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# Choosing Your Object of Benevolence – A Field Experiment on Donation Options

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# Non-technical summary

The tragedy of little Madeleine in 2007 did not only catch the headlines of the public media but was also followed with interest by researchers after the remarkably successful donation acquisition of the desperate parents. To finance a costly search for their taken daughter, they asked the British population for donations. Presumably unconsciously they benefited of the so called "identifiable victim effect" because society is willing to spend far more money to save the lives of identifiable victims than to save statistical victims (Jenny und Loewenstein, 1997).

In the literature this effect has up to now been investigated in laboratory experiments and in surveys. Studies indicate that identifiable victims evoke more intense feelings than more inclusive ones. In our study we investigate the effect in a field experimental setting and are especially focussing on measuring support in terms of monetary donations.

For the experiment we cooperated with a German charitable organization which promotes primary medical health care in five developing countries. Together with the organization we framed two versions of a solicitation letter that was sent to 57,325 households as part of the yearly winter mailing campaign. Within the "baseline"-group recipients were asked - as in previous mailings - to donate any desired amount to the organisation. Potential donors in the "choice"-group were beyond that given the possibility to select a particular country (or more countries) as donation recipient.

In line with the effect of the identifiable victim we expect higher donations when one explicit object of benevolence can be chosen for a donation. The reference group can thus be reduced from the whole population of five countries to one particular country. Our hypothesis was that, although the victim is in this case not as identifiable as in the case of Madeleine, this weak identifiable victim effect could lead to higher donations.

Overall, 6,709 study relevant donations were received by the organization in the observation period between December 3rd, 2007 and January 31st, 2008, adding up to an amount of more than 1 million Euro. The response rate was 11.7% for both groups. Within the "choice"-group, 3.4% of the donors made use of the selection possibility and donated to a particular country. Such donors donated with an average amount of 160 € significantly more than those donors who did not select a country for their donation (135 €).

The organisation additionally provided us with data of their two previous winter mailing campaigns that allowed us to observe the donation behaviour of households over time. Under inclusion of the donation history we deduced that households that donated to a particular country in 2007 did not donate differently in previous years than did those donors who did not select any country for their donation in 2007. This supports our hypothesis that the different average amounts in 2007 stem from our treatment manipulation and not from random or selection biases.

Our study emphasizes that charitable organisations can benefit from giving donors more precise information of how the donated money will be used. The probable reason is that altruistic action seems to be mediated by aroused empathetic emo-

tions. People give in order to do something good for the victims and/or themselves. But the intensity of the emotions which might be expressed by the height of the donation seems to depend on factors that can be influenced, e.g. in terms of more detailed information with respect to the donation purpose.

# Das Wichtigste in Kürze

Die Tragödie der kleinen Madeleine sorgte im Jahr 2007 nicht nur in der Öffentlichkeit für Aufsehen, sondern wurde im Zuge der durch die Eltern erfolgreich praktizierten Spendenakquirierung auch von Forschern interessiert verfolgt. Um die Suche nach ihrem im Urlaub verschwundenen Kind finanzieren zu können, hatten die Eltern die britische Bevölkerung um Spenden gebeten. Dabei nutzten sie (vermutlich unbewusst) den "Effekt des identifizierbaren Opfers", denn Menschen sind tendenziell eher bereit, einem speziellen, bekannten Opfer anstatt einem unbekannten, anonymen Opfer zu helfen (Jenny und Loewenstein, 1997).

Bislang ist dieser Effekt in der Literatur in Laborexperimenten und in Umfragen untersucht worden. Studien deuten darauf hin, dass identifizierbare Opfer stärkere emotionale und moralische Reaktionen hervorrufen als nichtidentifizierbare Opfer. In unserer Studie untersuchen wir diesen Effekt erstmals in einem Feldexperiment und nutzen dafür Geldspenden als ein Maß für Unterstützung.

Für das Experiment kooperierten wir mit einer deutschen Spendenorganisation, die sich in fünf Entwicklungsländern für medizinische Grundversorgung einsetzt. Zusammen gestalteten wir im Rahmen der jährlichen Winterspendenaktion zwei unterschiedliche Versionen eines Spendenbriefs, der per Post an insgesamt 57.325 Haushalte versendet wurde. In der Gruppe "baseline" wurden die potentiellen Spender - wie in den Vorjahren - gebeten, eine Spende an die Organisation zu überweisen. In der Gruppe "choice" erhielten die Spendenbriefempfänger darüber hinaus die Möglichkeit, ihre Spende konkret an ein bestimmtes Land (oder auch an mehrere) zu entrichten.

