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# Do Contexts Matter for Willingness to Donate to Natural Disaster Relief? An Application of the Factorial Survey

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**Abstract**

Research on charitable giving mostly investigates the effects of various donor characteristics on willingness to donate. Analyzing intentions of charitable giving to natural disaster relief, the first aim of this article is to show how situational characteristics of the recipients—that is, country contexts and disaster specificities—matter. Theoretical propositions for the effects of recipient contexts and donor attributes are derived from basic mechanisms of prosocial behavior that appear recurrently in the interdisciplinary literature. A factorial survey is used to investigate the impact of context variations. Introducing this method to the study of charitable giving is our second objective. Multilevel analyses based on a sample of 430 German students show that the effective allocation of donations and a devastating catastrophe in a needy country such as Bangladesh yield the highest contributions. In addition, the national in-group is treated favorably. Among donor characteristics, prosocial values and empathy are relevant.

**Keywords**

prosocial behavior, transnational charitable giving, natural disaster, factorial survey

## Introduction

Private donations to natural disaster relief campaigns are a well-known example of prosocial behavior in general and of charitable giving in particular. Donations to the

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victims of the 2004 South-East Asian tsunami and the earthquake in Haiti in 2010 are evidence of an individual readiness to help others in need, crossing national borders. Although difficult to assess, private donations in emergency situations account for roughly 10% to 15% of global funding for humanitarian assistance (National Intelligence Council, 2001). Individual charitable contributions to overseas development and emergency relief have increased over time: For the United Kingdom, Atkinson, Backus, Micklewright, and Schnepf (2008) show that private donations to charities of this category have grown at a rate of 7.5% per annum since 1978. Although the growth is far from steady, giving to these charities has increased faster than giving for other causes.

Although the literature on charitable giving is vast (Andreoni, 2007; Bekkers & Wiepking, 2007), little is known about the determinants of individual charitable donations to victims of natural disasters depending on details of the disaster. Fluctuations in private donations to humanitarian aid give the impression that the characteristics of the country and the context of the disaster may trigger quite different amounts of money. Outstanding emergencies such as the Ethiopian famine at the beginning of the 1980s and the 2004 tsunami in South-East Asia exhibit peak levels of donations, whereas other humanitarian crises seem to be neglected (Atkinson et al., 2008; Radtke, 2007).

Our contribution to the research on prosocial behavior and charitable giving is twofold. The primary concern of the article is to shed light on the conditions that influence intended charitable giving to natural disaster relief in different country settings. Drawing on central theoretical concepts from the literature in sociology, social psychology, and economics, we seek to explain both context-specific and individual-level variation in the stated willingness to give money for such purposes. Our second aim is methodological. A factorial survey approach is used to empirically test our propositions. This method of presenting respondents with hypothetical donation scenarios that experimentally vary combinations of factors deemed theoretically relevant, and asking them to state the amount of money they would most likely donate, is new to this field of research. It will be demonstrated how this method can be fruitfully applied to examining prosocial behavioral intentions. In our study, 430 German undergraduate students were asked to rate several donation scenarios that varied with the country where a natural disaster occurred, the severity of the disaster, the perceived effectiveness of allocating donations, and the donating behavior of other people. In a follow-up questionnaire, students' prosocial motivations were elicited.

The article is organized as follows: The relevant sociological, psychological, and economic concepts are introduced in the second section and empirically testable propositions derived. The third section provides details on the factorial survey approach and describes its implementation in our study. Our major findings are presented in the fourth section. Some brief comments on the structure of our data are followed by an assessment of the influences on individual willingness to donate exerted by the dimensions in the hypothetical donation scenarios. Then the effects of donor characteristics are presented. The article concludes with a discussion of our results and implications for future research.

## Theoretical Considerations

Various sociological, social psychological, and economic approaches to charitable giving and prosocial behavior offer insights into what conditions determine private donations to disaster relief. The literature can be divided into survey-based analyses of sociodemographic correlates of reported charitable giving and experimental studies of explanatory mechanisms (Bekkers & Wiepking, 2007). To generate theoretical propositions, this study primarily takes up the latter strand of mechanism-oriented research. Although many diverse concepts are employed, a small number of recurrent basic mechanisms are at work. These vary according to their emphasis on recipient and emergency characteristics on one hand and donor characteristics on the other hand. Many approaches of the first type broadly refer to the mechanisms of "recipient benefit" and "similarity," whereas the latter relate to "generalized reciprocity," "prosocial norms and values," "empathy," and "costs of giving."

### *Recipient Characteristics*

*Recipient benefit.* Giving money to charity is costly for the donor in material terms. Donating money via intermediary organizations—the usual way of charitable giving today—reduces the donor's financial resources without her receiving a reciprocal reward. The classic approach in the economics of charity provides two solutions to this paradox (e.g., Andreoni, 1989, 1990, 2007; Halfpenny, 1999). In the public good solution, the donor derives utility from the fact that recipients are being helped. The higher the expected utility for the recipients, the more likely it is that the donor is willing to contribute because her own costs are balanced by recipients' benefits. Although recipients obtain help as a private good, donations to natural disasters are also understood as a public good as they contribute to the reconstruction of local infrastructure and the maintenance of social stability. However, a donor has an incentive to free ride on the donations made by others and might regard her own donation as being substitutable by those made by others. As a consequence, donors might refrain from contributing altogether and the public good is not provided. This divergence between individual and collective interest indicates a classic situation of social dilemma (Ostrom, 1990). At this point, the second solution comes into play: The donor derives utility from the fact of giving itself. The "warm glow" of giving (Andreoni, 1990) rewards her with a psychic benefit of doing good. Although, in a strict sense, this approach states that a very small donation suffices to elicit the warm glow no matter if the money gets through to the needy or not, it can be argued that the psychic benefit rises if the donation has a positive and sizable impact.

Taken together, these solutions assume that, faced with personal costs by giving money to charity, donors want recipients to gain maximum utility from their contributions. These considerations lead us to the first proposition:

*Proposition 1*: Perceived recipient benefit positively influences willingness to donate.

From this proposition, the question arises in what circumstances the recipients' benefit from humanitarian aid is likely to be high. From the interdisciplinary literature on helping in emergencies and charitable giving, four conditions can be identified. First, a natural disaster occurring in a country with a poor infrastructure, weak government power or a strained financial situation will put the victims into a more severe emergency than a catastrophe occurring in a country with a good infrastructure and a functioning government that has the means to help immediately. The expected recipient benefit of a donation will be higher in needy countries than in affluent countries, and thus willingness to donate will be higher for the former (Proposition 1a—neediness). This argument is in line with findings from classic social psychological research on the perceived need of help (Berkowitz, 1968; Schwartz, 1975; Wagner & Wheeler, 1969). A study on intentions to donate money to international relief organizations further supports our argument (Cheung & Chan, 2000). In addition, Taormina and Messick (1983) show that ratings for a country's deservingness for nonmilitary foreign aid increase with the country's perceived need.[1]

Second, the utility a recipient derives from a donation increases with the severity of the natural disaster itself. The greater the degree of damage and lives lost, the more a donation benefits the survivors to rebuild their homes and infrastructure (Proposition 1b—severity of disaster). There are only a few studies to date investigating the relationship between readiness to help and severity of an emergency. Field experiments on emergency intervention in everyday situations seem to indicate that the readiness to help increases with the severity of the emergency as long as the costs of helping – for example, the risk of getting injured – are not too high (Bierhoff, 2002, p. 23; pp. 185-186). According to historical data on major natural disasters in Switzerland, a strong positive correlation exists between the amounts of damage and money donated (calculated from data in Pfister, 2002, pp. 242-244).

