			(0.301)		(2.623)
certificate not known			-0.267		-1.071
			(0.273)		(2.168)
BSS not known			-0.213		-3.784
			(0.393)		(2.687)
Observations		486	457	486	457
R^2		0.006	0.028		
Pseudo R^2				0.005	0.027

Notes: marginal effects for tobit; Standard errors in parentheses; controls include age, gender dummy, relative financial situation, university dummies, whether the certificate and the organization was known before; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 15: The effect of fee—panel data estimation

Specification: fixed effects regression

	prize money donation			own money donation		
Fee (second stage)	-0.171 (0.186)	-0.171 (0.186)	-0.154 (0.261)	-0.070 (0.168)	-0.071 (0.168)	0.016 (0.237)
time	0.201 (0.130)	0.180 (0.160)	0.189 (0.184)	0.037 (0.118)	-0.011 (0.145)	0.033 (0.167)
Certification (first stage)		0.041 (0.186)	0.025 (0.260)		0.096 (0.168)	0.008 (0.237)
Fee * Certification			-0.034 (0.372)			-0.176 (0.337)
Constant	11.454*** (0.172)	11.454*** (0.173)	11.454*** (0.173)	0.867*** (0.157)	0.867*** (0.157)	0.867*** (0.157)
observations	475	475	475	486	486	486
rounds	2	2	2	2	2	2
R^2	0.005	0.005	0.005	0.000	0.001	0.002

Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 8: change in donation amount between rounds

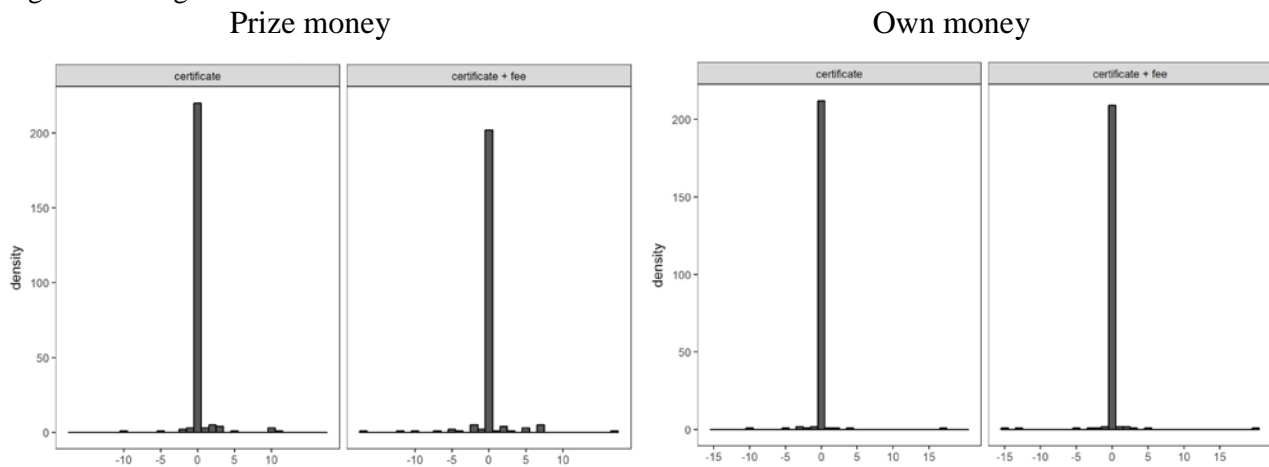
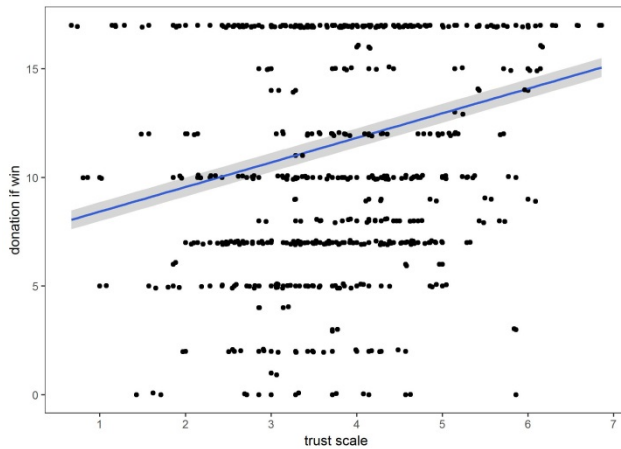
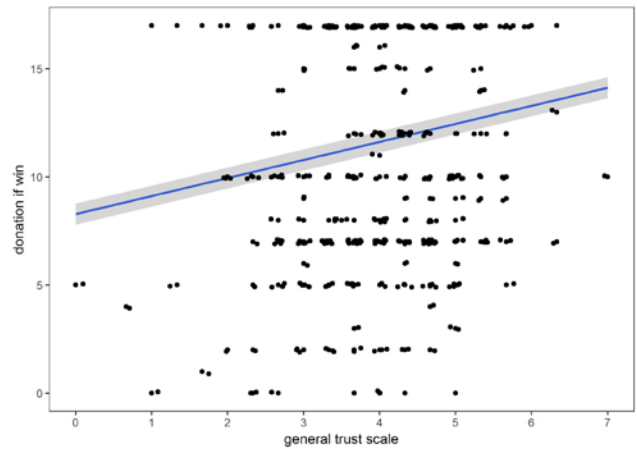


