Negativity Bias and Framing Effect in Charity Donations: Theory and Practice

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Negativity bias is commonly known as the psychological phenomenon that people tend to be more sensitive to negative than neutral or comparably positive instances. Another correlated but slightly less restrictive phenomenon is the framing effect, which states that people tend to be inconsistent in their behavior when facing similar but differently expressed information. The present paper addresses those two widespread phenomena and intend to apply them to charity donations. In line with evidence from previous studies, this paper proposes a plausible field experiment that would allow to measure these theoretical concepts. With regards to the findings, this field experiment would help charity institutions to improve the effectiveness of their fundraising messages by illustrating the way they should frame their key message or slogan.

Introduction

While most countries see their economies growing such that the Gross Domestic Product (GDP) per capita is increasing, the market for charitable giving seem to decrease over the last years. Indeed, according to the Charities Aid Foundation (2012), the global average participation in donating money[1] has globally decreased from 30% in 2007 to 28% in 2011.

One could easily say that people are not especially less altruistic but they had to adapt their behaviors to a higher level of income instability caused by the economic crisis of 2008. However, Pharoah & Tanner (1997) showed that the proportion of UK households giving to charity fell by 5 percentage points between 1974 and 1993−94, so that the economic conjuncture only partially explains a decrease in charity donations.

Moreover, a more disturbing fact is that whether a country is developing or developed does not seem to be correlated with the participation in donating money. For example, the Charities Aid Foundation (2012) has ranked 148 countries based on their participation level in donating money and Belgium is ranked 34^{th} with a participation level of 38%. This score is way below the participation level of Indonesia or Thailand which are both developing countries but still have a surprisingly high participation level of 71%. One may therefore wonder what influences an individual's choice to donate money to charities together with the amount of his donation.

Previous studies have shown that, for instance, attracting attention using personalized messages, setting defaults, matching donations, rewarding with small gifts, exercising peer pressure, finding the most effective period, etc. are all techniques that encourage people to donate and thus

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[1]The participation level in donating money is the percentage of people that donated money during one month prior to the survey among all the people aged 15 and older.

imply a higher level of participation (Behavioural Insights Team, 2013). Moreover, a lot of work has been done on the negativity bias and the framing effect but substantially less work has been undertaken in applying these two phenomena in monetary charity donations.

The aim of the present paper is thus to address this question from both a theoretical and a practical point of view. For this reason, this paper is divided into two parts.

Part I theoretically reviews the negativity bias and the framing effect and gives examples relevant to charity donations. This first part will lay sound foundations for Part II, which practically analyzes and discusses a plausible field experiment that would enable us to empirically measure the impacts of the two phenomena in monetary charity donations. The findings could then be used by managers and charity institutions to determine which type of message or slogan they should provide to people depending on their main objective.

Furthermore, Part II is structured as follows: The first section will introduce the purposes and the benefits of this field experiment. The second major section will consist of the intuitive assumptions and hypotheses constructed on the related literature and the theoretical part. The third major section will explain the most appropriate methods and procedures to follow in order to measure the relevance of our assumptions. The fourth major section will address the expected results. Finally, the article concludes with some implications in the real world.

Part I

Negativity Bias and Framing Effect

I. Negativity Bias

Although the concept of negativity bias is quite recent, it has been introduced more than three decades ago by another closely related concept which is the loss aversion (Kahneman & Tversky, 1979). This concept comes from the work on prospect theory[2] which features different models of decision making under risk.

A central conclusion in this domain is that preferences are significantly more driven by the expected utility from the changes relative to a neutral reference point rather than by the final states of welfare or wealth.

Another conclusion describes the fact that losses (i.e., relative changes that make things worse) loom larger than gains (i.e., relative changes that make things better, or improve them), such that people tend to be loss averse. In other words, loss aversion implies that individuals will be more affected by losses than gains of similar values in absolute terms. Much work has been undertaken in this domain and the existing evidence suggest that, at least with regard to the domain of monetary valuations[3], losses are psychologically twice as powerful as gains (e.g., Kahneman et al., 1991).

[2]Some suggest that this work is probably the starting point of behavioral economics and that it is still the most influential in decision making.

[3]The demonstration of loss aversion in other domains than monetary ones is unfortunately limited because a metric scale is required to measure the objective equivalence of positive and negative events.

The concept of negativity bias is derived from the concept of loss aversion but it still remains slightly different. Like loss aversion, the negativity bias refers to the fact that people will weight more heavily negative events[4] than positive ones[5]. In other words, more than one positive instance will be necessary in order to cancel out the effects of one negative instance.

In the domain of close relationships, Gottman (1995) proposed that positive and good interactions between the two individuals must be at least, on average, five times as frequent as negative and bad interactions for a relationship to last. These findings show that negativity bias is even stronger than loss aversion, at least with respect to close relationships.