Third, the victims of natural disasters can only benefit if donations end up at the place of emergency and are not siphoned off beforehand. The perceived effectiveness of the charitable donation is thus another crucial factor determining individual willingness to give money to disaster relief. Donors lacking information about the quality of work done by humanitarian organizations (e.g., via media reports) might distrust appeals for money altogether (Proposition 1c—effectiveness of allocation). Qualitative research has shown that donors refrain from giving money if they doubt that their contributions will get to those in need (Atkinson & Eastwood, 2007; Radley & Kennedy, 1995). Again, the study of Taormina and Messick (1983) supports this argument: Ratings of the deservingness of recipient countries increase with the perceived effectiveness of foreign aid. This is the single most powerful effect on respondents' judgments.

Finally, other donors' behavior might be relevant. So far the interplay between donors' costs and recipients' benefits has been viewed as an isolated transaction. However, recipients' marginal utility from an additional donation diminishes when a large number of people have already given money. It might even be the case that humanitarian organizations cannot use the donations immediately. Thus, willingness

to donate should decrease with increasing numbers of other donors. Furthermore, from the public good perspective mentioned above, situations in which many people contribute typically induce free rider problems that might preclude additional financial contributions.[2] However, contrary to these expectations, the concept of conditional cooperation predicts a positive relationship between the portion of other people donating and individual willingness to donate (Frey & Meier, 2004). In the context of transnational charitable giving, conditional cooperation may refer to a donor interpreting the contributions by others as a signal for the quality of humanitarian organizations and the effectiveness of their work. Empirical evidence supports the conditional cooperation rather than the diminishing marginal utility view of Proposition 1d on the financial contribution of other donors (Frey & Meier, 2004; Ray, 1998).

*Similarity*. Similarity between donor and recipient is an important concept to explain charitable giving.[3] According to social identity theory (Tajfel & Turner, 1986), individuals organize themselves and the social world around them in categories minimizing differences within categories (the in-group) and maximizing differences between categories (toward out-groups). Belonging to the in-group enhances social identity and provides emotional stability. This sense of "we-ness" creates a bias toward preferential treatment of in-group members. Hence, categorizing victims of natural disasters as members of her own group increases the donor's willingness to donate. Categorization may be based on characteristics such as nationality, class and status, religion, race, language, or culture; yet, as the "minimal-group" experiments show, arbitrary traits also trigger in-group bias (Tajfel, Billig, Bundy, & Flament, 1971). A sociological approach to similarity was introduced by Lazarsfeld and Merton (1954). The principle of homophily captures an individual's tendency to interact with similar others (McPherson, Smith-Lovin, & Cook, 2001). The mechanism of empathic concern complements these notions. A sense of belonging to the same group facilitates the arousal of empathic concern and elicits reciprocity. Empathy in turn leads to prosocial behavior because the donor takes on the perspective of the victims and develops an interest in their well-being (Dovidio, 2001; Penner, Dovidio, Piliavin, & Schroeder, 2005).

There is a vast body of studies supporting the notion of similarity inducing prosocial behavior. For example, Krebs (1975) reports that subjects believing to be similar to the performer of an experiment identified most strongly with his plight. When they were required either to help him or themselves at some cost, similar subjects behaved prosocially. Standard experimental games (e.g., dictator games) show that the in-group bias can be observed for participants grouped according to their preferences for paintings by Kandinsky over Klee (Yamagishi & Kiyonari, 2000). Bekkers and Wiepking (2007, p. 30) cite several field experiments on helping behavior showing similarity effects for religion, race, gender, social attitudes, and even sharing the same birthday.

These considerations lead us to the second proposition:

*Proposition 2*: Similarity between donor and recipient characteristics positively influences willingness to donate.

In one respect, this proposition is at odds with Proposition 1: While we argued above that differences—rather than similarities—in affluence between the recipient's country and the donor herself increase willingness to donate, we expect similarity to be decisive along all other dimensions.

## Donor Characteristics

*Generalized reciprocity*. While we understand similarity as a match between donor and recipient characteristics, we specify the concept of generalized reciprocity as helping behavior induced by a norm of reciprocal obligation based on the donor's own experience with suffering and plight.

The norm of reciprocity figures prominently in the interdisciplinary literature on prosocial behavior (Batson, 1998, pp. 288-289; Bierhoff, 2002, p. 262; Gouldner, 2005; Mauss, 1970; Penner et al., 2005, pp. 367-368). According to Gouldner (1960), relations with mutual obligations are part of societies' social conduct, and the norm of reciprocity demands that people should help those who have helped them. As universal as this norm might be, it is not directly applicable to the context of international humanitarian aid as monetary contributions are usually made via intermediary organizations. In this anonymous setting, donor and recipient do not know each other and are thus not able to fulfill their mutual obligations personally. However, the concept of *generalized* reciprocity is applicable to our question. It refers to a norm of reciprocal obligation that prescribes helping independently of an exact time, amount, or even addressee of repayment (Sahlins, 1965, p. 147). The obligation to help is generalized to a common attribute between donor and recipient; we identify the past experience of plight as such a common attribute. In principle, generalized reciprocity is applicable to future and past events: Reciprocal obligations can be based on anticipated help by others when the donor herself will be in need and on the donor's past experience of suffering. In our study, we implement the latter notion. A donor having fallen victim to a natural disaster or other emergencies should be more willing to give money to such a charitable cause than someone lacking such experience. From this argument, we derive the third proposition:

*Proposition 3*: Generalized reciprocity positively influences willingness to donate.

*Prosocial norms and personal values*. Both in the sociological and social psychological literature, prosocial norms are frequently mentioned as an explanatory factor of prosocial behavior. Certain social norms and personal values such as social responsibility, beneficence, equality, and justice define other-regarding behavior as accepted and expected acts (Batson, 1998, p. 288; Penner et al., 2005, pp. 367-368; Schroeder, Penner, Dovidio, & Piliavin, 1995, pp. 84-86). Giving money to charity is one way of conforming to these rules. In contrast to norm compliance that is based on external mechanisms such as social expectations, sanctions, and rewards, Schwartz (1977)

explains prosocial behavior with an internalized personal norm. Once activated, it exerts a feeling of moral obligation to help. Following these self-expectations by giving money to charity, donors avoid cognitive dissonance and maintain a coherent self-image (Schwartz, 1977, p. 226). Empirically, Ray (1998) finds moral obligation to be an important and consistent factor motivating donations for developing countries.

In addition to these considerations, personal religious standards such as the Christian principle of benevolence (Luke 10, 25-37) have a positive influence on financial contributions (Wuthnow, 1993). Bekkers and Schuyt (2008) show that religious principles explain charitable contributions for nonreligious causes (including international charities), whereas church membership and attendance of services predict giving for religious causes. Rajan, Pink, and Dow (2009) present evidence that religiosity motivates contributions to overseas development and disaster relief more than domestic giving. Both social and personal standards that motivate volunteering and charitable giving are typically learned through socialization. Once internalized via observational learning from parental and other role models and through social reinforcement in childhood and adolescence, these traits are assumed to be quite stable over time and guide prosocial behavior (Rushton, 1982). Several empirical findings support this argument (Bekkers, 2005; Lee, Piliavin, & Call, 1999; Wilhelm, Brown, Rooney, & Steinberg, 2008).

These arguments lead us to the fourth proposition:

*Proposition 4*: Prosocial norms and personal values positively influence willingness to donate.

This proposition comprises three parts: Donors are more willing to contribute money to charity if they feel morally obliged to donate (Proposition 4a), are guided by religious principles (Proposition 4b), and learned to donate during their childhood and adolescence (Proposition 4c).

*Cost of giving*. As mentioned above, giving money to charity is costly. One and the same donation in absolute terms is more costly for a donor in a lower income group as she gives away a higher proportion of her income than a donor in a higher income group. Due to such budget restrictions, willingness to donate should be positively influenced by income. Several studies demonstrate that increases in income make donations more likely, both to domestic and overseas causes (Micklewright & Schnepf, 2009; Rajan et al., 2009; Ribar & Wilhelm, 1995). These considerations lead us to the fifth proposition:

*Proposition 5*: Willingness to donate is negatively influenced by the relative cost of giving.

