EXPLAINING COMMUNICATION EFFECTS ON DONATION BEHAVIOR: THE ROLES OF CONTRACTUAL RELATIONS AND SOCIAL INFORMATION

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ABSTRACT

Nonprofits play a pivotal role in society, and individual donations are the backbone of these organizations. The fight for donors, however, is more intense than ever, and charities face decreasing support from governments and declining growth in individual donations. The major response to these challenges is a greater focus on the effectiveness of marketing and communication strategies. Unfortunately, research-based knowledge on how to design effective communication activities that enhance donation behavior is still limited. Our contribution is related to four research questions: (1) What is the effectiveness of different communication efforts, including direct marketing, advertising, and publicity, in persuading donors to migrate to a contractual relationship with the charity? (2) How does donors' contractual relationship affect their responsiveness to the charity's communication activities? (3) To what extent (and how) does nonspecific social information affect donation behavior, and which variables mediate its effects? (4) Which charity-specific factors and context factors moderate the effects of nonspecific social information on donation behavior?

The first empirical study (Article 1) provides answers to RQ1 and RQ2. We apply econometric analyses to time series data from an international human rights organization to investigate a mixed setting in which donors contribute to the charity on an ad hoc basis (noncontractual donation) or via a regular donation scheme (contractual donation) and change their relationships with the charity over time. The findings offer novel insights into the relative effectiveness of advertising, direct marketing and publicity in stimulating contributions among contractual and noncontractual donors. We also offer new insights into the relative effects of communication activities on the decision to become a contractual donor.

We address RQ3 and RQ4 in two experimental papers (Articles 2 and 3). Across a series of online experiments, we test the prediction that publicity in the form of positive nonspecific social information (i.e., the information that many have already donated) may stimulate people's willingness to support a new charity and boost donation amounts. We test three mediators of this effect: response efficacy, the attitude toward the charity, and the attitude toward the donation. We also test three potential moderators that we expect to decrease the effects of social information on donation behavior: knowledge about the charity, the importance of the cause, and money reminders. The experimental results offer new insights into the effects of social information on donation behavior, including insights into why such effects occur and when the effects become stronger or weaker. We conclude with discussions of theoretical implications, managerial implications, the limitations of our studies, and avenues for future research.

Dedication

I dedicate this dissertation to my beloved wife (Dung), daughter (Hà), and son (Huy), for their unconditional love and endless support they give to me.

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Article 1:

Le, N. Q., Foubert, B., Cleeren, K., & Briers, B. (2019). Managing Contractual and Noncontractual Donors: The Role of Marketing Communication and Publicity in a Charity Context. A revised version of this paper is submitted to *Journal of Marketing*.

Article 2:

Le, N. Q., Supphellen, M., & Bagozzi R. P. (2019). Effects of Non-specific Social Information on Consumers' Willingness to Donate: Mediators and Boundary Conditions. Under review at *Journal of Consumer Psychology*.

Article 3:

Le, N. Q., & Supphellen M. (2019). Effects of Social Information and Money Reminders on Donation Behavior. A revised version of this paper is submitted to *Nonprofit and Voluntary Sector Quarterly*.

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Chapter 1: Introduction

1.1 Background and Motivation

Charitable organizations have an enormous impact on society. Indeed, in 2017, charities in the United States, for example, collected over $410 billion, suggesting that charities are a big business (Giving USA, 2018). With such a huge amount of money, charities are able to connect donors with other people in need and to provide services that governments and businesses cannot deliver (Bendapudi, Singh, & Bendapudi, 1996)). To serve these good causes, charities depend heavily on private donations. For example, individuals accounted for approximately 70% of total charitable contributions in the US in 2017 (Giving USA 2018).

However, due to the growing number of charitable organizations, the fight between nonprofits over private donations is more intense than ever. In this situation, communication effectiveness is becoming increasingly important (e.g., Fiennes, 2017; Khodakarami, Petersen, & Venkatesan, 2015; Sudhir, Roy, & Cherian, 2016). Consequently, much attention in recent donation studies has been devoted to understanding the effectiveness of different communication channels, especially direct marketing (mailings), on donation behavior (e.g., Aravindakshan, Rubel, & Rutz, 2015; Donkers, van Diepen, & Franses, 2017; Thomas, Feng, & Krishnan, 2015).

Interestingly, emerging evidence suggests that communication activities are not always effective and sometimes even have negative effects on donations. For example, sending too many direct mailings or doing so too frequently can irritate receivers, and extra mailings might reduce future donation behavior (van Diepen, Donkers, & Franses, 2009). There is also the existence of overhead aversion, as a result of which donors tend to choose charities with lower overhead costs, meaning that charities that spend more on advertising are less attractive to donors (Gneezy, Keenan, & Gneezy, 2014). These findings show that the effects of

communication activities on donation behavior are not straightforward and cannot be explained in isolation. Factors other than marketing communication play a role, and communication activities may interact with other variables to influence donation behavior (e.g., Fajardo, Townsend, & Bolander, 2018).

Figure 1. *The interplay of communication and other moderators with regard to donation behaviors*
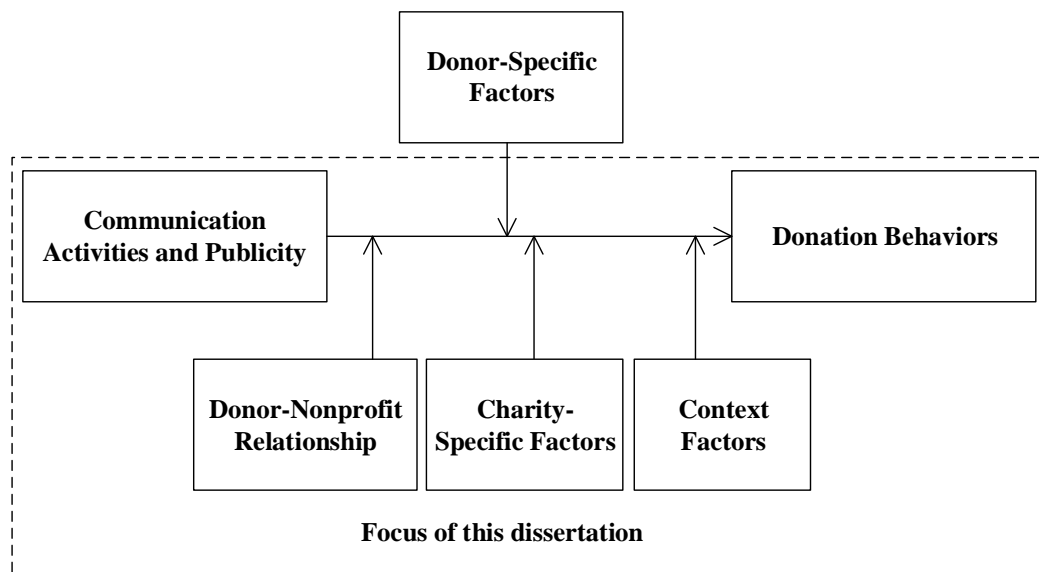
In Figure 1, we show the different factors that may interact with communication activities designed to influence donation behavior. Donor-specific factors, such as age, gender, personality, moral identity, and cultural identity, are one important type of moderator identified in previous research (Khodakarami et al., 2015). These variables may strengthen or weaken donors' responsiveness to charities' communication (e.g., Croson, Handy, & Shang, 2010; Thomas et al., 2015). For instance, Nelson, Brunel, Supphellen, and Manchanda (2006) find that while male donors prefer self-focused donation appeals and female donors prefer other-focused ads in an individualistic, masculine culture, the opposite is true when the culture is individualistic and feminine. Additionally, Duclos and Barasch (2014) find that a donation appeal from a charity aiming to help needy in-group beneficiaries is more effective

when the donors have an interdependent orientation, while there is no significant difference for independent donors.