However, the negativity bias is not restricted to the tendency for individuals to be influenced in a larger extent by negative instances than relatively equal positive instances. Indeed, the negativity bias also refers to the general tendency for undesirable stimuli, unpleasant information or harmful events to generate both more persisting effects and more cognitive activity than desirable outcomes. In other words, people tend to recall more easily (i.e., more quickly) and for a longer time period negative memories than neutral or positive memories.

Moreover, while negative events seem to mobilize affective and cognitive resources to a larger extent, Taylor (1991) claims that there appears to be an even more interesting asymmetry in individuals' responses resulting from negative and positive events, that is, people will try to minimize or even erase the undesirable effects of a negative threat by a response that elicits opposite feelings (i.e., good feelings) while they will not go through the same process in case of a positive event (or to a significantly lower extent).

Indeed, in his study of parachutists, Epstein (1967) observed that, once parachutists safely landed on the ground, a positive emotional reaction of relief or profound relaxation appeared and offset the emotions resulting from the negative emotions (e.g., the threat of something going wrong that would cause immediate death in this case). However, no comparable research addresses the opposite process, that is, people experience offsetting negative emotions after experiencing positive emotions. The lack of this type of observation in the related literature suggests that it may not exist (Taylor, 1991).

More generally, Rozin & Royzman (2001) argue that there exists four types of negativity bias: (i) negative potency, (ii) greater steepness of negative gradients, (iii) negativity dominance and (iv) greater negative differentiation.

Negative Potency

The claim of the principle of negative potency is that negative events are of higher salience and more potent compared to positive events of equal objective magnitude. This principle is described with both the loss aversion and the endowment effect: the willingness-to-accept[6] set by an individual for a specific good that he possesses tends to be larger than the willingness-to-pay[7] for the same item if he does not pos-

[4] An event is considered as negative if it leads to adverse outcomes for an individual or if it is threatening an individual with adverse outcomes (Taylor, 1991).

[5] A event is considered as positive if it leads to favorable outcomes or an opportunity to lead to favorable outcomes (Taylor, 1991).

[6] The willingness-to-accept (WTA) is the "selling price", that is, the price an individual is willing to receive for giving up a good he possesses. Since it means that he would have to give something, it is considered as a loss.

[7] The willingness-to-pay (WTP) is the "buying price", that is, the price an individual is willing to pay for acquiring a good he does not possess yet. Since it means that he would obtain something it is considered as a gain.

sess it.

An illustration of the endowment effect is the experiment conducted by Kahneman et al. (1990) where half of the participants are offered a coffee mug. While the Coase theorem[8] predicts that about half of the mugs will trade, the observed volume of mugs traded is always significantly less. The findings illustrate that people will demand much more to undergo a loss than to benefit a gain of identical objective magnitude.

Greater Steepness of Negative Gradients

Cacioppo & Berntson (1994); Cacioppo et al. (1997, 1999) suggest that the effects of negative events do not systematically dominate the effects of positive events. Indeed, they argue that it remains true only when both are strong and thus, at low levels, negative events are not automatically more potent than comparable positive events. This claim is drawn from the fact that the function subject to the negative occurrences still seems to have a higher slope than the function with respect to the positive events but, under a certain level, the difference is not significantly different from zero so that the effects of the former do not seem to dominate the effects of the latter.

Negativity Dominance

The negativity dominance is a closely related but stronger principle than the negative potency. Indeed, if for example, losing 10€ is worse than winning 10€ is good, it means that negative potency arises because the negative outcome is subjectively more potent than its positive counterpart, although both are of equal objective magnitude. Whereas, if losing 10€ is as bad as winning 15€ is good, and that the perception of the integrated values of losing 10€ and winning 15€ is more negative than the sum of the subjective values of these two occurrences taken as two distinct entities, then negativity dominance arises.

Similarly, Kanouse & Hanson Jr. (1987) framed the negativity dominance such that it occurs if a negative aspect has the ability to interfere with the pleasure derived from a positive aspect when both are combined. For example, "irresponsible father" is often judged more negatively than "irresponsible" (Rokeach & Rothman, 1965). Furthermore, it illustrates negativity dominance because the evaluation of the integrated values of both aspects combined (i.e., "irresponsible father") is more negative than the algebraic sum of the subjective values of those two aspects when judged individually (i.e., "irresponsible" and "father").

Moreover, it is useful to distinguish the synchronic (simultaneous) and the diachronic (successive) manifestations of negativity dominance.

On one hand, the synchronic type addresses the evaluation of positive and negative inputs as components of a whole. Under these conditions, the impression of a person will be disproportionately more influenced by the negative traits than the positive traits that characterize this person.