*Dispositional and situational empathy*. Empathy and compassion appear to be universally valid emotions (Schroeder et al., 1995, p. 65). However, empathy as a personality

trait has to be separated conceptually from empathy elicited from an encounter with an emergency. The concept of "altruistic personality" takes up this differentiation: It refers to *dispositional* empathy which is different from situational empathy (Batson, Bolen, Cross, & Neuringer-Benefiel, 1986; Oliner & Oliner, 1988; Schroeder et al., 1995, p. 176). The disposition to feelings of empathic concern is assumed to be an important dimension of the altruistic personality (Dovidio, Piliavin, Schroeder, & Penner, 2006, p. 232). Such personality traits are particularly relevant for planned help such as giving money to charity (Piliavin, 2001, pp. 413-414; Schroeder et al., 1995, p. 171). These traits are said to be relatively stable over the life course (Penner et al., 2005, p. 374; Schroeder et al., 1995, p. 183). Yet, individuals differ in the extent of their dispositional empathy and thus in their probability of donating when being asked (Bekkers, 2006, p. 351). Furthermore, individuals with more pronounced dispositional empathy selectively look for situations in which they can express their feelings.

There are several studies supporting the impact of empathy as a personality trait. Davis (1983) used a health telethon to show that dispositional empathy for the suffering of others increases donating behavior. Analyzing the influence of several personality traits, Bekkers (2006) and Bennett (2003) find that a disposition to empathic concern raises the probability of giving money to charitable causes. Therefore, we conclude in the sixth proposition:

*Proposition 6*: An altruistic personality positively influences willingness to donate.

From the perspective of *situational* empathy, prosocial behavior does not only exhibit *inter*-personal variation but also varies *intra*-personally according to the individual concern that is induced by a concrete emergency. We assume that the willingness to respond to a natural disaster depends on the donor's knowledge and familiarity with the country context. Detailed information about a country should make a donor more concerned about the victims and raise her readiness for monetary help. For example, if a donor knows a country from work-related visits, vacation, or out of personal interest, she will feel more affected by a disaster. In particular, this holds for countries which are perceived as needy while it will be less pronounced for countries which may be able to master the situation themselves. We therefore expect willingness to donate in a particular situation to be *moderated by country knowledge* and we formulate the seventh proposition:

*Proposition 7*: Willingness to donate increases with a person's knowledge about the country of the disaster context, and this effect rises with a country's neediness.

*Mediated effects*. With regard to overseas donations, women seem to be more generous than men, both in the probability of giving and the amount given (Micklewright & Schnepf, 2009; Piper & Schnepf, 2008; Rajan et al., 2009), although empirical results are mixed (Bekkers & Wiepking, 2007, pp. 14-15). These gender differences may be

attributed to different social roles occupied by men and women (Piliavin & Charng, 1990, p. 34). The traditional role of women is associated with the expectation to help those in need and get involved in charity; such prosocial norms might be internalized during socialization and might crystallize in an altruistic personality. Hence, in the eighth proposition, we expect the following:

*Proposition 8*: The potential *gender* effect on willingness to donate is mediated by prosocial norms and altruistic personality.

In summary, our theoretical considerations show that a limited number of repeatedly found mechanisms of prosocial behavior can be fruitfully integrated into an analysis of charitable giving to natural disaster relief. Although empirical research is normally confined to donor characteristics, in this article, the country contexts of recipients have been given an equal weight and it is demonstrated how they can be included in a theoretical model. Having identified theoretically relevant determinants on individual willingness to donate, we now turn to the empirical test of our propositions. Our focus on variations in the disaster contexts as well as the recipient characteristics necessitates a methodology that we would like to introduce to research on charitable giving: the factorial survey method.

## Study Background and Method

### *Factorial Survey Approach*

The factorial survey approach—also called vignette analysis—combines elements of experimental research with sociological surveys to uncover respondents' judgments of social objects, situations, or behavior (Jasso, 2006; Rossi, 1979; Rossi & Anderson, 1982; Wallander, 2009). Respondents evaluate a set of fictive descriptions of an object, person, or occurrence (called vignettes) in which factors/dimensions and their different levels/values are experimentally manipulated. This approach has been applied to study social norms, including just earnings (Jasso & Webster, 1999) and protest norms (Jasso & Opp, 1997) as well as intentions to donate organs (Gross & Kriwy, 2008) and to drink and drive (Thurman, Jackson, & Zhao, 1993).

The advantages of this method become visible when contrasted with conventional survey methods (Wallander, 2009). First, because respondents are confronted with detailed and realistic scenarios, the conditions that influence their judgments can be investigated. It is thus possible to analyze conditional research questions. Second, the social desirability bias is reduced because respondents indirectly reveal their attitudes or behavioral intentions by evaluating fictive persons or situations rather than being asked directly. Third, respondents are not always aware of the determinants guiding their judgments or intentions and are thus not able to voice them in a conventional survey. The factorial survey approach makes it possible to study these determinants as respondents essentially rate an object or situation.

For these reasons, vignette analysis is an appropriate method for analyzing determinants of respondents' willingness to give money to disaster relief. We also favor vignette analysis because presenting concrete disaster scenarios makes it easier for respondents to state their willingness to donate subject to specific recipient characteristics. Moreover, the method allows us to analyze each determinant's relative strength on the respondents' decision to donate. The disadvantage of our approach is that it does not measure respondents' actual behavior but their hypothetical intention to give money to charity. However, surveying donation behavior retrospectively is also inflicted with specific problems, for example biases due to memory distortion.

## *Implementation in Our Study*

Our vignette analysis consists of four elements: a population of fictive situations from which sets are produced and to which respondents are allocated, a rating task, a follow-up questionnaire, and a sample of respondents. In the first part of the questionnaire, respondents were asked to rate several fictive descriptions of a natural disaster scenario in terms of the money they would most likely donate; with this vignette questionnaire, we test Propositions 1 and 2 on the influence of recipient characteristics on willingness to donate. The second ("follow-up") part of the questionnaire is used to elicit respondents' characteristics and empirically test Propositions 3 to 8 on donor characteristics. Although there were eight different versions of the vignette questionnaire, the follow-up questionnaire was identical for all respondents.

*The vignettes*. Each hypothetical disaster scenario has several dimensions with several levels. These depict the characteristics of the emergency situation supposed to be relevant according to our theoretical model. In Propositions 1 and 2, "recipient benefit" and "similarity" were identified as determinants of willingness to donate in different country settings. For recipient benefit, four propositions were specified with regard to the conditions affecting recipient benefit from a donation: "neediness," "severity of disaster," "effectiveness of allocation," and "financial contribution of other donors."

Countries (Vignette Dimension A) were used as disaster contexts to operationalize both neediness (Proposition 1a) and similarity (Proposition 2). To assure a realistic description of disaster scenarios, we decided—after pretesting—to introduce countries as holistic entities with their real names. Doing so, it must be borne in mind that countries are defined not only by these two variables but also by other potential characteristics respondents might think of. To avoid confounding effects, countries were selected that are unambiguously needy or similar to the donor's home country (Germany). Table 1 contains the countries chosen (column 1) and the selection criteria applied. A country's neediness was assessed by GDP per capita (column 2) and its similarity with the donor's home country in terms of overall cultural resemblance (column 3). Recipient countries are considered to be similar to Germany when Germanic or Romance languages are spoken, Western and occidental religious traditions prevail, and the structure of the state is democratic and capitalistic.

**Table 1.** Levels of Vignette Dimension "Country" According to Neediness and Cultural Similarity Between Recipient and Donor Country.

| Country | GDP per capita (US$) 2008[a] | Overall cultural similarity[b] |
|---|---|---|
| Germany | 44,660.41 | Perfect |
| Switzerland | 67,384.52 | Very high |
| Romania | 9,291.70 | Medium |
| Japan | 38,559.11 | Low |
| China | 3,315.32 | Very low |
| Bangladesh | 506.05 | Very low |

[a]Source: International Monetary Fund, World Economic Outlook Database.
[b]The classification summarizes language, religion, and state structure as elements of cultural resemblance between recipient and donor country.