Im Sinne des Effekts des identifizierbaren Opfers erwarten wir ein höheres Spendenaufkommen, wenn ein Land explizit für die Spende ausgewählt werden kann. Die Referenzgruppe kann so von fünf Ländern auf ein Land reduziert werden. Unsere Hypothese war, dass, obwohl das Opfer in diesem Fall nicht so eindeutig identifizierbar ist wie im Fall Madeleine, bereits dieser schwache Effekt des identifizierbaren Opfers zu höheren Spenden führen könnte.

Im Zeitraum vom 3. Dezember 2007 bis 31. Januar 2008 gingen bei der Organisation 6.709 studienrelevante Spenden mit einem Gesamtvolumen von über 1 Million Euro ein. Die Antwortquote lag für beide Versuchsgruppen bei etwa 11,7%. Unsere Ergebnisse zeigen, dass 3,4% der Spender in der "choice"-Gruppe die Selektionsmöglichkeit nutzen und die Spende einem bestimmten Land zuführen. Dieser Anteil der Spender spendet im Durchschnitt mit ca. 160 € signifikant mehr als diejenigen, die für ihre Spende kein Land explizit auswählen (135 €).

Zusätzlich stellte uns die Organisation Daten aus vergangenen Wintermailings (2005 und 2006) zur Verfügung, so dass wir das Spendenverhalten einzelner Haushalte über die Zeit untersuchen konnten. Unter Einbeziehung der Spendenhistorie ermittelten wir, dass Haushalte, die in 2007 an ein bestimmtes Land spendeten, in den Jahren zuvor nicht anders als diejenigen spendeten, die in 2007 kein Land bei ihrer Spende auswählten. Dies unterstützt unsere Hypothese, dass die unterschiedliche Höhe der Spende in 2007 durch unser Experiment und nicht durch mögliche selektive oder zufällige Verzerrungen zustande kommt.

Alles in allem unterstreicht die Studie, dass Spendenorganisationen davon profitieren können, wenn sie einen genaueren Einblick darüber geben, für welchen Zweck sie ihr Geld einsetzen. Der wahrscheinliche Grund ist, dass altruistisches Handeln durch Emotionen beeinflusst wird: Menschen spenden, damit sie sich und/oder den Opfern etwas Gutes tun. Aber die Intensität der Emotionen, möglicherweise ausgedrückt in der Höhe der Spende, hängt auch von beeinflussbaren Faktoren ab, wie z.B. von detaillierter Information bezüglich des Spendenzwecks.

# Choosing your object of benevolence – A field experiment on donation options *

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**Abstract**

In a large natural field experiment, we explore the effect of providing donors with the opportunity to choose the target country for their donations. We find that only a small fraction of donors use the option, which might reflect a reluctance to consider tradeoffs when those concern important, 'protected', values. However, those donors who choose their object of benevolence give significantly more, even when controlling for their donation history. In view of the latest research on identifiable-victim effects, our findings underline that less inclusive targets can evoke more intense feelings than more inclusive ones — stressing that altruistic motivation seems to be mediated by aroused empathetic emotions.

**JEL Codes:** D64, C93

**Keywords:** charitable giving; identifiable victim; field experiment; altruism; contingent valuation

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# 1 Introduction

Charitable giving has been in the focus of experimental research lately (e.g., Falk (2007), Carpenter et al. (2008), Corazzini et al. (2009) or Bernasconi et al. (2009)). (Not only) these studies stress that charitable activities play an important role in economies. Many of these activities are financed by charitable organizations, which in turn usually rely on voluntary donations. The amount of such donations is quite substantial (e.g., in 2008, Americans gave approx. $308 billion to charitable causes).[1] The supported charitable organizations are, for various reasons, frequently rather specialized in their activities. For example, some support children, while others support elderly people, or medic programs in developing countries, or wildlife, etc. Even if the organization engages in more than one activity, the most common way to raise funds is to send solicitation letters that ask for donations to a single activity. Interestingly, however, the organizations usually do not discriminate with respect to the countries that the donors can support. In this paper, we shed light on the effect of providing donors with the possibility to choose the target country for their donations.