On the other hand, the diachronic type concerns the compensation of positive events by negative ones and inversely. Under these conditions, the number of lives that a murderer has to save in order to compensate a single act of murder will be dramatically large. Likewise, a tremendous number of good behaviors are usually needed to be forgiven for one bad behavior.

Greater Negative Differentiation

The last facet of the negativity bias is that responses to negative stimuli are more differentiated and more complex than reactions to correspondent positive stimuli. This phenomenon of greater negative elaboration is illustrated by the more varied and more diversified vocabulary that is

[8]The Coase theorem describes that if there are no transaction costs, the market will determine an efficient outcome regardless of the initial allocation (see Coase, 1960, for further details).

employed to describe the characteristics of negative stimuli compared with the vocabulary that is used to describe the quality of positive phenomena. Another example of greater negative differentiation is the wider range of potential emotions to negative than positive outcomes, as argued by many authors (Wundt & Judd, 1907; Titchener, 1907; Carlson, 1966; Averill, 1980; Izard, 1971).

One may therefore wonder what causes people to be more sensitive to negative events. First, since positive events are more likely to occur than negatives ones, it is natural for human beings and animals to assume the effects of the positive while being cautious to the effects of the negative (Peeters, 1971). Second, natural selection which occurred through the evolution played a large role in the development of the differences in reactions to positive and negative occurrences. Indeed, organisms that survived were the ones who were able to deal as quickly as possible with dangerous negative instances caused either by predators or by the environment. Nowadays, although this mechanism may be less crucial in terms of survival for humans, it certainly remains decisive in terms of survival for businesses. This leads to the tendency for people to treat positive instances with lesser urgency and less importance.

From this first comprehensive definition, we can now undoubtedly suppose that negative occurrences should have a greater impact on individuals than positive ones. If we apply this assumption to charity donations, we can expect that people will more likely respond if we provide them with negative fundraising messages[9] than positive ones[10]. Nonetheless, the definition of the framing effect will be helpful in determining how the way to display pieces of information can play a role in individuals' decisions.

II. Framing Effect

The framing effect has been introduced by Tversky & Kahneman (1981) with the well-known Asian disease problem. In this experiment (Tversky & Kahneman, 1981, p. 453), all respondents are provided with the following information:

> Imagine that the US is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows.

The first group of participants ($N = 152$) is then faced with the following problem:

> Program A: If Program A is adopted, 200 people will be saved [72%].
>
> Program B: If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved [28%].
>
> Which of the two programs would you favor?

The second group ($N = 155$) is provided with the following problem:

> Program C: If Program C is adopted 400 people will die [22%].

[9]Negative fundraising messages refer to messages that lead individuals to think of undesirable events. For instance, the message "20,000 people will die of tuberculosis if we do not support them" is a negatively framed message.

[10]In contrast, positive messages result in people thinking of desirable outcomes. For example, the message "20,000 people can be saved from tuberculosis if we support them" is a positively framed message.

> Program D: If Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die [78%].
> Which of the two programs would you favor?

The percentage in brackets indicates the percentage of subjects that actually chose the option and the total number of respondents for each problem is denoted by *N*.

This experiment illustrates the fact that people tend to change their behavior, that is, they shift their preferences from a certain outcome in the positively framed problem to a gamble in the negatively framed problem[11] depending on the way information is displayed, even though it remains identical both in terms of probabilities and in terms of outcomes. Indeed, one can easily see that both problems are similar in their effectiveness and that the only difference between the two is that the first is positively framed, such that the outcomes of the two options are quantified by the number of lives saved, while the second one is negatively framed, such that the outcomes are quantified by the number of lives lost.

More generally, the framing effect which describes the reversal of preferences has been defined by three major underlying theories: (i) The framing of acts, (ii) the framing of contingencies and (iii) the framing of outcomes.

The Framing of Acts

Roughly speaking, the framing of acts specifies that people usually fail to combine options when facing concurrent decisions that would otherwise result in greater outcomes. In other words, they often independently choose their preferred option for each problem without taking into account the possible conjunction of different options.

For example, in an experiment conducted by Tversky & Kahneman (1981) participants ($N = 150$) have to make two decisions where the first decision (i) concerns the choice between:

> A. a sure gain of \$240. [84%]
> B. 25% chance to gain \$1000, and 75% chance to gain nothing. [16%]

> And the second decision (ii) concerns the choice between:
> C. a sure loss of \$750. [13%]
> D. 75% chance to lose \$1000, and 25% chance to lose nothing. [87%]

As mentioned *supra*, the percentage in brackets indicates the percentage of subjects that actually chose the option and the total number of respondents for the problem is denoted by *N*.