Apart from Germany as a recipient country itself, Switzerland and, to a lesser extent, Romania are culturally similar to Germany when compared with the other vignette countries. In contrast to Germany and Switzerland as wealthy countries, however, Romania belongs to the poorest countries in Europe. Being of similar affluence to Germany, but not part of the Western cultural tradition, we chose Japan as a further instance. Likewise, China and Bangladesh are culturally distant, but, in contrast to Japan, poor countries. This selection of countries allows us to disentangle effects of neediness and similarity in our empirical analyses.[4]

Turning to the remaining three conditions of recipient benefit, the severity of the disaster (Proposition 1b) is depicted by buildings and streets being destroyed and the number of people without shelter (Vignette Dimension B). Three levels were given: 1,000 homeless persons, 12,000 homeless persons, and 45,000 homeless persons. The allocation of donations varied in its perceived effectiveness (Proposition 1c). In Vignette Dimension C, three levels were chosen: a small portion, half, or a large portion of the donations reaches the victims. Assuming that the donor receives information about others, we use the number of other donors to operationalize respondents' diminishing marginal utility and conditional cooperation to operationalize Proposition 1d. The corresponding Vignette Dimension D is set up with two levels: So far, a few, or a large number of, people have donated money. The levels of dimensions C and D are specified in such a way that the range of possible scenarios—from small to large—is covered. This was not possible for dimension B because the number of victims is open-ended. Here, we refrained from presuming exceptional disasters like the East-Asian tsunami with an estimated 1.7 million displaced persons and chose rather moderate amounts.

Table 2 summarizes the context-dependent determinants of charitable giving derived from our theoretical model, the four vignette dimensions, and their respective

**Table 2.** Context-Dependent Theoretical Propositions and Vignette Dimensions With Respective Levels.

| Theoretical propositions | Vignette dimensions | Levels | *N* |
|---|---|---|---|
| (1a) Neediness and (2) cultural similarity | (A) Country | (1) Japan<br>(2) Switzerland<br>(3) China<br>(4) Romania<br>(5) Germany<br>(6) Bangladesh | 6 |
| (1b) Severity of disaster | (B) Number of homeless persons | (1) 1,000 homeless persons<br>(2) 12,000 homeless persons<br>(3) 45,000 homeless persons | 3 |
| (1c) Effectiveness of allocation | (C) Amount of allocated donation | (1) Small portion<br>(2) Half<br>(3) Large portion | 3 |
| (1d) Financial contribution of other donors | (D) Number of other donors | (1) A few people<br>(2) A large number of people | 2 |
| Population of vignettes | | | 108 |

levels. Figure 1 depicts an example of a donation scenario. Vignette dimensions are printed in bold. The population of vignettes consists of all possible combinations of the levels of dimensions: $6 \times 3 \times 3 \times 2 = 108$. There were no vignettes for the combination "Germany" or "Switzerland" and "a small portion of donations gets through" because these situations were deemed to be unrealistic. Beck and Opp's (2001) Word macro was used to randomly assign the remaining 96 vignettes to eight sets, each containing 12 vignettes. Each set was duplicated 60 times and respondents were randomly assigned to one of the sets by shuffling the questionnaires thoroughly.

*The rating task*. In a vignette analysis, the dependent variable is generated via the respondent's ratings of fictive scenarios. There are several ways of measuring the dependent variable (Wallander, 2009, pp. 511-512). It was decided to ask respondents to rate each vignette according to the amount of money they would most likely donate in this situation. Respondents could indicate any amount of their own choice. In environmental economics, such open question formats are widely used in contingent valuation methods to elicit willingness to pay for nonmarket goods (Carson, 2000; Hanemann, 1994).[5] According to methodological research, rating 12 vignettes varying in four dimensions is a manageable cognitive task for respondents.[6] To control for ordering effects of vignettes and for stability of respondents' rating behavior in later vignette scenarios, we reestimated our models including the position of vignettes in the vignette questionnaire as dummy variables. In later vignettes, respondents'

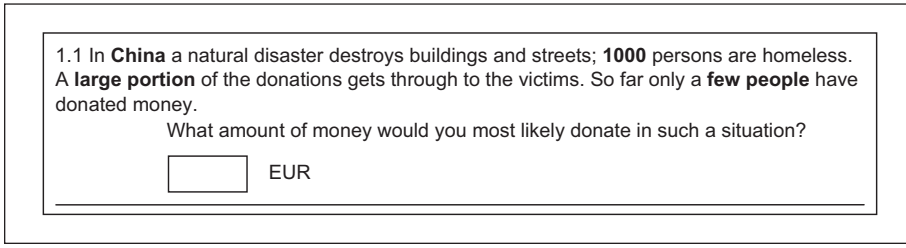


**Figure 1.** Example of vignette.

willingness to donate decreases slightly, but significantly. As the coefficients of vignette dimensions do not change substantially and the same conclusions can be drawn from either model, we present the simpler models without ordering effects later on.

*The follow-up questionnaire*. After rating the vignettes, respondents were asked to fill in a follow-up questionnaire that provides information on donor characteristics (see Appendix A for exact wording and statistical values). They are subject of Propositions 3 to 8. According to our specification, the principle of *generalized reciprocity* only holds when the donor or a person close to her has personally experienced an emergency. Respondents rated five situations (natural disaster, unemployment, poverty, illness, death) according to the distress they might have caused on a 5-point scale. We use distress to account for the severity of the experience, thereby increasing variance in our sample of young and socially privileged adults with a low probability of having lived through severe emergencies. These items are combined into an index by averaging their values. With regard to *prosocial norms and values*, distinctions were made between the donor's moral obligation, religiosity, and prosocial socialization. *Moral obligation* is a dichotomous variable with value 1 for respondents who consider disaster relief a civic duty and 0 for those who consider it the government's responsibility. To measure respondents' *religiosity*, they were asked to indicate on a 5-point scale how accurately the statement "I live according to religious principles" describes them. *Prosocial socialization* is operationalized with parental donating behavior during their childhood. Respondents had to rate four items on parental commitment to charitable causes on a 4-point scale (donations to organizations, collection in church, coins to street musicians/beggars, donation of clothes/food). To account for potential problems of incorrect memory of parental donating behavior only the two items with few *don't know*-responses were averaged into an index—collection in church and donation of clothes/food. To assess the *relative costs* of giving, respondents' monthly net income was elicited. We model it as a set of dummy variables to detect potential nonlinearities. *Dispositional empathy* is often used to designate an altruistic personality (Bierhoff, 2002, p. 248). Our respondents were asked to rate ten empathy items from the International Personality Item Pool (2009; Goldberg et al., 2006). Factor analysis was used to construct an index of eight out of ten items ($\alpha = 0.865$). To measure *situational empathy*,

we asked respondents to rate on a 5-point scale how well informed they think they are about the people, culture, and society of each vignette country except Germany (*perceived country knowledge*). *Gender* was recorded as 0 = *male* and 1 = *female*.

*The sample*. Our study was conducted at a German university in the last 2 weeks of January 2009. During this time, there was no media coverage on natural disasters, ensuring an equal study background for all respondents. In total, 430 students took part and filled in the whole questionnaire at the beginning or end of a lecture. More than half of them (57%) are female; the mean age is 23.1 years. Overall, 38.4% studied economics and 54% social sciences, with the remaining 7.6% indicating either a different degree program or none at all. This sample is a convenience sample of students. The experimental design makes it possible to test general propositions on the conditions of individual willingness to donate money to disaster relief in different country contexts. A probability sample is therefore not necessary. We limit our interpretations to the direction and size of effects, being well aware that a generalization is not appropriate.

## Results

### *Descriptive Results of Vignette Ratings' Distribution*

About 2% of all 5,160 possible ratings (430 respondents × 12 vignettes) were not made. After excluding respondents who did not evaluate all 12 vignettes, we are left with a sample of 413 respondents (4,956 ratings). Of these, 61 respondents (14.8%) would give 0 EUR in all 12 situations, and thus do not exhibit any willingness to donate to disaster relief.[7] Another 15 respondents (3.6%) may be called *unconditional donors*, as they were ready to contribute the same amount of money (greater than 0 EUR) in all scenarios. Apparently, vignette dimensions had no influence on their decision on how much to give. The remaining 337 respondents (81.6%) may be called *conditional donors* as they assigned different amounts of money to different scenarios.