To study our research question, we conducted a randomized field experiment. "The Doctors for Developing Countries" sent out more than 57,000 solicitation letters by mail in two different versions. In the one version, potential donors could donate to the organizations' main purpose only - the project work in five different developing countries. The other version provided donors with the possibility to select one or more particular countries as donation recipients. The organization received 6,709 donations in total in response to the appeal for funds. We find that, overall, 3.4% of all donors

[1] source: Giving USA Foundation, Center on Philanthropy, Indiana University.

in the treatment group make use of the selection possibility. Those who use the option, i.e., who state a recipient for their donation, give significantly more. On average, their donations are 18% higher. Furthermore, controlling for the donation activity of the two previous winter mailings indicates that this difference indeed stems from our treatment manipulation and is unlikely to be a result of selection bias or chance.

The observation that many people prefer to share their donations equally among the target countries instead of choosing a single recipient might reflect a reluctance to consider tradeoffs when those concern important, 'protected' values (cp. Ritov and Baron (1999)). Nevertheless, we find that some donors do choose their object of benevolence and that their donation is significantly above average. This result demonstrates that subjects' valuation can be higher for a subset than for a more inclusive target. A possible explanation might be that the less inclusive target evokes more intense feelings than the more inclusive one (cp. Kahneman and Ritov (1994), Kogut and Ritov (2005)); e.g., in our case it might be that a donor has more intense feelings towards a particular country, maybe because he has some specific link to it.[2] This suggests that altruistic motivation seems to be mediated by aroused empathetic emotions (see also the empathy-altruism hypothesis by Batson et al. (1991), or the evidence provided by Cialdini et al. (1987), Batson (1987), or Batson and Coke (1981)). This in turn might inform the economic literature trying to model altruism (e.g., Andreoni (1990), Harbaugh (1998), Ariely et al. (2009)).

[2]Take, for example, the case of saving human lives: would you like to decide between saving the life of $n$ persons in Bangladesh or in Kenya? The answer is likely to depend on your attitude towards the two countries. Maybe your relatives live in Kenya or you had positive experiences during a visit to Kenya, in which case you might have stronger empathetic emotions and thus prefer to help people in Kenya and give more than if you had to share your donations between Bangladesh and Kenya.

Our study is also closely related to the empirical research investigating the effects of identification on benevolence and helping behavior (e.g., Fetherstonhaugh et al. (1997), Jenni and Loewenstein (1997), Bohnet and Frey (1999), Small and Loewenstein (2003), Brosig et al. (2003)). Starting with Schelling (1968), these studies (backed up by casual empirical observations) support the idea that people care more about identifiable, or 'familiar', victims than about statistical victims. Several potential causes are recognized for inducing the identifiable victim effect, e.g., vividness, uncertainty, or the proportion of the reference group that can be saved. Basically, however, the mediating factor behind the effect seems to be evoked emotions. Identifiable victims evoke stronger emotional and moral reactions than (equivalent) unidentifiable victims (cp. Kogut and Ritov (2005), who find that self-reported sympathy towards the victim and willingness to help the victim are correlated). Our results point into the same direction, but the difference is that the information set provided by us is kept constant between the two solicitation letters. Moreover, to the best of our knowledge the existing evidence up to now either stems from questionnaire studies (e.g., Jenni and Loewenstein (1997)) or from the lab (e.g., Güth et al. (2007), Andreoni and Petrie (2004)), but not from a controlled field experiment.

The observation that people sometimes act as if "the whole is less than the sum of its parts" (VanBoven and Epley (2003)) has also been made in other domains, in particular in connection with contingent-valuation methods. It seems as if people are regularly prone to an 'unpacking effect' (cp. Rottenstreich and Tversky (1997)) or a 'part-whole bias' (cp. Kahneman and Knetsch (1992), Diamond and Hausman (1994), Bateman et al. (1997)) when appraising events or evaluating categories.[3] We add to this literature by demon-

[3]For example, Kahneman and Ritov (1994) report that subjects' (hypothetical) will-

strating that the effect not only exists in (hypothetical) contingent-valuation scenarios. Even in (actual) decision situations, people sometimes act as if their preferences were non-additive.