Because the two decisions (i and ii) were presented together, the participants had actually the possibility to choose one pair of options between (i) A and C, (ii) B and C, (iii) A and D, and (iv) B and D. If the problem is now no longer presented as a pair of separate decisions but rather presented as a combination of two decisions together with the percentage of subjects that choose each of the combinations it would give us the following output[12]:

> A & C. a sure loss of \$510. [10.92%[13]]
> B & C. 25% chance to win \$250, and 75% chance to lose \$750. [2.08%[14]]

[11] This particular pattern in behavior is often referred as *risk aversion* in the domain of gains and *risk taking* in the domain of losses.

[12] Where the percentage in brackets represents the percentage of respondents who actually chose each of the combinations resulting from the pair of two separate choices (decisions (i) and (ii)).

[13] 84%*13%.

[14] 16%*13%.

A & D. 25% chance to win \$240, and 75% chance to lose \$760. [73.08%[15]]

B & D. 6.25% chance to win \$1000, 56.25% chance to lose \$1000, and 37.5% chance to win/lose nothing. [13.92%[16]]

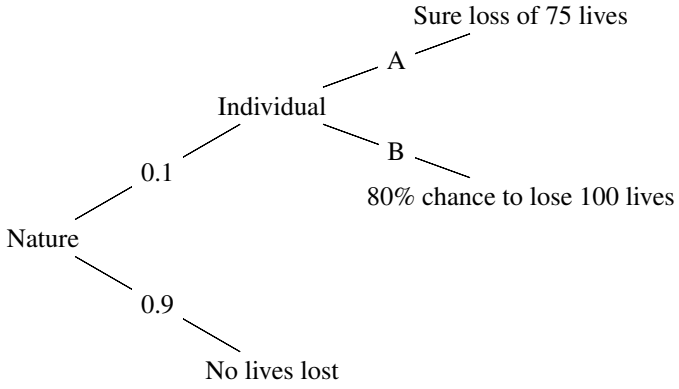
From this perspective, we observe that most respondents (73.08%) chose the combination A & D, while the least popular combination (B & C) was chosen by 2% of the participants. Since the combination B & C yields strictly better outcomes than the combination A & D[17], this experiment shows that people apparently fail to combine options and rather take decisions independently although the outcomes would be greater if possibilities were jointly considered.

The Framing of Contingencies

The framing of contingencies illustrates two phenomena of choice: the certainty effect and the pseudocertainty effect.

The certainty effect corresponds to the fact that people, in the negatively framed domain, tend to overestimate the aversiveness of losses that are certain compared to losses that are merely probable. For instance, in the domain of number of lives lost which is undoubtedly relevant in the sphere of charity donations, the certainty effect is illustrated by the fact that most people will prefer the gamble "80% chance to lose 100 lives" over "a sure loss of 75 lives" while they will prefer "10% chance to lose 75 lives" over "8% chance to lose 100 lives" (Tversky & Kahneman, 1981, p. 455).

The pseudocertainty effect occurs when people dismiss a causal contingency or a sequential formulation when evaluating options.



For instance, still in the negatively framed domain, people tend to consider options A ("Sure loss of 75 lives") and B ("80% chance to lose 100 lives") without considering the previous conditional probabilities.

Indeed, findings show that most people tend to have the same preference as if the first conditional probability did not exist, such that they prefer "a 80% chance of losing 100 lives" (option B) over "a sure loss of 75 lives" (option A). Nonetheless, as mentioned *supra* in the certainty effect, people would in contrast, prefer "10% chance to lose 75 lives" over "8% chance to lose 100 lives", which are identical outcomes if the whole tree above is taken into account (Tversky & Kahneman, 1981).

Another interesting behavior pattern with respect to the framing of contingencies and which is useful in the domain of charity donations is that people tend to see policies that completely eliminate a specific and more restrictive risk more attractive than policies that reduce the overall probability related to a risk at a broader level.

Slovic et al. (1982) found that people evaluating a vaccine that would reduce the probability of contracting a disease from 20% to 10% more attractive if it is described as being able to eliminate one of the two virus strains that generate

[15] 84%*87%.

[16] 16%*87%.

[17] Indeed, *ceteris paribus*, the win is larger and the loss is smaller.

similar symptoms than if it is presented as effective in 50% of the occurrences. In accord with the pseudocertainty effect theory, people tend to prefer full protection against half of the virus strains over a comparable reduction in probability of contracting the disease.

The Framing of Outcomes

As we have seen earlier with loss aversion, people tend to evaluate negative variations from the reference point[18] more heavily than positive comparable variations, that is, the convex value function for losses is usually steeper than the concave value function for gains[19]. This assumption explains why losses loom larger than gains as well as why people are more willing to forego a discount than accept a surcharge (Kahneman & Tversky, 1984). More generally, Tversky & Kahneman (1981) claim that people will evaluate the difference between two options to a lesser extent when it is framed as an advantage of one option rather than a disadvantage of the other option.