In addition to donor-specific factors, we suggest that three other factors, which have received very limited attention in previous research, are important: the relationship between the donor and the charity, charity-specific factors, and the response context (context factors). In this dissertation, we offer new insights into the influence of these three factors.

1.2 Theoretical Positioning and Research Questions

1.2.1 Interaction between Communication Activities and the Donor-Nonprofit Relationship

The development of long-term relationships with customers is a core element in the strategy of many firms, and charitable organizations are no exception (e.g., Arnett, German, & Hunt, 2003; Morgan & Hunt, 1994; Netzer, Lattin, & Srinivasan, 2008). Charities spend considerable resources trying to persuade contributors to become contractual donors. However, we have limited empirical evidence that supports this strategy. Furthermore, we lack knowledge of the differences between the behaviors of donors with and without a recurring donation scheme. Potentially, after agreeing to donate on a regular basis, people might be less responsive to subsequent communication activities and donate less on an ad hoc basis. We predict that the response to communication activities is influenced by the nature of the relationship between the donor and the charity. Specifically, we expect that donors who enter into a formalized relationship with a charity (become contractual donors) will respond differently to communication activities before and after becoming contractual donors.

While previous research often considers relationship-related variables to be an important outcome (e.g., Arnett et al., 2003; Khodakarami et al., 2015), we are not familiar with any study investigating the moderating effect of relationship-related variables over time. For example, Netzer et al. (2008) construct a latent-class model to explain and predict

individuals' movement between the "dormant", "occasional", and "active" states of noncontractual relationships. In contrast, Thomas et al. (2015) focus solely on contractual relationships and analyze the effects of the interaction between different types of direct mail and demographic variables (e.g., age, gender, race) on donors' decision to upgrade or drop out from a recurring donation scheme. Similarly, Anik, Norton, and Ariely (2014) analyze whether framing different matching rates in charity appeals can motivate people to sign up for a recurring donation contract. Nevertheless, none of these studies has investigated whether starting a more committed relationship with a charity may change donors' behaviors. We contribute to the literature by shedding light on the interaction between communication activities and the type of donor-nonprofit relationship (noncontractual vs. contractual donorship). The following questions guide our research in this area:

RQ1: What is the effectiveness of different communication efforts, including direct marketing, advertising, and publicity, in persuading donors to migrate to a contractual relationship with the charity?

RQ2: How does donors' contractual relationship affect their responsiveness to the charity's communication activities?

1.2.2   Effects of Nonspecific Social Information in the Form of Publicity

In the second part of this dissertation, we focus on publicity, an important media channel and a crucial driver of donation behavior. While advertising and direct marketing have been extensively studied by both experimental and econometric research (e.g., Botner, Mishra, & Mishra, 2015; De Bruyn & Prokopec, 2013; Macdonnell & White, 2015; van Diepen et al., 2009), we know less about the effects of publicity. Publicity can be understood as "any unpaid form of nonpersonal presentation and promotion of products, services, or ideas where the sponsor is unidentified" (Kotler & Zaltman, 1971, p. 7). It has been used widely by both

for- and nonprofit organizations, and it is often considered more credible than any other forms of marketing communication (Burmester, Becker, van Heerde, & Clement, 2015). In fact, publicity has recently attracted more attention from practitioners than traditional marketing channels such as advertising or direct marketing (Eisend & Küster, 2011).

In the charity sector, we argue that the role of publicity is even larger and more important because the perceived credibility of the charity is one of the most important factors affecting whether a donor will donate (Bendapudi et al., 1996). For example, positive publicity about the efficiency of a charity can increase donations significantly (Gneezy et al., 2014), whereas negative publicity may harm the focal charity's solicitation (Schlegelmilch, Love, & Diamantopoulos, 1997). Nevertheless, although positive publicity appears to be an effective tool for increasing charitable behavior, our knowledge about the empirical effects of publicity on donation behavior is still very limited (Aravindakshan et al., 2015). This dissertation provides new insights into (1) the effects of the amount of publicity (Article 1) and (b) the effects of specific qualitative aspects of publicity (Articles 2 and 3) on donation behavior.

In the second part of this dissertation (Articles 2 and 3), we analyze the effects of social information in the form of publicity. A large body of literature has documented that social information (i.e., information about the behavior of other people) has a strong influence on behavior (e.g., Cialdini, 2013). Previous research identifies two important dimensions affecting the effectiveness of social information: specificity and comparativeness (e.g., Jain, Lindsey, Agrawal, & Maheswaran, 2007; Xue et al., 2010) (see Table 1). First, it is argued that greater specificity of information increases memory retrieval, leading to a more positive customer response (Keller, 1991; Lambrecht & Tucker, 2013). Previous studies show that presenting the specific names of previous donors (Bennett, Kim, & Loken, 2013; Reingen, 1982), their gender (Shang, Reed, & Croson, 2008), or specific donation amounts (Croson, Handy, & Shang, 2009) influences donation behavior.

Second, comparative social information is effective because it includes extra information demanding that people think more, which in turn makes it easier for them to remember and recall this information (Grewal, Kavanoor, Fern, Costley, & Barnes, 1997). Using comparative information, Allen, Eilert, and Peloza (2018) show examples of how contrasting the current performance of the charity this year with its performance the previous year can significantly change donors' behavior.