# 2 Experimental Design and Behavioral Predictions

**The charity:** In order to explore the effect of providing donors with the possibility to choose the target country for their donation in a natural field experiment, we searched for a charitable organization that operated in at least two (sufficiently different) countries. Moreover, we required the organization's work in these countries to be similar[4] and wanted to cooperate with an organization that was sufficiently large and reliable to provide us with a large and detailed data set. Fortunately, the German organization "Doctors for Developing Countries" (*"Ärzte für die dritte Welt"*, DfDC in the following) agreed to cooperate with us. The DfDC is officially certified by the German Donation Seal and is listed there amongst their Top 40 organizations in Germany with respect to private donation inflow.[5] The DfDC operates in several countries, and their work is almost identical in any country (primary health care). In 2007, they asked for donations to support five countries, namely Bangladesh, India, the Philippines, Kenya and Nicaragua.

**Method:** We used the DfDC's winter mailing campaign 2007 for our field

ingness to pay to save a group of species (reptiles) in a given area is lower then for saving only a specific species (turtles) out of that group in the same area.

[4]Otherwise, observing a donor choosing a particular country might also be due to a difference in the charity's activities in that particular country. This, of course, might be interesting as well, but is beyond the scope of the present paper.

[5]cp. DZI Spendenalmanach 2008/9 p. 317; for more information (in German) see the German Institute for Social Issues (*DZI*) at http://www.dzi.de

experiment. Together with the organization, we developed two treatments. In the *baseline* treatment, donors could not choose their donation recipient. Instead – as in the previous winter mailings – each donation was equally split between the five countries. In the *choice* treatment, donors could declare which country (or countries) should receive the donated amount; the default being to support all five countries equally[6]. In both treatments, the solicitation letter included a cover letter and a single remittance slip which had the account and bank number pre-printed on it. The pre-printed account numbers differed between treatments so that we know for each donor his or her corresponding treatment.

The same cover letter was used in both treatments. It explained the project work of the organization during the last year and mentioned the five countries for which they asked for donations in 2007. Thus, information about the countries provided by the experimenter were identical between treatments. The only difference in the cover letter was that a section was added in treatment *choice* in which the choice-option was explained. Additionally, a second page was added where the procedure to donate to a specific country was explained in detail: By entering five digit codes in the reference-field on the remittance slip, subjects were able to pick any (combination) of the five countries to donate to. If a single code was entered, the entire donated amount went to the recipient that the donor had selected. If more than one code was entered, the donated money was to be split equally between the selected countries. If no code was entered, the donation was treated as in treatment *baseline*, i.e. the allocation decision was left to the organization.

Altogether, 57,372 letters were sent out between November 28th to 30th 2007

[6]More precisely, in that case (as in treatment *baseline*) the organization decided how to allocate the money between the five countries.

to the regular donors ('house list') and members of the DfDC. Allocation of subjects to treatment was random. 30,325 people received the *choice* letter, and 27,407 people received the *baseline* letter. The observation period ended January 31st 2008.

**Predictions:** If donors just give out of pure, unconditional altruism, we should not expect to observe any difference between treatments. Yet, if other-regarding preferences are reference-group dependent (as it is the case in many economic models of social preferences, e.g., Fehr and Schmidt (1999), Bolton and Ockenfels (2000), Falk and Fischbacher (2006)), or identifiability-based as Bohnet and Frey (1999) call it, our treatment might affect donation behavior. Donors who have more intense feelings for any of the five countries might be expected to prefer this country over the other four countries and consequently choose this particular country to be the donation recipient. One should therefore hypothesize donations to be higher in treatment *choice* than in *baseline*. Since donors in *choice* are not required to specify where their money will be used, the design of the treatment should not lower donation rates or donations of willing donors. On the contrary, it is imaginable that potential donors could be won by the fact that a higher decision scope is given which induces them to donate at all. Therefore, the response rate is expected to be higher when the object of benevolence can be chosen.

One can also view our treatments from the perspective of the literature on identifiable victims. As donors in treatment *choice* have the opportunity to donate money to *specific* countries, this treatment can be seen as a selection process. By selecting particular countries as donation recipients, the donation cause is more 'identifiable' to these donors — which in turn may induce them to donate higher amounts. Of course, victims are not as explicitly identified as it is usually the case in this area of research. Still, one could speak of a

"weak identifiability effect", because the donor reduces the reference group from the whole population of five countries to a particular country.