Those interesting results demonstrate that framing a message in different ways sometimes causes individuals to be inconsistent, such that preferences reversal arises.

This section showed that both the negativity bias and the framing effect have a significant impact on individuals' choices. Therefore, if wisely used, a sound and deep understanding of both concepts should allow all fundraisers to improve their campaign's efficiency, that is, levy more funds through a higher participation rate or a higher amount of money collected from donors.

Part II

Field Experiment

I. Purpose and Benefits

The main purpose of this type of experiment is straightforward. Indeed, it would help those who work in charitable institutions to find what are the incentives for people to donate. Furthermore, it would help them to design mechanisms that generate the highest level of charitable donations.

The findings would give rise to large benefits for the society as a whole as well as for the donors and the beneficiaries through an increase in welfare. Indeed, beside the fact that charities increase the welfare of the beneficiaries thanks to countless beneficial actions that are undertaken with the money that is collected, donations also increase the welfare of the donors. Dunn et al. (2008) have shown that individuals spending money on others experienced greater happiness[20] than those who do not. Moreover, increasing donations would lead to greater redistribution among citizens, that is, more redistribution from rich to poor persons. This would in turn leads to less inequality and since inequality is negatively correlated to welfare (Gruen & Klasen, 2008; Alesina et al., 2004), the aggregate welfare would increase.

II. Assumptions and Hypotheses

Based on Part I, we can already suppose that negatively framed messages will have higher impacts on respondents

[18] An individual's reference point is its initial level of outcome before any (positive or negative) variation and that is therefore judged neutral.

[19] The convexity and concavity of the value functions are explained by the decreasing marginal rates.

[20] We assume that welfare includes happiness. See Greve (2008) for a detailed meaning of *welfare*.

and should therefore produce a higher level of participation. This leads us to our main hypothesis:

> H1: The effects of negatively framed messages on potential donors will be greater than the effects of positively framed messages. Since respondents will be more sensitive to negatively framed messages we expect that they will more likely donate when faced with negatively framed information than when faced with positively framed information.

This assumption is, however, not sufficient in order to construct very precise messages that could be compared with each other in order to measure the ones that yield the best outcomes. Fortunately, several research about the effectiveness of messages on individuals have been undertaken so we will refer to them, and more especially to the variables that influence individuals' responses in order to construct our own messages for a plausible future experiment.

First, Baumeister et al. (2001) demonstrate that loss aversion does not only hold with monetary rewards or punishment but that it can be generalized to many areas. In order to measure whether loss aversion applies to non-monetary occurrences, they review the hypothesis that negative events have a greater impact on individuals than comparably positive events. For all the areas they covered, they were unable to find evidence where good events were stronger than bad ones so they conclude that "bad is stronger than good at a pervasive, general level" (Baumeister et al., 2001, p. 355). The work of Rozin & Royzman (2001) offers a complementary range of examples that supports the more general principle that negativity bias is also true for non-monetary facets featured in the human existence.

Second, Hilbig (2009) reported that negatively framed information is generally deemed more valid. In order to measure whether negative information were perceived as more true than positive information, he asked respondents to judge the validity of some statements. The two groups were provided with the same intrinsic information but one group received the positive versions (e.g., proportion of marriages lasting 10 years or longer) while the other group received the negative versions (e.g., proportion of marriages divorcing within 10 years). As one could expect, the negatively framed statements were judged significantly more valid ant those results were replicated for three different statements. Furthermore, the results were not altered when individual disparities in pessimism and optimism were controlled for.

However, Burt & Strongman (2005) argue that the effectiveness of message framing is not only determined by the negative–positive context of the message but rather by the type of evidence with which the message is given. According to their results, negatively framed fundraising messages are more effective when they are combined with abstract information[21], whereas positively framed messages are more effective when combined with anecdotal information[22]. In addition, they found that for a message to be highly effective, it should highlight that others have already contributed so to make donors feel that the goal of the charity will be reached and that their donation will indeed be used to fund a cause, while it should also stress the usefulness and the impact of each individual donation so to make potential donors feel that their donations will not be worthless among all other donations.

[21] Abstract information generally refers to statistical evidence or the number of patients who suffer from particular symptoms.

[22] Anecdotal information generally tells the story of one patient (most of the time a young patient because it is considered as more appealing and thus more persuasive) who suffers from the symptoms.

It is clear that many more studies have been conducted on the effectiveness of fundraising messages or more generally, on the persuasive effects of messages on individuals. However, I have summarized only the findings of the studies that are linked with the negativity bias and the framing effect since it is the subject of the present paper[23].