Over all 413 respondents, the amounts of money donated range from 0 to 3,000 EUR.[8] On average, respondents would donate 17.05 EUR. Of the donations, 50% are below 5 EUR, indicating that most respondents would give relatively small amounts. Due to the clustering of ratings at the lower end, our dependent variable is skewed right. To avoid inaccurate estimations in our multivariate models, the dependent variable was logarithmized.[9] When we talk about "willingness to donate" in the next section, we always refer to the log of the amount of money respondents are ready to give in a certain disaster scenario.

### *Multivariate Results*

*Data structure and multilevel analysis*. Before our propositions are tested, a few words about the structure of our data and our estimation method are in order. If respondents differ in their willingness to donate from the outset and exhibit isomorphic rating patterns, the 12 vignette ratings within one respondent may be more similar than the ratings between respondents. Thus, judgments are not independent from each other. From

a statistical point of view, the assumption of uncorrelated error terms is violated, and estimating ordinary regression models would lead to inaccurate standard errors (Hox, Kreft, & Hermkens, 1991). Multilevel analysis is used to solve this problem and to estimate the effects of vignette dimensions and respondent's characteristics within one model. In general, multilevel analysis is applied when data are hierarchically structured and causal relationships at the lowest level are to be explained (Hox, 2002; Snijders & Bosker, 2004). Data from a factorial survey are structured in this way as each respondent (level 2) rates several vignettes (level 1). Vignette dimensions are the independent variables at level 1, and respondent characteristics at level 2. Interaction effects between variables of both levels are called cross-level effects and can be estimated in a multilevel model, as we will show below.

*Influence of vignette dimensions*. To simultaneously analyze the influences of vignette dimensions on the log of willingness to donate, a random intercept model was used assuming hierarchically structured data and respondent-specific levels of willingness to give. The null model in column 2 in Table 3—only containing a fixed intercept over all respondents—is the baseline model and gives us a maximum deviance that all subsequent models can be compared to. Models with lower deviance than the null model fit the data better. The random intercept only (RIO) model in column 3 assumes nested data of respondents and vignettes; again, it contains only an intercept, yet this time allowing it to vary between respondents. The likelihood-chi-square test for nested models (not reported in the table) indicates that the deviance decreases significantly compared with the null model, that is, the data are indeed hierarchically structured. The error variance components between and within respondents are both significant according to *t* tests; respondents differ in their ratings.

Column 3 presents the estimates of a random intercept model that includes all vignette dimensions as sets of dummy variables (RI-V).[10] Propositions 1a and 2 lead us to expect an increase in willingness to donate with a country's neediness and its similarity to the donors' home country. Looking at the vignette dimension *country*, the data are more in line with the notion of neediness than that of similarity. Respondents refrain from donating to affluent countries such as Japan, the reference category, and Switzerland (–0.072), despite the latter's high cultural similarity to Germany. With a regression coefficient of 0.161, willingness to donate is highest for Bangladesh as a very needy, but culturally dissimilar country. However, respondents' willingness to donate for their national in-group, Germany, is higher (0.136) than we would expect from the neediness argument. This in-group effect yields the second highest coefficient of all vignette countries. Respondents also tend to assign quite high contributions to Romania (0.130), a European country, whereas the willingness to donate to China is lower (0.055), despite its higher neediness.[11] This deviation from a need-based rank order indicates that the proposition of similarity has some explanatory power, too.

Next to neediness, Propositions 1b to 1d assume recipient benefit to vary with the other three vignette dimensions. With regard to the *severity* of a disaster, willingness to donate is expected to increase with the number of persons left without shelter because this goes along with a higher recipient benefit. Our data confirm this prediction. The coefficient of 0.132 for 12,000 homeless persons rises to 0.169 when 45,000 persons

**Table 3.** Multilevel Models of Logarithmized Willingness to Donate With Vignette Dimensions.

| | Null | RIO | RI-V |
|---|---|---|---|
| **Fixed effects** | | | |
| Intercept | 0.707 (74.86) | 0.707 (26.69) | 0.472 (14.75) |
| Vignette dimensions | | | |
| Country (ref. = Japan) | | | |
| Switzerland | | | –0.072 (3.38) |
| China | | | 0.055 (2.96) |
| Romania | | | 0.130 (7.11) |
| Germany | | | 0.136 (6.51) |
| Bangladesh | | | 0.161 (8.79) |
| Severity of disaster (ref. = 1,000) | | | |
| 12,000 homeless | | | 0.132 (9.61) |
| 45,000 homeless | | | 0.169 (12.23) |
| Allocation of donation (ref. = small) | | | |
| Half | | | 0.100 (6.54) |
| Large | | | 0.190 (12.71) |
| Number of other donors (ref. = a few) | | | |
| A large number | | | –0.093 (8.10) |
| **Random effects** | | | |
| Error variance between respondents | — | 0.276 (13.68) | 0.279 (13.76) |
| Error variance within respondents | 0.442 (49.78) | 0.166 (47.66) | 0.147 (47.66) |
| Deviance | 10,019.650 | 6,427.088 | 5,873.497 |
| Number of fixed/random parameters | 1/1 | 1/2 | 11/2 |
| Number of vignettes/ respondents | 4,956/413 | 4,956/413 | 4,956/413 |

Note: RIO = random intercept only; RI-V = random intercept model that includes all vignette dimensions as sets of dummy variables. Unstandardized regression coefficients; dependent variable: log willingness to donate (ln + 1); *t* values in parentheses.

are without shelter. We further argued that the *perceived effectiveness* of charitable giving positively influences willingness to donate. Accordingly, respondents are more generous when half of the donations get through to the victims (0.100) and even more so when a large portion of donations reach the suffering (0.190). Concerning *other donors' contributions*, we did not come to a univocal line of argument. On the one hand, recipients' marginal utility from an additional donation diminishes when a large number of people have already given money. On the other hand, conditional cooperation leads us to expect a stimulating influence on willingness to donate. Our analyses show a decrease in money contributions if the number of donors who have already given money increases from "a few" to "a large number." Contrary to the findings of Frey and Meier

(2004) and Ray (1998), this result supports the argument of diminishing marginal utility. This argument is better in line with our general proposition on recipient benefit: The more money has already been given, the less urgent additional help seems to be. Taken together, all four Propositions 1a to 1d specified in our theory and modeled in the vignette dimensions support the mechanism of recipient benefit.

If we compare the four vignette dimensions, the effective allocation of a large portion of donations exhibits the strongest effect on individual willingness to donate. The severity of the disaster and Bangladesh as a needy country context produce effects of roughly similar size. The contributions of other donors are of minor relevance for respondents' ratings. When comparing these effects, it should be borne in mind that their sizes are sensitive to the specification of vignette levels. For example, severity would probably produce even stronger effects if the number of displaced persons was set higher, whereas the potential range of outcomes was nearly covered with regard to perceived effectiveness and others' contributions.

*Influence of respondent characteristics*. How do respondent characteristics influence willingness to donate? Due to missing values in these attributes, the null model, RIO model, and RI-V model were reestimated for the reduced sample of 393 students. The estimates hardly change (see Appendix B). The respondent characteristics described above were then added and the RI-VR model in Table 4 (column 2) was estimated. Due to the randomized allocation of vignettes, the coefficients of the vignette dimensions hardly change when respondent characteristics are incorporated. We thus focus on the lower part of the table.