# 3 Results

In this section, we will first look whether the response rate and the donated amounts differ between treatments. Subsequently, we will explore the behavior of the donors who state a specific donation recipient. As will be seen, those donors give significantly more on average. Finally, we shed light on the question of causality by comparing the behavior of donors in 2007 to their behavior in the preceding years.

**Table 1: Donation behavior between treatments**

| Treatment | Baseline | Choice | Total |
|---|---|---|---|
| # of letters sent | 27,047 | 30,325 | 57,372 |
| # of donations | 3,166 | 3,521 | 6,687 |
| Response rate | 11.7 % | 11.6 % | 11.65 % |
| Total contributions | 423,191€ | 481,940€ | 905,131€ |
| Average donation | 133.66€ | 136.87€ | 135.35€ |

Table 1 provides an overview of the donation behavior in the two treatments. As can be seen, our data set includes 6,687 donation instances (observations).[7] In treatment *baseline*, 3166 instances were recorded, compared to 3521 donations in treatment *choice*. The response rate is almost identical in

[7] We dropped 22 outliers from our dataset. These persons donated between 5,000 and 100,000€. Given the usual donation size, these are outstanding amounts; in particular when considering that the 99th percentile is 'only' 1500€. Their inclusion does not change any of the reported significance levels qualitatively, but they bias the reported means. We therefore believe that it is appropriate to drop them. Moreover, the treatment manipulation is unlikely to impact those donation decisions. In particular, in none of the 14 donations which are dropped in treatment *choice* a specific country was selected.

both treatment groups (approx. 11.7%, $\chi^2$-test, $p = 0.7537$, 2-sided). This suggests that the increased decision scope in treatment *choice* does not affect subjects' decision to become a donor.

> **Result 1:** *Providing donors with the possibility to choose their object of benevolence does not affect subjects' participation rate. The response rate does not differ significantly between treatments* baseline *and* choice.

The average donation size is slightly higher in treatment *choice* (136.87€) than in treatment *baseline* (133.67€); the difference being insignificant ($p = 0.9077$, rank-sum test, 2-sided). This is likely to be driven by the fact that only in 3.4% of the donations in treatment *choice* donors make use of their option to state a donation target. However, those 120 donors who choose their object of benevolence give on average 159.80€. If we compare this to the average donation of subjects who did not state a recipient in treatment choice (136.07€), the difference is highly significant ($p = 0.0063$, rank-sum test, 2-sided). The same holds true if we compare it to the average donor in treatment *baseline* ($p = 0.0096$). This suggests:

> **Result 2:** *There exists a positive correlation between specifying a target for the donation and the size of the donation. Donors who choose a recipient for their benevolence give more than donors who do not select a particular country.*

An important issue that needs to be considered is about causality. Are those donors who choose a recipient more likely to give more; or are those who donate higher amounts more likely to choose a recipient? To shed light on this issue, the DfDC provided us with data from their previous winter-mailing campaigns. The data contains an unique identification code for donors' ad-

**Table 2: Regression table: Donation behavior**

| | Donation |
|---|---|
| 2006 | -3.38 |
| | (25.87) |
| 2007 | 2.84 |
| | (25.60) |
| Chosen? | -11.05 |
| | (226.60) |
| Chosen? x 2006 | 316.49 |
| | (224.18) |
| Chosen? x 2007 | 370.51* |
| | (228.85) |
| constant | 3142.22*** |
| | (28.21) |
| N | 6126 |
| R-sqr | 0.0006 |

Notes: This table reports OLS-coefficient estimates and robust standard errors adjusted for clustering in parentheses. 2006 and 2007 are dummy variables for the respective year. *Chosen?* is a dummy variable which indicates whether the donor has chosen the object of benevolence in 2007. *Chosen?x2006* and *Chosen?x2007* are interaction terms. Significance levels are denoted as follows: $^{*}p < 0.05$,$^{**}p < 0.01$,$^{***}p < 0.001$.

dresses that allows us to trace individuals' donation behavior across years.[8] If we look at the 120 donors in treatment *choice* who choose a recipient, 74 of them had already donated in 2005 and/or 2006. For these donors, we find no significant effect in the absence of our treatment manipulations; i.e., they donate similar amounts in 2005 and 2006 (130€ vs. 140€, $p = 0.7641$, sign-rank test, 2-sided). However, in 2007 when they can (and do) choose their object of benevolence, they donate 202€ on average – which is a highly significant increase of 56% (44%) compared to what they gave in 2005 (2006).[9]

This is not observed for persons who did not choose a target country in

[8] To the best of our knowledge, the ability to rely on individual donation histories is rarely given as most field experiments on charitable giving are one-shot-experiments.