Table 1. *A classification of social information, with examples*

		Specific?	
		Yes	No
Comparative?	Yes	"Last year, 36% of employees contributed to the charity drive to support the Mustard Seed. Currently, 21% of employees have donated." (Allen et al., 2018, p. 287)	More people have donated this year than last year
	No	64% of the student population "contributed to the two funds in the past" (Frey & Meier, 2004, p. 1718)	Few people have donated so far (Articles 2 and 3)

As shown in Table 1, we classify social information into four categories depending on whether the information is specific (yes vs. no) and comparative (yes vs. no). Previous research on donation behavior has concentrated on specific social information that is either comparative (e.g., Allen et al., 2018) or noncomparative (e.g., Frey & Meier, 2004). The literature, however, is silent on the effects of nonspecific information, especially when it is noncomparative (lower right quadrant of Table 1). We suggest that this type of social information is highly relevant in the charity setting. In fact, nonspecific social information without any benchmarking (e.g., the information that many/few have donated) is widely used in media reports on the status of large fundraising campaigns (e.g., GitLab, 2013; Veterans of Foreign Wars, 2017)

Although previous research seems to suggest that information should be specific and comparative to be effective, we argue that nonspecific and noncomparative social information often reveals more precise information about *social norms*, while specific information, in fact, could be more ambiguous. For instance, the specific comparative information that "the conversion rate is 40% this year compared to 35% last year" is obviously more ambiguous than nonspecific social information with no comparison such as "this year, many people have supported our charity."

In comparison with specific social information, which requires analysis of data, obtaining nonspecific social information is easier and faster. Indeed, preliminary observation of donors' responses is usually sufficient to achieve this type of social information. Importantly, nonspecific social information is accessible at the early stages of donation campaigns, when the news are fresh and there is little other information available about the campaigns' results. The lack of detailed information makes it easier to "sell" this kind of social information to the media. In summary, there are good reasons to expect that nonspecific, noncomparative social information has an impact on donation behavior, and that managers can strategically use this information to benefit their charitable organizations. To better understand and avail us of the effects of this type of social information, we also need insights into the psychological mechanism underlying this the effect, which leads to the following research question:

RQ3: To what extent (and how) does nonspecific social information affect donation behavior, and which variables mediate its effects?

1.2.3 Nonspecific Social Information in the Form of Publicity: Moderating Effects of Charity-Related Factors and Context Factors

We suggest that nonspecific social information can interact with factors *specific to the charity*. Charity-specific factors can be referred to as factors that are associated with an

identified charity and that motivate donors from the outside (Aravindakshan et al., 2015; Fajardo et al., 2018). Examples of charity-specific factors include communication activities, the nature of the charity, or its characteristics. For example, previous research shows that the names and positioning of charities (i.e., combative, supportive, or neutral orientation) can be used to enhance individual donation behavior (Botner et al., 2015). Similarly, Winterich, Zhang, and Mittal (2012) reveal that the alignment between a charity's moral foundations and donors' political identity (i.e., conservatism vs. liberalism) can increase donations.

Although the effects of charity-specific factors on donation behaviors have been studied, we still lack knowledge about how they interact with donors' responsiveness to a communication message such as nonspecific social information. The few studies that have been conducted on this matter show that how donors respond to charities' communication activities might depend on the nature of the cause or the reputation of the charity (e.g., Smith & Schwarz, 2012).

Furthermore, we argue that the effects of nonspecific social information depends on *context variables*. Indeed, individuals receive donation requests in many different settings that might have implications for their own decisions. For example, previous research has shown that the presence of a friend can increase the donation amount of those with communion priming and a high score in self-monitoring (Kurt, Inman, & Argo, 2011). Similarly, Shang et al. (2008) show that people follow the donation behaviors of previous donors if they share the same gender identity, especially when they focus on others.

The above discussion leads to the following research question:

RQ4: Which charity-specific factors and context factors moderate the effects of nonspecific social information on donation behavior?

Chapter 2: Presentation of Empirical Papers

Articles 1, 2, and 3 are the core of this dissertation. The first empirical article (Article 1) investigates the effects of different media channels (direct marketing, advertising, and publicity) and how they interact with donor-nonprofit relationship types to influence donation behaviors. Although we found that publicity is an important communication channel for charities, Article 1 was limited to the amount of publicity. In the second and third articles, we extend the work of Article 1 by investigating the effects of the valence of the content of publicity on donation behavior. Specifically, in Article 2, we examine the use of nonspecific social information in publicity and the extent to which it interacts with donors' self-construals and two other charity-specific factors (the perceived importance of the cause and positive background information on the charity) to affect donors' charitable intentions. In Article 3, we investigate the interaction effect between nonspecific social information in publicity and money reminders on donors' behaviors. Table 2 summarizes the differences and similarities between these three studies.

Table 2. *Similarities and differences between empirical studies*

	Article 1: "Managing Contractual and Noncontractual Donors: The Role of Marketing Communication and Publicity in a Charity Context"	**Article 2**: "Effects of Non-specific Social Information on Consumers' Willingness to Donate: Mediators and Boundary Conditions"	**Article 3**: "Effects of Social Information and Money Reminders on Donation Behavior"

Objective	To investigate: 1) the effects of three different communication channels, including direct marketing, advertising, and publicity, on donors' migration to a contractual relationship; and 2) how these communication channels interact with donor-nonprofit relationships to influence donors' future donation behaviors	To investigate: 1) how social information presented in the form of publicity interacts with donors' self-construals to affect their donation intentions; and 2) what are the underlying mechanisms and boundary conditions for these interaction effects	To investigate: 1) how social information presented in the form of publicity interacts with money reminders; and 2) what are the psychological mechanisms underlying these interaction effects
Outcome variable	- Mixed setting: one-time + recurring donation - Donation likelihood + amount	- Willingness to support a charity (one time)	- Willingness to donate, willingness to recommend, and donation amount (one time)
Interaction of communication activities and publicity	- 3 communication variables: direct marketing, advertising, and publicity - Moderator: type of donor-nonprofit relationship (contractual vs. noncontractual)	- Communication variable: publicity - Moderators: 1) donors' self-construals; 2) charity-specific factors: the perceived importance of the cause, positive background information on the charity	- Communication variable: publicity - Moderator: money reminders
Aspect of publicity studied	- Amount of publicity - Long-term effect of publicity (i.e., by using a carry-over parameter)	- Content of publicity: the use of social information: positive (i.e., many have donated) vs. negative (i.e., few have donated)	- Content of publicity: the use of social information: positive (i.e., many have donated) vs. negative (i.e., few have donated)
Setting	- A European branch of an international human rights organization	- Several online experiments on fictitious charities	- An online experiment on a fictitious charity
Data type	- Actual transaction data + sociodemographic data	- Data collected online on different platforms	- Data collected online

Sample description	- Individual-level (approximately 7,800 donors)	- Individual-level (approximately 854 participants over 4 online experiments)	- Individual-level (202 participants)

In particular, the first two research questions (RQ1 and RQ2) are addressed in Article 1, while the next two research questions (RQ3 and RQ4) are addressed in Articles 2 and 3. In general, our results show the importance of understanding the interactions of communication activities with donor-nonprofit relationships, as well as charity-specific and context factors.