We made four propositions about the influence of donor characteristics on willingness to donate. In Proposition 3, we argued that *generalized reciprocity* promotes helping behavior through the norm of reciprocal obligation based on the donor's own experience with suffering and plight. Our data are not compatible with this proposition as the regression coefficient is negligible in size. By contrast, Propositions 4a to 4c on the positive influence of *prosocial norms and values* are confirmed in large part. The coefficients for moral obligation (0.172) and prosocial socialization (0.049) indicate that respondents are more willing to donate if they feel that donating is a civic duty and if they have observed their parents giving money to charity. Contrary to our expectations, respondent's religiosity does not motivate charitable giving to natural disaster relief. We should mention, however, that the part of Germany where our study was conducted can be characterized as very secular and that religion is of high personal significance for only a few of our respondents.

According to Proposition 5, the *relative cost of giving* should exert a negative influence and thus respondents should be willing to donate more money with increasing incomes. This is confirmed by the data when we compare the reference category of students with less than 500 EUR with those having more at their disposal. We do not, however, observe a linear trend: Those with a monthly income of 600 EUR and more do not exhibit a greater generosity than the middle-income group. When interpreting these results, it has to be borne in mind that our study is based on a student sample.

Proposition 6 predicts a positive influence of *dispositional empathy* as part of an altruistic personality. Indeed, the more respondents consider themselves to be empathic

**Table 4.** Multilevel Models of Logarithmized Willingness to Donate With Vignette Dimensions and Respondent Characteristics.

| | RI-VR | RI-VRg |
|---|---|---|
| **Fixed effects** | | |
| Intercept | –0.059 (0.35) | 0.280 (2.83) |
| Vignette dimensions | | |
| Country (ref. = Japan) | | |
| Switzerland | –0.079 (3.59) | –0.078 (3.56) |
| China | 0.048 (2.51) | 0.048 (2.53) |
| Romania | 0.127 (6.72) | 0.127 (6.74) |
| Germany | 0.141 (6.52) | 0.141 (6.52) |
| Bangladesh | 0.161 (8.50) | 0.162 (8.51) |
| Severity of natural disaster (ref. = 1,000) | | |
| 12,000 homeless | 0.135 (9.49) | 0.135 (9.49) |
| 45,000 homeless | 0.169 (11.80) | 0.169 (11.81) |
| Allocation of donation (ref. = small) | | |
| Half | 0.106 (6.74) | 0.106 (6.73) |
| Large | 0.202 (13.04) | 0.201 (13.03) |
| Number of other donors (ref. = a few) | | |
| A large number | –0.097 (8.13) | –0.096 (8.11) |
| **Respondent characteristics** | | |
| Generalized reciprocity (index 1-5) | –0.004 (0.12) | 0.008 (0.23) |
| Moral obligation (ref. = no)[a] | 0.173 (2.98) | — |
| Prosocial socialization (index 1-4) | 0.049 (1.30) | — |
| Religiosity (scale 1-5) | –0.039 (1.52) | — |
| Income (ref. = less than 500 EUR/month) | | |
| 501-600 EUR/month | 0.052 (0.80) | 0.074 (1.12) |
| More than 600 EUR/month | 0.050 (0.83) | 0.061 (1.00) |
| Dispositional empathy (index 1-5) | 0.074 (1.74) | — |
| Gender (ref. = male) | 0.184 (3.00) | 0.253 (4.68) |
| **Random effects** | | |
| Error variance between respondents | 0.248 (13.34) | 0.260 (13.37) |
| Error variance within respondents | 0.149 (46.49) | 0.149 (46.49) |
| Deviance | 5,609.513 | 5,627.802 |
| Number of fixed/random parameters | 20/2 | 15/2 |
| Number of vignettes/respondents | 4,716/393 | 4,716/393 |

Note: Unstandardized regression coefficients; dependent variable: log willingness to donate (ln + 1); *t* values in parentheses.
[a]For moral obligation, a missing-data dummy was included in model RI-VR. As the coefficient is negligible in size, it is not reported.

people, the higher their willingness to donate. Along with prosocial norms and values, an altruistic personality was hypothesized to mediate the potential gender effect (Proposition 8). To explain female respondents' higher intentions to donate, we

estimated a reduced model leaving out the indicators of prosocial norms (moral obligation, religiosity, and prosocial socialization) and of dispositional empathy (RI-VRg in column 3). Comparing the models, it turns out that the gender effect diminishes from 0.253 to 0.184 when controlling for these variables. More differentiated analyses show that, among these mediators, it is dispositional empathy as a personality trait rather than prosocial socialization, moral obligation, or religiosity that primarily motivates female respondents in their financial generosity: Dispositional empathy reduces the gender effect most strongly, whereas the other mediators hardly change it. As the gender effect stays sizable after these controls, further constructs—or better measurements—are needed to account for women's pronounced willingness to donate.

Finally, we argued in Proposition 7 that it is not only dispositional empathy—captured by the altruistic personality—that makes people concerned in case of a natural disaster but also their *situational empathy* that a donation depends on. This kind of empathy is fostered by respondents' *knowledge* about a vignette country. To address this hypothesis, we estimate a random intercept model with cross-level interaction effects. These effects are graphically depicted in Figure 2 (see Appendix C for regression coefficients). In accordance with our proposition, willingness to donate increases as respondents' knowledge about the respective country increases. As can be seen from the slopes of the lines, the effect of country knowledge is—compared with the reference category of Japan—particularly pronounced in the cases of Bangladesh and Romania, and less so for China and Switzerland. As Germany is their home country, respondents are assumed to be well informed and so it was not necessary to survey their knowledge about it. When Germany is used as a point of comparison, respondents with little knowledge about foreign countries (values 0 and 1) give preference to German recipients in their donation decisions over those from all other countries. Respondents with high knowledge about needy countries such as Bangladesh and Romania (values 3 and 4), however, are willing to donate more to these countries than to victims of a disaster occurring in Germany. These cross-level interactions point to the moderating effect of personal involvement in a disaster context. They show that the national in-group effect (favoring Germany in this case) is pronounced only for those with limited interest in foreign countries.

## Summary and Discussion

Two objectives have been pursued in this article: Our primary concern was to contribute to the research on prosocial behavior and charitable giving in a transnational context. We analyzed the conditions determining willingness to donate to natural disaster relief in different country contexts. Drawing on insights from sociology, social psychology, and economics, we identified recurrent explanatory mechanisms and demonstrated how recipients' contexts—a variable that is neglected in current research—can be integrated in a theoretical framework in addition to donor characteristics. Our second objective was to show that vignette analysis is a useful method for empirically investigating willingness to donate in disaster scenarios differing in the dimensions that were distinguished theoretically.

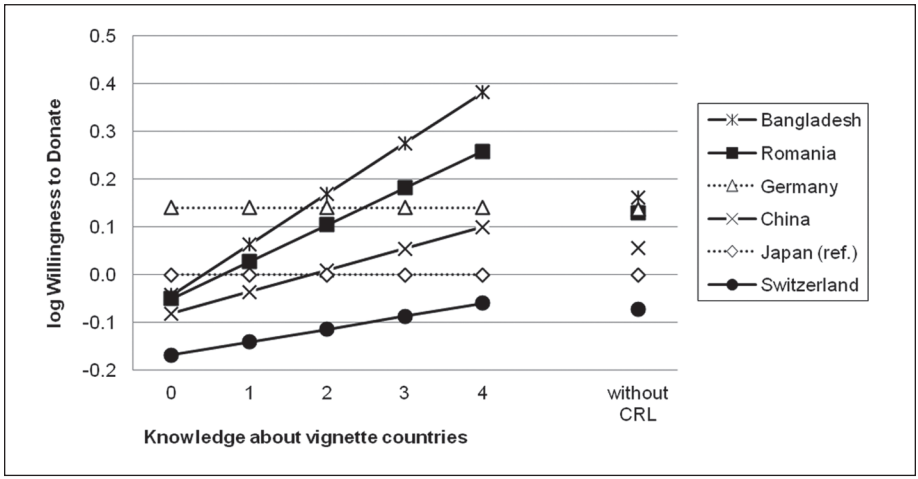


**Figure 2.** Cross-level interactions (CRL) between vignette countries and respondents' perceived knowledge of the country.
Note: Japan is the reference category (zero-line). Data points at the right end of the x-axis (without cross-level interactions) show country effects of willingness to donate without accounting for respondents' perceived knowledge of the relevant country. Assuming that respondents' knowledge about their home country is very high, we did not survey knowledge about Germany. The data points in this case are displayed for readers' orientation only.