[9] 2005 vs. 2007, $p = 0.0004$; 2006 vs. 2007, $p = 0.0002$, sign-rank test, 2-sided

treatment *choice*: 2250 of them did already donate in the previous years, and their donations are almost identical across years (2005: 144€, 2006: 141€, 2007: 145€). Moreover, while we saw above that there is a significant difference in the donation amounts of donors who chose a recipient and those who did not choose a recipient in 2007, this does not hold true if we compare their donations in 2005, resp. in 2006 (2005: 130 vs 144€, $p = 0.4264$; 2006: 140 vs 141€, $p = 0.2926$; rank-sum test, 2-sided). We can thus deduce that their donation only differs from those of other donors if they can choose their target country, i.e., in 2007 (cp. also the regression results reported in Table 2: the coefficient of the interaction term between a dummy indicating whether you have chosen your recipient in 2007 and a dummy indicating the contribution's year is only significant in 2007). This leads us to conclude:

> **Result 3:** *If donors can choose their object of benevolence, those donors who select a recipient donate significantly higher amounts than they might have done otherwise.*

# 4 Conclusion

We conducted a randomized field experiment to study whether donation behavior changes if donors can choose their object of benevolence. "The Doctors for Developing Countries" sent out more than 57,000 solicitation letters by mail in two different versions. In the one version, potential donors could donate to the organizations' main purpose only - the project work in five different developing countries. The other version provided donors with the possibility to select one or more particular countries as donation recipients. We found that only a minority makes use of this possibility — but those donors who do use it give significantly more on average. Moreover,

comparing their donation behavior across years, the data suggest that the effect indeed seems to be due to our treatment manipulation.

Our results have interesting implications. First, they are interesting for charitable organizations who make use of mailing campaigns. Our results suggest that providing donors with the option to choose their donation recipient can increase total donations. A likely explanation might be that this design allows donors who have more intense feelings towards a particular country to express this feeling. However, we also see that many people prefer to share their donations equally among the target countries instead of choosing a single recipient. This might reflect a reluctance to consider the important tradeoff whom to help. In future research, it might be interesting to see what happens if donors are forced to make a decision, and/or if donors can state multiple amounts (e.g., by including multiple remittance slips in the solicitation letter) instead of choosing only a single donation amount.

Second, our findings are of importance for the literature modeling altruistic preferences, or social preferences in general. They underline that such preferences are not necessarily generic but instead depend on the situation and persons at hand — something which is taken into account in several models by using the concept of reference groups, but which is frequently neglected when using or talking about these models. For example, the models on altruism usually ignore that helping behavior is (at least partly) identifiability-based. It might be worthwhile to incorporate this fact in future models, and we hope that this helps to gain a better understanding of altruistic motivation and behavior.

Third, our result that subjects' valuation can be higher for a subset than for a more inclusive target might be of great interest to those who use contingent-

valuation methods. Complementing the existing work in this area, we demonstrate that even in actual decision situations, people sometimes act as if their preferences were non-additive. Taking our findings one step further, they might even be of interest for scholars working in the area of public finance. For example, citizens' willingness to pay duties or taxes might increase if they were given the choice about what happens with their money afterwards. Of course, this implication is strongly hypothetical at the moment. Moreover, it runs counter the basic idea of funds provided by taxation being not targeted to a specific purpose or function. However, one might think about combining an uncommitted tax with a menu of committed duties on top of it to choose from. This promises to be an interesting application and field for future research.

One last thing to point out is the timely aspect of the donation.[10] In all three years, we find that most donations are made in the two subsequent weeks after donors received the appeal for funds. Interestingly, however, the average donation amount is highest in the time period between Christmas and New Year's Eve. In fact, it is about 60% higher than the donations received in the December and January weeks before and afterwards. While more research and experiments are needed to answer the question about causality here, still charities might think about focussing or increasing their effort to raise funds around the Christmas days to benefit from this effect. Moreover, if we hypothesize that the increased donation size in this time period is due to people being in a more emotional condition during Christmas, this last finding further underlines the link between altruistic motivations and emotions.