Those conclusions together with the definitions of the negativity bias and the framing effect enable us to draw some assumptions which will be determinant in choosing the appropriate methods and procedures for the supposed field experiment.

III. Method and Procedures

In order to measure whether negativity bias and framing effect have significant impacts on monetary donations, we could proceed as follows:

> A group of at least two people would settle a stand consisting of a table and a chair in Leuven.

The location of the stand would be in a street close to typical places where people pass by, so to attract as many people as possible, but still in a quite confined area otherwise people could easily avoid us.

> In addition, a poster would be held in front of the stand displaying a message that would inform people that we are collecting money for charities. For example, the message would be: "Buy a KU Leuven pen for 1€ and send 2€ to charity".
>
> Beforehand, we would prepare four boxes on which we would write the following messages:
>
> 1. A-: In 2010, about half of the HIV-affected people in low- and middle-income countries did not have access to the lifesaving antiretroviral therapy[24]. This project aims to prevent more people from dying of HIV.
> 2. A+: In 2010, about half of the HIV-affected people in low- and middle-income countries did have access to the lifesaving antiretroviral therapy. This project aims to help more people survive HIV.
> 3. B-: Without the vitamin A supplements, the chance of dying for a child in low- and middle-income countries is 24% higher[25]. This project aims to prevent more people from dying of malnutrition.
> 4. B+: With the vitamin A supplements, the chance of survival for a child in low- and middle-income countries is 24% higher. This project aims to help more people survive malnutrition.

These four messages vary in terms of framing but length was held constant in order to ensure both that the messages are as similar as possible and that the only variable that varies is the framing (i.e., the variable we want to measure).

> Moreover, pre-printed vouchers would be neces-

[23] See List (2008); Allen & Preiss (1997) among others for an overview of the findings on messages' persuasiveness in field experiments.

[24] According to UNAIDS and WHO estimates, 47% (6.6 million) of the estimated 14.2 million people eligible for treatment in low- and middle-income countries were accessing lifesaving antiretroviral therapy in 2010, an increase of 1.35 million since 2009 (UNAIDS, 2011).

[25] An academic study involving more than 200,000 children between the ages of 6 months to 5 years found that administering vitamin A supplements to children reduced the mortality by 24% in low- and middle-income countries (Mayo-Wilson et al., 2011).

sary in order to be able to record basic information of the donors we would attract (age, gender, amount donated, etc.) and to have a proof and a record of the amount collected (See Appendix 1 for an example of a voucher).

Pre-printed vouchers would enable us to observe preferences of individuals depending on easy-to-observe characteristics. With basic econometric models, this information could be used in further studies to predict the choices of individuals depending on their characteristics. It would also help us in increasing our trustworthiness, by showing that we have something pre-arranged to carefully record donations.

Furthermore, we would give the possibility of leaving the emails on the vouchers, so that we could refer to further communications when answering some of the potential questions that people may have.

Once everything is set up we would wait people to come. We would keep on the table the KU Leuven pens, the vouchers that donors would have to fill in after the donation would be made and two of the four boxes that would be alternated. Indeed, we would always keep two boxes on the table, but every 30 minutes we would interchange the boxes, so to have the following combinations: (i) A+B-, (ii) A+B+, (iii) A-B+ and (iv) A-B-. We would display each combination more than once in order to increase the precision of the experiment.

These four combinations are indeed compulsory in order to avoid any bias and thus having flawed results. Combinations A+B+ and A-B- are needed in order to observe how people perceive differently messages A and B. This is equivalent to a reference group. Ideally, we would like to create two messages in such a way that people are indifferent choosing between A- and B-, and between A+ and B+. If we could be sure that this was the case, we would not need to test for A-B- or A+B+. However, as the messages are intrinsically different (i.e., in the sense that they refer to two different projects), we cannot really be sure that we managed to truly create two "similar" messages. It might be that for whatever reason, people have intrinsic preferences for one message rather than the other, so that, for instance, in both A-B- and A+B+ they prefer donating to A. Therefore, we need to include this comparison to understand how things actually work in this "baseline case".

In order to illustrate this, supposing that we observe that when combining A+B- we see that 60% of people donate to A (that is, the opposite of what we would expect). One might be led to conclude that negativity bias does not actually hold. However, it may simply be that people like message A more than message B. Now, assuming that we check also the combination A+B+ and we see that in this case 80% of the people donate to A. This would mean that negativity bias actually worked. Indeed, people preferred message A over message B to begin with (i.e., when A+ is combined with B+), but then if message B is framed negatively, some of them shift their preference towards message B. Message A is still preferred over message B on average, but there has been a significant shift in preference due to the negativity bias. Of course, the messages were written so that we believe that whenever faced with the combinations A+B+ and A-B-, people are indifferent between choosing A or B, so that people donations are close to 50%-50% but we would still need to check for that, as otherwise our conclusions could be distorted.