Figure 9: Trust and donations

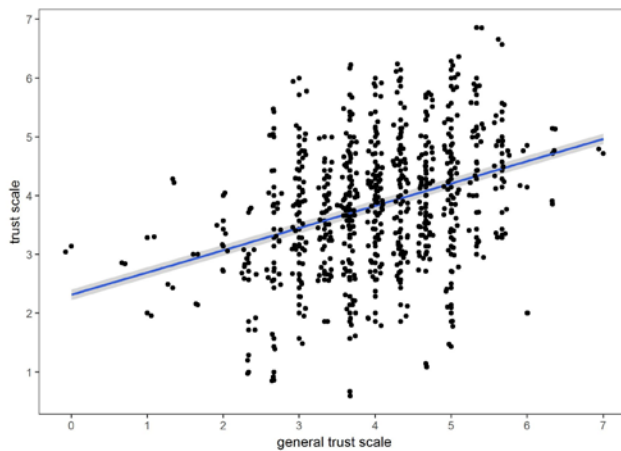
A) Correlation between BSS trust score and prize money donations



B) Correlation between general trust score and prize money donations



C) Correlation between BSS trust score and general trust score



Notes: Blue lines represent a linear fit and shaded area the 95% CIs respectively; dots are slightly jittered to ease interpretation.

Table 16: Supplement to Table 9: The effect of certificate on trust in the charity and general trust

	item	Trust in the charity							General Trust		
		1	2	3	4	5	6	7	1	2	3
Control	mean	3.291	5.388	3.050	1.832	1.766	5.902	5.109	3.860	5.828	2.451
	Sd. err	0.096	0.097	0.117	0.100	0.110	0.084	0.110	0.099	0.074	0.096
	N	244	240	240	244	244	244	239	243	244	244
Certificate	mean	3.502	5.469	3.235	1.945	1.962	5.988	5.301	3.775	5.757	2.414
	Sd. err	0.096	0.094	0.115	0.108	0.118	0.084	0.101	0.098	0.078	0.094
	N	237	239	238	238	239	240	239	240	239	239
t-test p-value		0.1230	0.5496	0.2592	0.4417	0.2237	0.4711	0.1982	0.5417	0.5112	0.7863
MWU test p-value		0.1413	0.5673	0.2259	0.5446	0.2688	0.4265	0.2852	0.4408	0.5619	0.7889

Notes: means, standard errors in parenthesis, number of observations in square brackets. The score range is between 0 and 7. The differences in the number of responses are due to the item nonresponse, and in few cases due to ambiguous indication.

Table 17: The effect of certificate on trust in the charity – regression results

item	1	1	2	2	3	3	4	4	5	5	6	6	7	7
certificate	0.211	0.179	0.081	0.055	0.185	0.142	0.113	0.062	0.196	0.140	0.086	0.029	0.192	0.188
	(0.137)	(0.142)	(0.135)	(0.139)	(0.164)	(0.168)	(0.147)	(0.154)	(0.161)	(0.168)	(0.119)	(0.123)	(0.149)	(0.154)
controls		yes		yes		yes		yes		yes		yes		yes
Observations	481	454	479	453	478	452	482	456	483	456	484	457	478	452
Adjusted R^2	0.003	0.013	-0.001	0.009	0.001	0.031	-0.001	0.011	0.001	0.015	-0.001	0.017	0.001	0.028