The analyses show that recipient benefit is a major motivator of charitable giving. The effective allocation of donations is most important for stimulating generosity. In practical regard, this implies that charities are well advised to make their activity transparent. Moreover, respondents are more willing to donate if natural disasters are particularly devastating and occur in needy countries such as Bangladesh. Yet respondents' solidarity with their national in-group, Germany, is higher than can be expected from the neediness proposition. Cultural similarity should therefore not be disregarded as an explanatory mechanism, although this principle seems to have limits as exemplified by the case of Switzerland. Compared with these contextual dimensions, the donating behavior of others is of secondary importance. Contrary to some previous findings, willingness to give money decreases with the number of other contributors, indicating that respondents perceive additional donations to be of diminishing marginal utility.

With regard to respondent characteristics, prosocial norms and personal values positively influence the readiness to donate to natural disaster relief. This holds, at least, for prosocial socialization and perceived moral obligation, not for religiosity. Although prosocial norms and values have been shown to be important explanatory factors in previous research, there are no comparable studies testing for generalized reciprocity to date, as far as we know. In our sample, generalized reciprocity did not motivate respondents to give money. More research is needed to assess to what extent this mechanism is useful for explaining willingness to donate for disaster relief.

Dispositional empathy as part of an altruistic personality proves to be a further explanatory factor. In addition, cross-level effects point to an increase in willingness to donate as respondents' knowledge about the vignette country and thus their situational empathy with the disaster's victims increases. This result yields practical implications for charities: Donations are likely to be stimulated if donors' knowledge about living conditions in poor countries is enhanced. Lacking such knowledge, donors are more likely to restrict their help to their national in-group.

A few remarks about the limitations of our study are in order at this point. First, we measure only hypothetical willingness to donate and cannot make inferences about the absolute amounts of money that respondents give to corresponding disaster relief campaigns. As our objective was to shed light on the conditions that motivate individuals to donate in different contexts, this limitation seems acceptable: The impact of vignette dimensions should hold true irrespective of the absolute level of money donated. A similar argument applies to a second potential objection—our sample of students as a financially strained group. Although evidence shows that donations increase with income and age, there is no reason to expect that the basic mechanisms of donation decisions vary with these sociodemographic attributes (Bekkers & Wiepking, 2007). Third, factorial surveys typically include a limited number of vignette dimensions because scenarios become complex as dimensions multiply and respondents encounter difficulties in rating them (Auspurg, Hinz, & Liebig, 2009). Accordingly, our selection of dimensions might be incomplete. Future research should therefore analyze whether other dimensions such as media coverage of disasters, the reputation of charities, or social pressure induced by family and friends are relevant determinants.

In general, research on charitable giving would profit from a more systematic empirical assessment of the relative impact of core explanatory mechanisms as identified in our theoretical considerations (see also Bekkers & Wiepking, 2007; Ray, 1998). This endeavor would profit from the availability of validated measurement instruments for the theoretical constructs we discussed (an example being the Dispositional Empathy Scale that we took from the International Personality Item Pool). Many studies measure these constructs in suboptimal ways, and this may account for contradictory results. With regard to the impact of other donors, for example, Ray (1998) used respondents' knowledge about sources of aid to developing countries and nongovernmental organizations as a proxy; Frey and Meier (2004) measured respondents' expectations about others' contributions, not their knowledge about others' behavior. In contrast, here we explicitly modeled others' donation behavior in our vignettes. Given that the effects are not particularly strong, such measurement differences might explain diverging results. Admittedly, in our own study, some of the donor characteristics such as religiosity and moral obligation were measured very roughly because we wanted to keep the follow-up questionnaire short and concentrate on the vignettes as our primary concern. We have demonstrated the use of this method to integrate individual and context variables in a coherent theoretical and empirical framework. Our study can serve as a first step that should be followed by similar research designs with representative samples, better validated measurement instruments, and further vignette scenarios.

# Appendix A

## *Respondent Characteristics*

| Respondent characteristics | Wording | *N* | *M* | *SD* | Min | Max |
|---|---|---|---|---|---|---|
| Generalized reciprocity[a] | Perhaps you or a person close to you (e.g., parents, relatives, friends) have/has personally experienced an emergency situation. Please indicate how bad you/the person close to you thought this situation was. (*very bad, bad, not so bad, not bad at all; does not apply*)<br>I, or a person close to me, was …<br>… the victim of a natural disaster.<br>… unemployed.<br>… affected by poverty.<br>… chronically ill or in need of care.<br>… mourning the death of someone close. | 409 | 2.68 | 0.82 | 1 | 5 |
| Moral obligation (ref. = no) | In my opinion, disaster relief is a civic duty and not the government's responsibility. (*no, yes*) | 375 | 0.66 | — | 0 | 1 |
| Religiosity | I live according to religious principles. (*very inaccurate, inaccurate, neither inaccurate nor accurate, moderately accurate, very accurate*) | 407 | 1.75 | 1.12 | 1 | 5 |
| Prosocial socialization[b] | Please think back to your childhood days. How often did you observe or experience the following behaviors? (*often, sometimes, rarely, never; don't know*)<br>… My parents gave money to one or more organizations/projects/associations. (*N don't know* = 56)<br>… My parents gave money to the collection in church. (*N don't know* = 17)<br>… My parents gave some coins to street musicians or beggars. (*N don't know* = 44)<br>… My parents gave clothes, toys or food to the needy. (*N don't know* = 7) | 411 | 2.73 | 0.77 | 1 | 4 |

*(continued)*

## Appendix A. (continued)

| Respondent characteristics | Wording | *N* | *M* | *SD* | Min | Max |
|---|---|---|---|---|---|---|
| Dispositional empathy[c] | Below are some statements describing people's behaviors and personality traits. Please read each statement carefully and indicate how accurately it describes you. Rate each statement as spontaneously as possible. (*very inaccurate, inaccurate, neither inaccurate nor accurate, moderately accurate, very accurate*) | 408 | 3.36 | 0.74 | 1 | 5 |
| | . . . I can feel others' emotions. | | | | | |
| | . . . I seldom get emotional. | | | | | |
| | . . . I suffer from others' sorrows. | | | | | |
| | . . . I am deeply moved by others' misfortunes. | | | | | |
| | . . . I am easily moved to tears. | | | | | |
| | . . . I am not interested in other people's problems. | | | | | |
| | . . . I cry easily. | | | | | |
| | . . . I experience my emotions intensely. | | | | | |
| | . . . I don't understand people who get emotional. | | | | | |
| | . . . I feel spiritually connected to other people. | | | | | |
| Income | How much income after taxes do you have at your monthly disposal? Please add up federal student loans, other federal financial support such as housing or child allowances, income from part-time working, financial support from parents, scholarships or grants, and other financial benefits. | 409 | | | | |
| | . . . less than 500 EUR | | 0.44 | — | 0 | 1 |
| | . . . 501–600 EUR | | 0.24 | — | 0 | 1 |
| | . . . 601–700 EUR | | 0.15 | — | 0 | 1 |
| | . . . 701–800 EUR | | 0.08 | — | 0 | 1 |
| | . . . 801–900 EUR | | 0.04 | — | 0 | 1 |
| | . . . 901–1,000 EUR | | 0.01 | — | 0 | 1 |

*(continued)*

## Appendix A. (continued)

| Respondent characteristics | Wording | *N* | *M* | *SD* | Min | Max |
|---|---|---|---|---|---|---|
| Income (continued) | . . . 1,001–1,100 EUR | | 0.01 | — | 0 | 1 |
| | . . . 1,101–1,200 EUR | | 0.01 | — | 0 | 1 |
| | . . . more than 1,200 EUR | | 0.02 | — | 0 | 1 |
| Gender (ref. = male) | Please indicate your gender. (*male, female*) | 407 | 0.57 | — | 0 | 1 |
| Knowledge about vignette country | Please indicate for each of the following countries how well informed you think you are about their people, culture, and society. (*not informed at all, not informed, neither uninformed nor informed, well informed, very well informed*) | | | | | |
| | . . . Switzerland | 411 | 3.45 | 0.86 | 1 | 5 |
| | . . . China | 411 | 3.06 | 0.94 | 1 | 5 |
| | . . . Japan | 409 | 2.96 | 0.97 | 1 | 5 |
| | . . . Romania | 411 | 2.34 | 0.95 | 1 | 5 |
| | . . . Bangladesh | 410 | 1.95 | 0.87 | 1 | 5 |

Note: Response scales are printed in italics and parentheses after each question. For dummy variables, the mean is equivalent to the proportion of the specification "1."