Ideally, people would come to the table and we would tell them that "*We are students from the university collecting charity donations to be sent to support two aid projects*". We would explain that if they donate 1€ we would give them

one KU Leuven pen in return and we would allow them to choose to which project they want the money to go.

Moreover, we would tell them that for each donation made we will match their donation with another euro coming from the university, so that 2€ would actually be sent to support the project. This would allow to increase total contributions since matching grants is the policy that has the largest positive impact on donors' behaviors, that is, the policy that allows for the largest return on total donations to charities (Eckel & Grossman, 2008).

Furthermore, if someone would decide to make a donation, we would give him a pen and we would bring forward the two boxes with the two messages, asking to have a look at the two messages concerning the two projects and to put the amount in their preferred box. It would always be very important to pay attention to indicate the two boxes at the same time (e.g. by pushing them towards the donor together at the same time) so to not prompt any choice.

Finally, if a donor wonders why we make them choose between two projects rather than choosing ourselves, we would have to avoid telling the real aim of the experiment in order to avoid donors' choice to be distorted. We could, for instance, say that we would like to support both of the projects and we thought that leaving the choice to the donors was a more appropriate way of splitting the money than deciding for them.

Ideally, we would collect as many donations as possible in order to obtain findings that are the most representative of the population. Nonetheless, as the results will be based on the desire of individuals to donate their own money, we understand that the number of respondents could be not as large as expected. We thus have to approximate the minimum number of subjects that would be needed in order to allow us to draw sound conclusions that are not flawed by the law of low numbers[26].

A rule of thumb in psychological experimentation is that 20 participants in each condition (i.e., in each combination) is usually the lower bound limit. Nonetheless, as it is not a laboratory experiment but a field one, the number of respondents should obviously be larger. Indeed, since field experiments are more likely to be subject to noises and biases due to the lack of control on the environment, the number of participants should be larger in order to compensate this noisiness with a more representative sample. I believe, therefore, that the literature offering similar field experiments (e.g., experiments on framing effect or negativity bias or, alternatively, any other experiments involving people in the street) would give a good approximation of the minimum number of observations that is required.

I am aware of four similar experiments that can help us to determine the number of participants that would be enough.

First, Tversky & Kahneman (1981) collected data on the effects of variations in framing from groups of students ranging from 77 to 200 who answered brief questionnaire in a classroom setting.

Second, Das et al. (2008) obtained data on the effectiveness of eight different fundraising messages from passersby in the vicinity of a university campus of a large city and 160 of them agreed to participate.

[26]The law of low numbers states that extreme or contradictory outcomes are more frequent in small samples than in large samples, because a large sample is less likely to stray from the expected outcome (Kahneman et al., 1982).

Third, Hilbig (2009) conducted three experiments to demonstrate that more negative instances are deemed more veridical. His first two experiments were conducted as online-surveys, while his third experiment was run using simple 1-page questionnaires dispersed to a community. With respect to the first experiment, 110 participants were recruited and randomly assigned to one condition amongst two. Concerning the second experiment, 38 participants were recruited and randomly assigned to one of two groups. With regard to the last experiment, 33 participants were recruited and randomly assigned to one condition among two.

Fourth, Moriarty (1975) conducted two field experiments on the responsiveness of 72 bystanders who were witnessing a theft depending on the level of prior commitment with the victim.

Based on these four illustrations and the rule of thumb, I would personally set the number of respondents that would be needed for our field experiment to, on average, 25 donors in each of the four combinations, with strictly not less than 20 donors in any of them. This means that we would expect the total number of donors to be 100.

Moreover, I think that conducting a one-day pilot prior to the full-scale experiment would be helpful to improve the experiment by detecting the small errors and thus avoid them during the actual field experiment. More especially, it would also give us the opportunity to see how many people are, on average, willing to participate in our experiment, and we could therefore adapt it by increasing the required number of days to meet the minimum number of participants we would have previously decided based on the related literature or we could increase the minimum size of the sample if we find that many people are willing to participate in our experiment.

One may wonder why we would observe real monetary donations involving cash transfers instead of hypothetical donations. We could have thought, for example, of a laboratory experiment where we would ask people in which project they would choose to donate if we would give them the money.

This method has for first advantage the fact that it would be easier to determine the exact number of respondents as it would depend on the number of subjects we would be willing to survey instead of depending on the number of people who would be willing to donate to charities. The number of respondents would be in this case independent of the number of people who would be willing to give their own money, which is very hard to estimate before the actual implementation of the field experiment.