2.1 <u>Article 1</u>: Managing Contractual and Noncontractual Donors: The Role of Marketing Communication and Publicity in a Charity Context

In the first article, we investigate donors' decision to move from a purely noncontractual relationship, involving only one-time donations made on an ad hoc basis, to a contractual relationship with the charity, entailing periodic payments made on a regular basis, and we further examine the differences in their consequential behaviors. In fact, although persuading donors to engage in a recurring donation scheme is highly desirable for most charitable organizations (e.g., Anik et al., 2014; Khodakarami et al., 2015), no previous studies have investigated the movement of donors between noncontractual and contractual relationships, let alone the interaction between charities' communication efforts and the contractual donor-nonprofit relationship. From a managerial perspective, the issues studied are important, as managers might want to know whether converting people into contractual customers subsequently increases their total spending and whether doing so makes them less sensitive to future communication.

Based on the donation data of approximately 7,800 donors from a European human rights charity, our results suggest that the communication strategies studied, including direct marketing, advertising, and publicity, are generally effective in stimulating donors to migrate to a contract. Although contractual donors try to compensate for their regular donations by

reducing additional noncontractual donations, on average, the total spending of a contractual donor is higher than that of a noncontractual donor. Importantly, we found that the donor-nonprofit relationship significantly moderates the impact of marketing communication and publicity on noncontractual spending. Specifically, entering into a contractual relationship makes donors more sensitive to marketing communication, and the effects become stronger when they donate a larger contractual amount. These findings emphasize the importance of studying the interaction between communication effectiveness and donor-specific factors such as donorship types, providing managers with important insights into how they can allocate their communication tools effectively.

2.2 <u>Article 2</u>: Effects of Non-specific Social Information on Consumers' Willingness to Donate: Mediators and Boundary Conditions

In the second article, we focus on the interaction between nonspecific social information conveyed in the form of publicity and donors' self-construals. We are interested in understanding how these two factors interact to affect donors' willingness to support a charity. Furthermore, we aim to explore the psychological mechanisms underlying this interaction effect and the possible boundary conditions. Previous research has shown that individuals' self-construals (or self-views) are among the most important donor-specific factors driving donors' behavior (e.g., Duclos & Barasch, 2014; Simpson, White, & Laran, 2018). However, how donor construal interacts with social information to influence donation behavior is not well understood in the literature (Allen et al., 2018). In particular, nonspecific information, a type of information widely used in communication media, has been disregarded in previous studies from the relevant literature.

To address this above, we develop a fictitious news article in which we manipulate social information about other donors' behavior (i.e., *many* vs. *few have donated so far*). Based on the principle of social proof (e.g., Cialdini, 2013), one can expect that positive social

information (e.g., many have donated) might increase people's perception that donating to this charity is a common practice by others, resulting in an enhanced donation intention. At the same time, however, positive social information might also indicate that the charity is well supported and is no longer in need of money. In contrast, negative social information, such as few have donated, might increase people's perceived need for support and, therefore, enhance their likelihood of donation. One possible explanation is that the effectiveness of social information is contingent on donors' self-construals, leading to different consequences for donation behaviors.

As expected, over four online experiments, we found that people with an interdependent self-construal are more likely to donate when they are presented with the information that many have donated. In contrast, independent people with an independent self-construal are more likely to donate when they are presented with the information that few have donated. Our results confirm that the attitude toward the charity, the attitude toward donating, and response efficacy are important mediators of this interaction effect. Furthermore, the interaction effect between nonspecific social information and donors' self-construals is no longer significant when information about the charity's background is provided or when the cause is considered very important. The findings suggest that nonprofit managers must not ignore donor construals when disseminating social information via media (i.e., publicity).

2.3 <u>Article 3:</u> Effects of Social Information and Money Reminders on Donation Behavior

In the third article, we focus on the interaction between nonspecific social information conveyed in the form of publicity and money reminders. Similar to Article 2, we focus on a new (fictitious) charity that is more likely to be influenced by descriptive social norms. Existing evidence shows that money is a powerful concept, such that people primed with money are more likely to focus on themselves and prefer to be independent from others (Vohs, Mead, & Goode, 2006). Therefore, we suggest that people primed with money will be

less sensitive to social information. More specifically, we argue that money reminders reduce the indirect effects of social information on the donation amount through response efficacy and the attitude to the charity. Indeed, money reminders make people focus more on the impact of their own contributions, reducing the negative effect of negative social information on response efficacy. In addition, the negative effect of negative social information on the attitude toward the charity is reduced when people are primed with money because they are less sensitive to social rejection and social popularity (Zhou, Vohs, & Baumeister, 2009).

Our structural equation model (SEM) confirms that nonspecific information such as many (vs. few) people have donated can significantly increase people's donation amounts. As expected, we find that *response efficacy* and *the attitude toward the charity* are significant mediators of the effects of social information on people's donation amounts. Importantly, these indirect effects are reduced when people are shown subtle money reminders (i.e., unrelated images of money) (i.e., moderated mediation). Therefore, nonprofit managers must be aware of similar contextual cues that can destroy the positive effects of social information.

2.4 Summary

Although the three empirical studies in this dissertation seem to greatly differ with regard to methodology and data collection, they all emphasize the importance of studying different moderating factors that might influence the effects of different charities' communication activities. In particular, it is crucial to control for donor-, charity-, and relationship-related factors and contextual cues when investigating the effectiveness of different marketing communication channels. In particular, Article 1 examines the extent to which extent donors' responsiveness to direct marketing, advertising, and publicity changes after migrating from a noncontractual to a contractual donor-nonprofit relationship. As expected, our results show that the effects of these three different communication channels are reinforced when donors establish a contractual relationship with the charity. Importantly, our study confirms the

important role of publicity, such that this communication channel is very effective in raising donation amounts, especially when the donors are in a contractual relationship.

Article 2 focuses on publicity, which was demonstrated to be an important communication channel in Article 1. In this study, we investigate the effectiveness of social information delivered in the form of a news article in driving donation behaviors over different donors' self-construals. Our results confirm that a specific type of social information might be more or less effective depending on the donor's self-construal. Importantly, the interaction effects are reduced when the cause is considered very important or donors are presented with positive background information on the charity.

Article 3 focuses on the interaction of money reminders with nonspecific social information, such that it reduces the positive indirect effects of social information on the donation amount through response efficacy and the attitude toward the charity. We test and confirm this hypothesis with our data.

We present the empirical studies at the end of this dissertation. The next chapter will provide an integrated conclusion in addition to general managerial implications and avenues for further research.

Chapter 3: Discussion, Limitations, and Future Research

For charitable organizations, optimizing their communications to maximize donations is a major challenge. To that end, managers need knowledge about how communication activities affect donation behavior. Several factors may influence communication effects, including donor-, charity-, and relationship-specific factors and contextual cues. In this dissertation, we investigated the moderating roles of donor-nonprofit relationships (Article 1), charity-specific factors (Article 2), and a specific context factor (Article 3). The findings provide new insights into the effectiveness of direct marketing, advertising (Article 1), and publicity (Articles 1, 2, and 3). In this chapter, we return to the research questions posed in Chapter 1 and summarize the main conclusions based on the empirical papers. We then discuss the major implications for managers and conclude with a discussion of potential avenues for further research.