Standard errors in parentheses

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

Individual characteristics and treatment heterogeneity

First stage

Table 18: Donations by gender and treatment

Treatment		Prize money donation				Own money donation			
		Female	Male	t-test-p-value	MWU-test p-value	Female	Male	t-test-p-value	MWU-test p-value
Control	mean	11,577	10,804	0.271	0.266	1,316	0.563	0.008	0.081
	Sd. err	(0.493)	(0.482)			(0.272)	(0.127)		
	N	[104]	[138]			[98]	[126]		
Certificate	mean	12,337	11,929	0.551	0.676	1,267	0.752	0.123	0.338
	Sd. err	(0.453)	(0.511)			(0.278)	(0.174)		
	N	[122]	[113]			[116]	[109]		
pooled	mean	11.987	11.311	0.1665	0.2125	1.290	0.6510	0.0033	0.0538
	Sd. err	.334	.352			.195	.105		
	N	226	251			214	235		
t-test-p-value		0.258	0.112			0.900	0.373		
MWU-test p-value		0.276	0.098			0.867	0.552		

In the control treatment the average prize money donation of female participants was €11.58 compared to €12.34 in certificate treatment. Even though it is not significant, it shows the same tendencies as the results in the general analysis. For male participants, the average prize money donation was €10.80 compared to €11.93 in the certificate treatment. This effect is significant at 10% according to MWU test and not significant according to a t-test. The average own money

donation is higher in the certificate than in the control treatment for male participants, female participants, however, showed a reverse response behavior, though the differences is not significant.

Female participants give on average more than male participants. The difference is though only significant for own money donations.

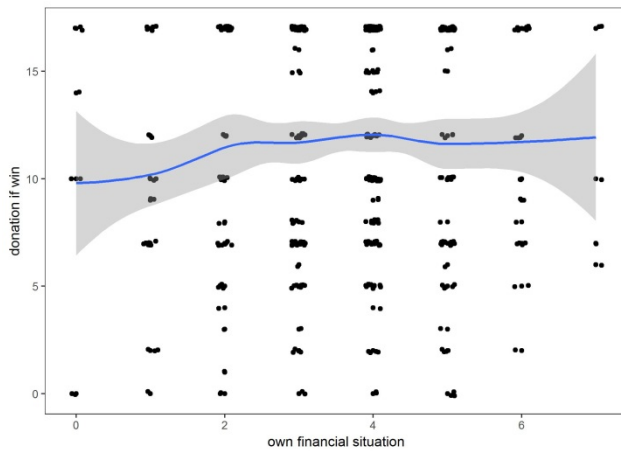
Table 19: Donations by university and treatment

		Prize money donation				Own money donation			
		HU	FU	Potsdam	TU	HU	FU	Potsdam	TU
Control	mean	10.368	11.511	10.185	13.242	1.156	0.562	1.340	0.452
	Sd. err	(0.587)	(0.596)	(0.712)	(0.997)	(0.320)	(0.178)	(0.348)	(0.231)
	N	[68]	[88]	[54]	[33]	[64]	[80]	[50]	[31]
Certificate	mean	11.070	13.377	10.558	14.524	1.169	1.404	0.438	0.500
	Sd. err	(0.621)	(0.494)	(0.734)	(1.010)	(0.310)	(0.330)	(0.183)	(0.344)
	N	[72]	[93]	[106]	[21]	[71]	[89]	[48]	[20]
t-test-p-value		0.41	0.016	0.71	0.39	0.98	0.030	0.026	0.90
MWU-test p-value		0.391	0.028	0.613	0.664	0.837	0.023	0.033	0.606

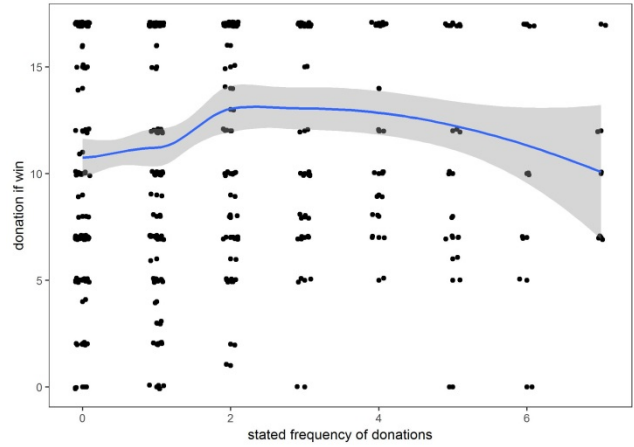
All universities show the same tendencies concerning the effect of the certificate but for university of Potsdam in case of own money donation (reversed effect and significant).

Figure 10: Additional results

Relationship between own financial situation (If you were to compare your financial situation to that of your fellow students, it would be Much worse --- Much better) and prize money donation



Relationship between regularity of donations (How regularly do you donate? Never --- Very often) and prize money donation



Notes: Blue lines represent a loess curve and shaded area the 95% CIs respectively; dots are slightly jittered to ease interpretation.

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