Furthermore, this method has for second advantage that it would allow us to have a larger sample than if we would apply the method detailed *supra* which involves real monetary donations. Indeed, I believe that people would be more willing to fill in a survey where they simply have to choose one project among two rather than actually giving money. The conclusions drawn from a larger sample have the benefit to be more pertinent in a sense that it better shows the reality.

Third, as laboratory experiments are usually conducted in a closed environment where all variables that we are not testing and that could modify the outcomes are controlled, laboratory experiments are usually less noisy. Field experiments are in fact subject to factors that change the way respondents behave and that are much harder to keep constant across the whole process. Conducting a laboratory experiment where we would ask respondents through a questionnaire to choose between two projects in a classroom setting would indeed induce a less noisy experiment.

Nonetheless, the study would be designed as detailed *supra* in order to also being able to measure the magnitude of the negativity bias and the framing effect. If the experiment

was limited to observing the choice of the individuals among two options, it would not be possible the collect information on the amount of money people would wish to donate. In contrast, if we would give the opportunity to respondents to both choose between one of the two projects and to state how much money they would be willing to donate for the chosen project, the hypothetical amount would probably be biased upwards as people tend to overstate their hypothetical donations in comparison to the real amount of cash donations that is collected. Therefore, since hypothetical donations are typically between two to eight times[27] larger than cash payments (Brown et al., 1996; Champ et al., 1997; Navrud & Veisten, 1996), it would be literally impossible to correctly measure the magnitude of the negativity bias.

Moreover, I believe that using real monetary donations would lead to less biased results because people indeed think much more and behave more as they would behave in real life when there is real money at stake. Furthermore, this incentive-compatible method would lead respondents to both truthfully report their donations and to choose their preferred project as they will donate their own money and are therefore more likely to truly reveal their preferences.

IV. Expected results

With respect to the findings, we expect them to show that the negativity bias and the framing effect have a significant impact on charity donations. In other words, we expect that donors would choose significantly more the project that states the negatively framed message than the project that states the positively framed message, while we also expect them to be indifferent between the two projects when faced with both positive messages or negative messages together. See figure 1 for an example of the expected results.

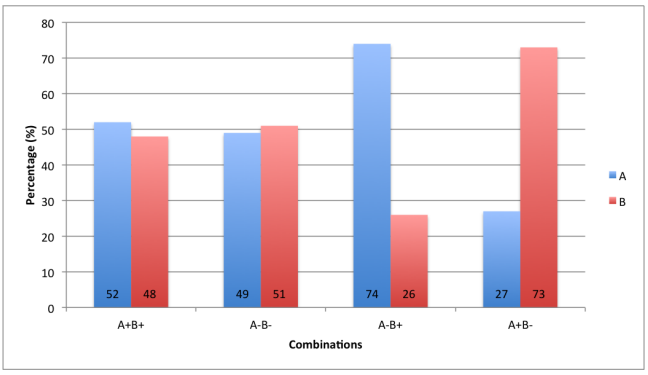


Figure 1. Percentage of donors choosing project A and project B for the reference groups (A+B+ and A-B-) and the treatment groups (A-B+ and A+B-).

Implications in the real world

As we have seen through the present paper, many pieces of evidence of the negativity bias and the framing effect have been demonstrated in the previous literature. However, if implemented, the field experiment detailed in this paper would allow to observe whether the negativity bias occurs in the domain of charity donations and more importantly, to what extent.

Implications in the real world are multiple. If the expected results are in line with the real observations, it would mean that the negativity bias exists and that it has a significant impact on individuals' behaviors.

More importantly, the results of the field experiment would enable us to draw conclusions on types of messages that charity institutions should use to attract as many donors as possible. Indeed, it would give them insightful details on how to write their key message or slogan. Those (almost)

[27] This ratio increases to two to ten times if Contingent Valuation (CV) payments (valuation of non-market resources, for instance, the view of a mountain or the biodiversity) are compared with the actual cash equivalent (Seip & Strand, 1992; Duffield & Patterson, 1992; Navrud & Veisten, 1996; Champ et al., 1997).

costless improvements would help them to differentiate from other institutions in a very competitive market and help them to reach their fundraising goals more easily.

In a broader extent, the results will also demonstrate whether charitable giving are merely the consequence of altruism or not. If the assumptions mentioned above actually hold, it means that donations to charity are not only ruled by altruism but rather by economic laws, behavior of peers and factors that still need to be discovered. Charity institutions that understand and apply these issues in their fundraising campaign are more likely to achieve great causes.

Appendix

Appendix 1

VOUCHER

Date:

.....

Name and Surname:

.....

Gender: M / F

Age: .....

Has donated .....€ for supporting the charity project A / B

The University K.U. Leuven will add 1€ to the donation.

Signature of the donor:

.....

If you wish to remain informed about the total amount raised and the future development of the projects, please leave us your email:

.....

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