3.1 Main Findings

3.1.1 What is the Effectiveness of Different Communication Strategies in Persuading Donors to Migrate to a Contractual Relationship with the Charity?

In Article 1, we investigated the effects of three different communication strategies, including direct marketing, advertising, and publicity, on two different donation behaviors: contractual and noncontractual donations. Importantly, no previous donation research has investigated a mixed setting in which donors can register for a recurring donation scheme (e.g., contractual donation) and, at the same time, donate on an ad hoc basis (e.g., noncontractual donation). To address this gap in the literature and to answer RQ1, we jointly estimated the effects of these three marketing variables (i.e., direct marketing, advertising, and publicity) on the monthly decisions made by donors regarding the contractual donation incidence/amount and the

noncontractual donation incidence/amount. We found that direct marketing, advertising, and publicity all exerted a significant positive impact on the probability that a noncontractual donor would start a contractual relationship with the charity. However, direct marketing and advertising did not have significant effects on the contractual amount. Publicity was the only communication channel that significantly and positively influenced the amount of donors' contractual donation.

3.1.2   How Do Donors' Contractual Relationships Affect Their Responsiveness to the Charity's Communication Activities?

Importantly, in Article 1, we found that donor-nonprofit relationship types (i.e., contractual vs. noncontractual) significantly moderated the effectiveness of marketing communication and publicity in boosting donors' noncontractual spending, addressing RQ2. More specifically, our results show that compared with noncontractual donors, those with contractual relationships were more susceptible to direct marketing and, in particular, publicity, such that they spent more noncontractually when exposed to direct marketing and publicity. In contrast, advertising exerted a negative effect on donors' noncontractual donations, which was exacerbated by the contractual relationship (i.e., it is more negative for contractual donors). Thus, our results highlight the important moderating role of the donor-nonprofit relationship when quantifying the effectiveness of communication activities.

3.1.3   To What Extent (and How) Does Nonspecific Social Information Affect Donation Behavior, and Which Variables Mediate Its Effects?

In Articles 2 and 3, we focused on publicity, one of the most effective communication channels found in Article 1. Publicity is also the marketing channel that has received the least attention in the donation literature. In Article 1, we showed that the amount of publicity (i.e., the number of mentions in print media) had a significant, positive impact on donation

behavior. Building upon this result, in Articles 2 and 3, we addressed RQ3 by examining the quality aspect of publicity, namely, the valence of social information in the form of publicity (e.g., a news article), and its effect on different donation behaviors. The social information studied contains information about others' donation behavior that is nonspecific (i.e., *many* vs. *few* have donated) and has not been studied thus far.

In Article 3, our structural model showed that when the information that many have donated was presented, people were more willing to donate and recommend the charity and had a higher donation amount than when the information that few have donated was presented. This result is in line with social proof theory, such that the nonspecific social information provided gives people a cue regarding appropriate behavior. In addition, we found that these effects were mediated by response efficacy and the attitude toward the charity.

Furthermore, in Article 2, we found that the effect of nonspecific information on donors' willingness to support a charity is dependent on donors' self-construals. In particular, people with an interdependent self-construal significantly increased their willingness to support a charity when they were provided with the information that many (vs. few) have donated. In contrast, the information that few (vs. many) have donated significantly increased people's willingness to support a charity when they had an independent self-construal. We found three important variables mediating this interaction effect: the attitude toward donating, the attitude toward the charity, and response efficacy. Overall, our results shed light on the impact of nonspecific social information on donation behaviors and the different psychological mechanisms underlying it.

3.1.4 Which Charity-Specific and Context Factors Moderate the Effects of Nonspecific Social Information on Donation Behavior?

We addressed RQ4 in the last two experiments in Article 2. Our results show that social information became ineffective for causes that were considered very important and for charities that came with positive background information showing their credibility in the field. The reason is that the higher level of importance of the cause and more knowledge about the charity make donation decisions less ambiguous and uncertain, leading to the lower dependence of people on social information. The findings are in line with the previous literature on the influence of descriptive social norms.

In addition, we further answer RQ4 in Article 3 by showing that the effects of nonspecific information on donation behaviors were reduced when people were reminded of money. Money reminders are a common contextual cue that, to date, has escaped the attention of donation researchers. Our results show that an irrelevant image of money presented next to a news article about a charity could reduce donors' responsiveness to the social information embedded in the article. Indeed, when money reminders are present, the indirect effects of social information on donation behaviors through response efficacy and the attitude toward the charity became nonsignificant. These findings are in line with the previous literature on money reminders, such that those primed with money focus more on their own interests (i.e., the impact of their own donation) and prefer when they can rely on themselves.

3.2 Managerial Implications

The results of this dissertation provide new insights into how to encourage donation behaviors. In particular, the results of Article 1 suggest that charities are better off when converting donors from noncontractual to contractual relationships due to the higher total donation amount. Although all of our studied communication variables are effective tools for

persuading donors to engage in contractual payments, publicity seems to be the most effective. Importantly, our results show that forming a contractual relationship significantly changes donors' responsiveness to marketing communication. Specifically, compared with noncontractual donors, contractual donors are more sensitive to direct marketing and publicity. At the same time, our simulations show that managers should rather spend more effort (i.e., direct marketing) in converting noncontractual donors to contractual ones because the increase in total donations caused by donors' migration to contracts is substantially larger than that caused by donors' increased sensitivity to marketing communication.

Article 2 further investigated the effects of publicity on donation behavior. Specifically, our findings give managers useful insights into how to communicate with donors about the status of a fundraising campaign (e.g., many vs. few have donated so far). Importantly, the results suggest that managers should attempt to adjust the use of social information to the type of dominating self-construal of prospective donors. Specifically, managers should communicate the positive nonspecific social information that many have donated to donors with an interdependent self-view. Alternatively, managers should use triggers of an interdependent self-view when communicating that many have donated; such usage may perhaps be more doable in practice.

In contrast, managers should communicate the negative nonspecific social information that few have donated to independent donors or use triggers of this self-view in their communication. Previous research suggests that donors could be primed for a specific self-construal temporarily by the specific use of words in charity appeals (e.g., Allen et al. 2018). Reporters often use interviews with charity managers as a basis for news reports, and in such interviews, managers may try to embed triggers of the right type of construal, e.g., mentioning the power of collective action or the individual responsibility of donors.