[a]"Does not apply" is recoded as the smallest value of the response scale as respondents' willingness to donate is assumed to be low if they (or a person close to them) have not personally experienced an emergency. All items are combined into an index by averaging their values. Index values are allocated if respondents answered at least three out of five items.

[b]For the analyses, all items were recoded with *never* as 1 to *often* as 4. For each item, the absolute frequency of "don't know" answers is listed in parentheses. The two items with the lowest absolute frequency are combined into an index by averaging their values, allowing for respondents with at least one value and recoding "don't know" as missing values.

[c]After negatively keyed items are recoded, factor analysis is used to construct an index from eight of the ten items (items excluded due to low factor loadings: "I am not interested in other people's problems," "I feel spiritually connected to other people"). Index values are allocated if respondents answered at least half of the items.

## Appendix B

*Reestimation of Models for Reduced Respondent Sample*

| | Null | RIO | RI-V |
|---|---|---|---|
| **Fixed effects** | | | |
| Intercept | 0.721 (74.35) | 0.721 (26.63) | 0.482 (14.69) |
| Vignette dimensions | | | |
| Country (ref. = Japan) | | | |
| Switzerland | | | –0.078 (3.55) |
| China | | | 0.048 (2.53) |
| Romania | | | 0.127 (6.74) |
| Germany | | | 0.141 (6.51) |
| Bangladesh | | | 0.162 (8.52) |
| Severity of disaster (ref. = 1,000) | | | |
| 12,000 homeless | | | 0.135 (9.49) |
| 45,000 homeless | | | 0.169 (11.81) |
| Allocation of donation (ref. = small) | | | |
| Half | | | 0.106 (6.74) |
| Large | | | 0.201 (13.03) |
| Number of other donors (ref. = a few) | | | |
| A large number | | | –0.096 (8.10) |
| **Random effects** | | | |
| Error variance between respondents | — | 0.274 (13.33) | 0.277 (13.41) |
| Error variance within respondents | 0.444 (48.56) | 0.170 (46.49) | 0.149 (46.49) |
| Deviance | 9,552.334 | 6,201.674 | 5,651.938 |
| Number of fixed/random parameters | 1/1 | 1/2 | 11/2 |
| Number of vignettes/respondents | 4,716/393 | 4,716/393 | 4,716/393 |

Note: RIO = random intercept only; RIV = random intercept model that includes all vignette dimensions as sets of dummy variables. Unstandardized regression coefficients; dependent variable: log willingness to donate (ln + 1); *t* values in parentheses.

## Appendix C

*Cross-Level Model With Interactions Between Vignette Country and Respondents' Country Knowledge*

| | RI-VRcrl |
|---|---|
| **Fixed effects** | |
| Intercept | 0.472 (14.71) |
| Vignette dimensions | |
| Country (ref. = Japan) | |
| Switzerland | –0.168 (2.51) |
| China | –0.081 (1.59) |
| Romania | –0.050 (1.28) |
| Germany | 0.140 (6.69) |
| Bangladesh | –0.043 (1.17) |
| Severity of natural disaster (ref. = 1,000) | |
| 12,000 homeless | 0.132 (9.61) |
| 45,000 homeless | 0.169 (12.16) |
| Allocation of donation (ref. = small) | |
| Half | 0.100 (6.54) |
| Large | 0.192 (12.80) |
| Number of other donors (ref. = a few) | |
| A large number | –0.092 (8.01) |
| **Cross-level effects (Vignette × Respondent)** | |
| Switzerland × Knowledge Switzerland | 0.027 (1.52) |
| China × Knowledge China | 0.045 (2.89) |
| Bangladesh × Knowledge Bangladesh | 0.106 (6.42) |
| Romania × Knowledge Romania | 0.077 (5.21) |
| **Random effects** | |
| Error variance between respondents | 0.276 (13.70) |
| Error variance within respondents | 0.146 (47.43) |
| Deviance | 5,780.122 |
| Number of fixed/random parameters | 15/2 |
| Number of vignettes/respondents | 4,908/409 |

Note: Unstandardized regression coefficients; dependent variable: log willingness to donate (ln + 1); *t* values in parentheses.

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## Notes

1. Research on charitable giving has identified responsibility for the recipient's plight as a moderator to neediness (Bekkers & Wiepking, 2007, pp. 21-22). As victims of natural disasters cannot be held directly responsible for their predicament, this moderator does not apply to the context of our study.
2. Although social dilemma have been analyzed in game theory as situations of strategic interdependence (e.g., prisoners' dilemma) and studies in experimental economics have empirically examined such problems (e.g., Camerer, 2003), we do not draw on these fields of research because direct interaction between ego and alter is not possible in the context of transnational charitable giving.
3. Similarity actually is a characteristic referring to the relationship between donor and recipient. For the sake of simplicity, we treat it as a recipient characteristic.
4. The alternative to our strategy of naming single countries in the vignettes was to model the two dimensions of neediness and similarity separately in abstract ways (e.g., "In a poor country that is culturally similar to Germany a natural disaster . . ."). In cognitive pretests, we found real country names to be a decisive feature of realistic disaster scenarios. Confronted with the abstract descriptions, respondents started to reflect which particular country could be meant. Figuring this out drew off their attention from the other vignette dimensions. Besides, modeling two dimensions separately would have made our vignettes more complex.
5. Cognitive pretests showed that giving respondents a fictive endowment of money made the task unrealistic to them. The option of presenting a scale with fixed amounts of money was also discarded because respondents frequently chose to give no money at all.
6. Methodological research on factorial surveys is scarce. In one of the most rigorous research projects, Auspurg et al. (2009) evaluate a survey with 10 vignettes per respondent and 5 versus 12 vignette dimensions in a split-sample design. Judging from the consistency of response behavior and from processing time, they do not find any fatigue effects. However, there is evidence of 12 dimensions being a bit too complex for respondents. Moreover, the authors recommend eliminating very implausible scenarios. Our survey was constructed taking these results into consideration.
7. Comparing donors and nondonors by logistic regression shows that respondents who are unwilling to donate to natural disaster relief tend to be male, feel that disaster relief is the government's responsibility, and exhibit a low level of prosocial socialization.

8. An analysis of potentially influential observations was performed. The outlier analysis yielded one respondent with extreme values on the dependent variable (1,000 EUR and 3,000 EUR). We estimated all models without the outlier. As estimates are similar, we report the models including the outlier.
9. As only numbers greater than zero can be logarithmized, a constant of value 1 was added to each vignette rating.
10. Our vignette dimensions are ordinal-scaled at best. Therefore, each dimension was transformed into dummy variables; *n* levels were converted into *n* dummy variables with values 1 for "yes" and 0 for "no." For example, the vignette dimension "magnitude of natural disaster," which has three levels, was transformed into three dummy variables: *1,000 homeless persons* (yes/no), *12,000 homeless persons* (yes/no), and *45,000 homeless persons* (yes/no).
11. The intermediate size of the coefficient for China could be due to the country's internal variation in poverty and affluence. Also, the effect could be dampened by China being perceived as a political system with totalitarian elements distributing donations in an unjust manner.

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