[10] Details are provided in the appendix.

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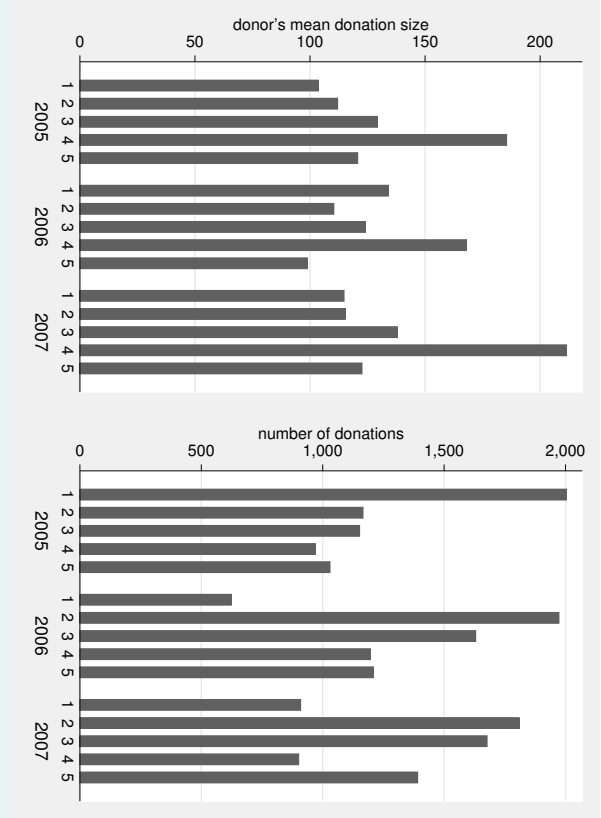
# Appendix

## Donation development over time

Figure 1 reports the development of the average donation size (top table) and the number of donations (bottom table) per week during the winter mailings in 2005, 2006 and 2007.

**Figure 1: Donation development over time**




The date that we consider (and that we have in our data set) is the date when the organization receives the donation on its bank account. The intervals in the figure are chosen as follows: In each year, the fourth bar marks the week between Christmas and New Year's Eve ($24^{th} - 31^{th}$ of December). Bars 1,

2, and 3 contain the donations that are received in the third to last, second to last, resp. last week before the $24^{th}$ of December. Each of these three weeks start on a Monday, i.e., the number of days in the last week before Christmas varies between years (depending on Christmas' weekday). The fifth bar contains all donations that are received on New Year or thereafter.

Interestingly, in all three years the average donation size is highest in the days between Christmas and New Year's Eve (bar 4). The peak in this time period is remarkable. In 2007, the average donation size in this particular week is about 71% higher than in all remaining weeks before and after (2005: 62%, 2006: 47%). In each year, this difference is highly significant.[11]

Of course, one would need a new field experiment or more extensive data to distinguish whether donors get more generous because they donate in this period, or whether generous donors are just more likely to donate in this period. In either case, our finding might motivate charitable organizations to bundle their vigor more extensively around the Christmas days, e.g., by launching an additional appeal for funds just before Christmas. If the underlying reason for the observed peak is that generous donors are more likely to give in that particular period, a charitable organization's additional effort might get those donors to donate for their organization rather than for another one. If instead donors get more generous if they donate in that time period, the additional appeal for funds might raise the number of donations received between Christmas and New Year's Eve (which otherwise is rather low in that particular period, as we can see from the bottom table in figure 1). A simple projection for the 2007 winter mailing illustrates this last point: if all people

[11] We compare the donations received between Christmas and New Year's Eve to the donations received in the time periods that corresponds to the respective bars, i.e., 4 vs. 1, 4 vs. 2, 4 vs. 3 and 4 vs. 5. Using a rank-sum test, all obtained significance levels are $p < 0.001$ (two-sided); except for the comparison in 2006 between 1 and 4 (here, $p < 0.005$).

that did donate outside the peak-week would shift their donation into that week and donate the average amount that we observed in that period (thus increasing their donation by 71.1%), the outcome of the organization might increase by more than 50% or, in monetary units, by 500.000€.