Finally, the findings in Article 3 suggest that nonprofit managers should actively take advantage of nonspecific social information (e.g., many have donated) because doing so can significantly increase the donation amount. However, our results show that an image of money in a nearby irrelevant news article might destroy this effect, as the image primes people with money-related thoughts. Additionally, other similar money cues (e.g., a donation request) might produce a similar effect. Therefore, to maximize the effect of social information, it is necessary for the surrounding environment to be "clean", such that money cues are controlled.

In summary, our results suggest that in addition to direct marketing, nonprofit managers should spend more resources on publicity because publicity is a very effective channel in stimulating donation behaviors. However, the effectiveness of communication is dependent on donor-, charity-, and relationship-specific factors and contextual cues. Managers should therefore carefully adjust their communication activities to such factors to achieve the optimal effectiveness. Our findings provide some tentative directions, but more research is needed to develop comprehensive guidelines or frameworks for managers.

3.3 Limitations and Further Research

The limitations in this dissertation suggest several interesting avenues for future research. First, we focus on publicity, advertising and direct mailings in our studies. These channels are still very important for nonprofit organizations. Presently, however, charities spend increasingly more of their budgets and communication efforts on the Internet and social media due to their lower costs and higher precision (Aravindakshan et al., 2015). Although the proposed and tested mechanisms underlying our effects might not be particularly different between online and offline channels, it would be interesting to see whether the core results are robust, for example, whether publicity in social media (e.g., Facebook posts by donors) is still the most effective channel. In addition, another important question is whether

communication through social media interacts with donor-, charity-, relationship-specific factors and contextual cues to influence donors' behavior in a way similar to that observed in our studies.

Second, there are opportunities for future contributions to improve the design and methods. We used transactional time series data in Article 1 and experiments in Articles 2 and 3. Using these two methods helped us explore not only the quantitative aspects (i.e., the number of mentions in Article 1) but also qualitative aspects (i.e., informational content in Articles 2 and 3) of publicity. Using econometric modeling for time series data in the first article provided analyses of longitudinal behaviors, path dependencies, and joint decisions. Additionally, using experiments made it possible to test and explain the psychological mechanisms underlying some of the effects of the econometric model. However, it would be useful to combine the two approaches in the same study to overcome the limitations of each approach.

There are also ways of improving each approach independently. For instance, our econometric model included advertising spending but no information on the type or nature of advertising. If we include such information, i.e., by classifying and coding the content of ads, we would learn more about when and why advertising affects donation behavior. The experimental studies were limited to a specific type of social information (many/few had donated) and one type of communication channel (publicity). Combining several types of social information and/or channels would increase the contribution of the experimental research.

In all three empirical studies reported here, we analyzed the responses to communications for one specific charity: a well-established international human rights charity (Article 1) or a new charity with a fictitious name (Articles 2 and 3). However, people are often exposed to competing communications from several charities simultaneously. The effects of social

information reported in Articles 2 and 3 may change in a context where several charities are competing for attention. Competing communication may either strengthen or weaken the effects observed in our studies, depending on the nature of this communication. Including *competitive marketing reactions* in the econometric model might add new insights into how the different types of communication influence donation behavior at the category levels. For example, an interesting issue for future research is the effect of becoming a contractual donor on future responses to requests from *competing charities*. Becoming a contractual donor for a given charity is likely to lead to more rejections of such requests and a less involved processing of communication from other charities. Our findings suggest that contractual donors contribute more in total than noncontractual donors do. However, if contractual donors reject communications and requests from other charities more often than noncontractual, the net total effect for the sector of migration to contractual relationships could be less positive or even negative. This effect is an important issue for future research.

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Article 1:

Managing Contractual and Noncontractual Donors:

The Role of Marketing Communication and Publicity in

a Charity Context

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Managing Contractual and Noncontractual Donors: The Role of Marketing Communication and Publicity in a Charity Context

Abstract

To guarantee a steady income stream and facilitate financial planning, charity organizations increasingly strive to convert their donors into "contractual" contributors, who make fixed donations on a recurring and automatic basis, for example via direct debit. At the same time, charities keep trying to solicit additional ad-hoc donations, from both contractual and noncontractual donors. To realize these ambitions, the organizations allocate part of their funds to communication campaigns. In this setting, we address the following questions: Do marketing communication (in the form of direct marketing and advertising) and publicity help a charity to convince donors to enter a contractual relationship? Do donors increase or decrease their total spending after migrating to a contract? And does a contractual relationship influence the effects of communication efforts on additional ad-hoc donations? Using monthly transaction data for about 7,800 donors of a human-rights charity, we show how especially publicity and direct marketing, and less so advertising, encourage donors to migrate from a noncontractual to a contractual relationship. We find that entering a contract decreases the donor's noncontractual ad-hoc spending but the contractual payments largely compensate for this. Moreover, the contractual relationship makes the donor's noncontractual spending more susceptible to direct marketing and, especially, publicity. Advertising, in contrast, is ineffective at increasing noncontractual spending, in particular when the donor is in a contractual relationship. On the basis of several counterfactual simulations, we illustrate the implications of our findings.

1. Introduction

In 2016, charitable giving in the US amounted to $390 billion, 72% of which came from individuals (CharityNavigator.Org, 2018). In many developed countries, more than half of the population donates to good causes (CAF, 2017). To avoid volatility in the income stream and facilitate financial planning, charities increasingly try to convert their donors into "contractual" contributors, making fixed periodic payments (Klein, 2016). While noncontractual donorship only entails ad hoc donations, contractual donation occurs automatically and on a periodic basis (Thomas, Feng, & Krishnan, 2015). For example, in the UK, one of the most common ways of donating money to charity is via direct debit, in which the donor gives the charitable organization permission to periodically withdraw an agreed amount of money (Charities Aid Foundation, 2018). Similarly, the donor can use a standing order to commission the bank to deduct money from his or her account (or credit card) every pre-specified period.

Both contractual and noncontractual relationships may be profitable, but contractual relationships help to reduce risk and generate steady revenue streams (see Tarasi, Bolton, Hutt, & Walker, 2011). Nonetheless, in addition to persuading donors to adopt a contractual donation scheme, charities keep on investing heavily in marketing campaigns to solicit additional ad-hoc donations, from noncontractual as well as contractual donors (Tubesing, 2014). This context leads to a number of intriguing questions: Which communication channels should a charity use to convince donors to enter a contractual relationship? Do donors increase or decrease their total spending after migrating to a contract? And does a contractual relationship influence the effects of communication efforts on additional ad-hoc donations?

Surprisingly, despite the growing academic interest in charity marketing (e.g., Botner, Mishra, & Mishra, 2015; De Bruyn & Prokopec, 2017), no donation research to date has

investigated mixed settings with both noncontractual and contractual donors, and the interplay between these relationship states. In addition, most previous research that models actual donation behavior, has largely focused on the effects of direct mailing – assuming that an individual only makes a donation in response to a direct appeal – and has ignored the impact of other communication channels such as advertising and publicity (Donkers, van Diepen, & Franses, 2017). However, with the advent of the General Data Protection Regulation (GDPR) in Europe and increased control over the direct correspondence with individuals, many charities have moved their attention back to mass communication (Hazelton, 2017). Furthermore, not-for-profit organizations often cannot afford the costs of advertising and direct marketing (DM) campaigns, and therefore run inexpensive public-relations (PR) programs – some even hire PR managers – to raise awareness and encourage donations (Hamilton, 2014).

On the basis of monthly transaction data for about 7,800 donors of a human-rights organization, we investigate the interdependencies between (marketing) communication efforts and contractual and noncontractual donation decisions. We make the following three key contributions. First, we examine the effects of DM, advertising, and publicity on donors' adoption of a contractual relationship and the periodic donation amount. For example, our results show that especially publicity and direct marketing, and less so advertising, lead donors to migrate from noncontractual to contractual relationships. Second, we analyze how a contractual relationship affect donors' noncontractual decisions and total donation amount. We find that, once in a contractual relationship (and irrespective of the contractual amount), donors decrease the frequency and amounts of their noncontractual donations, which can be explained on the basis of mental budgeting and licensing principles (Heath & Soll, 1996; Khan & Dhar, 2006). Importantly, however, contractual payments largely compensate for this decrease in noncontractual spending. Third, we assess the impact of a contractual relationship

on donors' responsiveness to communication efforts. Specifically, adopting a contract reinforces the positive effects of DM and publicity and the negative effect of advertising on noncontractual donations: donors who adopt a contract enhance their involvement with the charity (Garbarino & Johnson, 1999), such that they are more likely to attend to any relevant communication. We attribute the overall meager advertising effects to overhead aversion, which implies that donors are reluctant to donate to charities with high administrative and fundraising costs (Gneezy, Keenan, & Gneezy, 2014).

In what follows, we first explain how our work relates and contributes to the relevant literature. We then propose a conceptual framework and hypotheses. Next, we discuss our data and develop econometric models for donors' contractual and noncontractual donation incidence and amount decisions. We present our results and use the estimated model for a number of counterfactual simulations shedding light on the consequences for donors' lifetime value. We conclude with a discussion of the implications and options for further research.

2. Contribution to the Literature

A vast body of research has studied the effects of various factors on donation behavior, such as donor characteristics (e.g., Hsee, Yang, Zheng, & Wang, 2015; Lee, Winterich, & Ross Jr., 2014; Nelson, Brunel, Supphellen, & Manchanda, 2006; Winterich & Zhang, 2014), characteristics of the cause or beneficiaries (e.g., Botner et al., 2015; Small & Simonsohn, 2008; Smith, Faro, & Burson, 2013; Winterich, Mittal, & Ross Jr., 2009), social influence (e.g., Allen, Eilert, & Peloza, 2018; Kurt, Inman, & Argo, 2011; Shang, Reed, & Croson, 2008), and public recognition of the donation (e.g., Simpson, White, & Laran, 2018; Wang & Tong, 2015; Winterich, Mittal, & Aquino, 2013). In addition, researchers have started to examine the effects of different communication strategies. Indeed, because charities are facing dwindling government support and slow growth in donations (Khodakarami, Petersen, & Venkatesan, 2015), they increasingly rely on marketing communication to raise money.

Two literature streams are relevant in this respect. The first line of, mainly experimental, research examines the effects of donation appeal content and framing (e.g., Sudhir, Roy, & Cherian, 2016). For example, prior work has documented the role of donor- and organization-related information (Fajardo, Townsend, & Bolander, 2018), default donation amounts or anchors (De Bruyn & Prokopec, 2017; Goswami & Urminsky, 2016), and matching contingent on reaching a target percentage of donors (Anik, Norton, & Ariely, 2014).

The second research stream, in which we position our work (see Table 1), uses donor panel transaction data to model the cross-time effects of marketing communication. For example, van Diepen, Donkers, and Franses (2009a, 2009b), Khodakarami et al. (2015), and Schweidel and Knox (2013) document the short- and long-term impact of DM on donation behavior. One key finding of this research is that DM may not only have positive effects. For instance, Van Diepen et al. (2009b) and Schweidel and Knox (2013) find that, conditional on a gift being made, DM may reduce the donation amount.

While this literature stream has yielded interesting insights, it falls short in two respects. First, it assumes that donations solely occur in response to DM contacts (e.g., direct mail). As a consequence, it only considers the impact of DM and ignores other communication types, such as advertising and publicity. In fact, studies on the impact of publicity on consumers' spending decisions appear to be missing altogether. Any research on the role of publicity has been limited to its effects on aggregate sales performance (e.g., Burmester, Becker, van Heerde, & Clement, 2015; Ching, Clark, Horstmann, & Lim, 2016) or mindset metrics (e.g., Eisend & Küster, 2011). Second, the available studies focus on *noncontractual* settings in which donors exclusively make ad-hoc donations without any pre-commitment. One exception is a study by Thomas et al. (2015), which investigates contractual donors' upgrading and churn decisions. Still, no research is available that deals with the common situation in which donors can make *both* contractual and noncontractual donations, and

adoption of a contract may have crucial implications for donors' noncontractual donation decisions and total spending.

Our research contributes to this literature in three ways. First, we investigate whether DM as well as advertising and publicity can stimulate donors to migrate from a purely noncontractual to a contractual relationship. In this respect, our research is related to a few studies in a for-profit setting about the drivers of customers' migration to contracts (Ngobo, 2005; Polo & Sese, 2013). However, these studies only include the effects of relationship characteristics (e.g., relationship length, interaction frequency), socio-demographics, satisfaction, service quality, and pricing, and have ignored the role of our focal communication variables.

Second, we assess the extent to which migration to a contractual relationship affects a donor's noncontractual and total spending. Anik et al. (2014) and Polo and Sese (2013) argue that people in a contractual relationship generate higher revenues, while other work demonstrates that the most committed customers are not necessarily the biggest spenders (Reinartz & Kumar, 2000). Importantly, none of these studies explicitly account for the fact that people may self-select into specific relationship types. As a result, the causal effects of migration to a contract on donations remain to be investigated empirically.

Third, we examine whether donors' transition to a contractual relationship influences the responsiveness of their noncontractual spending to marketing communication and publicity. Firms that manage a portfolio of customers with and without contract want to know which of these customers need most attention, and which communication channel is most likely to trigger incremental transactions. Previous research has argued that the nature of a customer's relationship with the firm moderates the customer's susceptibility to marketing. For example, Datta, Foubert, and van Heerde (2015) demonstrate that the impact of advertising and DM on customer retention depends on whether the customer has been acquired through a free-trial or

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not. Furthermore, Netzer, Lattin, and Srinivasan (2008) and Zhang, Watson Iv, Palmatier, and Dant (2016) find that the effects of a firm's efforts to strengthen relationships depend on customers' current relationship strength. However, these studies do not shed light on how a customer's contractual state moderates the effects of communication efforts on additional, noncontractual spending.

Table 1. *Contribution of the Present Study to the Relevant Donation Literature*

	Communication variables	Modeled relationship states	Interactions between communication and relationship state
van Diepen et al. (2009a)	DM	Noncontractual only	No
Van Diepen et al. (2009b)	DM	Noncontractual only	No
Khodakarami et al. (2015)	DM	Noncontractual only	No
Schweidel and Knox (2013)	DM	Noncontractual only	No
Thomas et al. (2015)	DM	Contractual only	No
This study	**DM, advertising, and publicity**	**Both noncontractual and (migration to) contractual**	**Yes**

3. Conceptual Framework and Hypotheses

To make the above contributions, we formally assess a number of relationships. As shown in Figure 1, we examine (1) how DM, advertising, and publicity affect donors' noncontractual donation decisions; (2) how these communication channels influence migration to a contractual relationship; (3) how a contractual relationship affects noncontractual spending; and (4) how a contractual relationship changes the effects of the three communication channels on noncontractual donation behavior. In addition, though not explicitly shown in Figure 1, we discuss how migration to a contract affects the *total* (i.e., noncontractual plus contractual) donation amount.

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Figure 1. *Conceptual Framework*
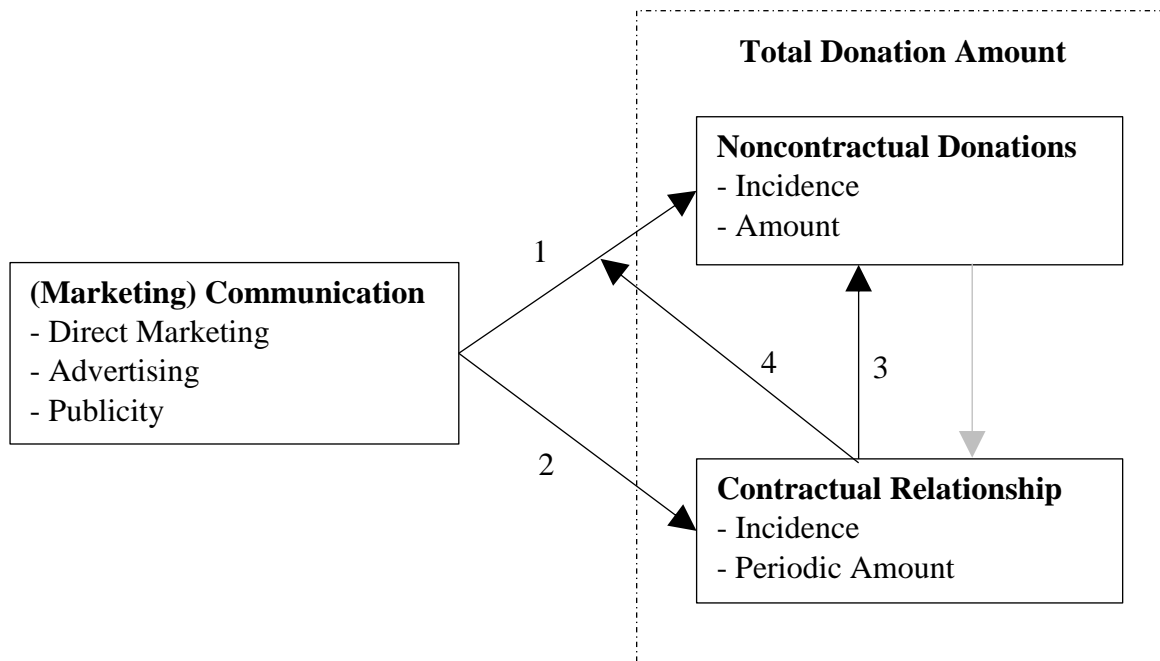
For the sake of completeness, Figure 1 also displays the effect of noncontractual donations on a donor's contractual decisions (grey arrow). Though not crucial for our analysis, this relationship accounts for the possibility that donors who have given large noncontractual amounts in the recent past, may be less or more likely to enter a contract or commit to large periodic amounts. Previous research has highlighted the impact of previous transactions (e.g., frequency of donations) on customers' transition to a different type of relationship (e.g., Netzer et al., 2008; Polo & Sese, 2013).

Following Fajardo et al. (2018), we decompose noncontractual donation behavior into two components: incidence – whether or not to donate – and amount – how much to donate. Similarly, for donors considering migration to a contract, we distinguish between the incidence decision – whether or not to enter a contractual relationship – and the amount decision – how much to donate periodically.[1]

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[1] We assume the periodicity to be fixed (i.e., one month), such that the periodic amounts are comparable across donors. If this is not the case (like in our empirical setting), the donation amounts should be converted to the

3.1 Impact of Marketing Communication and Publicity on the Decisions of Non-Contractual

Donors

We first consider the extent to which DM, advertising, and publicity enable a charity to manage its noncontractual donors, namely by influencing their noncontractual donations or converting them into contractual donors (relationships 1 and 2 in Figure 1). Existing research on communication effectiveness and charitable giving has put forward several arguments for why these channels may be more or less effective (see Kotler & Armstrong, 2010). Four specific principles are of prime importance for the present study. Below, we explain how these principles influence the effects of DM, advertising, and publicity. Table 1 summarizes our discussion.

A first criterion on which the three communication devices can be assessed is credibility. The credibility of the source through which a message is distributed influences the extent to which the message leads to attitude change (Hovland & Weiss, 1951). Credibility is particularly important in a charity context as it drives the amount of guilt arousal generated by the message (Hibbert, Smith, Davies, & Ireland, 2007). Prospective donors are unlikely to act if they do not perceive the charity's claimed need for funds as credible (Bendapudi, Singh, & Bendapudi, 1996; Supphellen & Nelson, 2001). Previous work has argued that advertising has relatively low credibility whereas publicity is generally considered a reliable source: while publicity typically intends to provide objective information, advertising is usually driven by a profit motive and is under full control of the sponsor, making the content suspicious to the customers (e.g., Burmester et al., 2015; Darke & Ritchie, 2007; Eisend & Küster, 2011; Lord & Putrevu, 1993). DM is likely to suffer from the same lack of credibility

same periodicity. For example, a contractual donor who donates €6 every quarter of a year, is assigned a periodic (i.e., monthly) donation amount of €2.

as does advertising. Donors often respond defensively to DM as they consider it a means merely used to persuade the receiver (Diamond & Noble, 2001).

Second, the three communication channels can be described in terms of the degree to which message content can be customized (Eisend & Küster, 2011). By customizing message content, the charity organization can optimize the effect and enhance the donor's perceived accountability (cf., Smith & Schwarz, 2012). Although publicity can be influenced through public relations, charities, like other organizations, have little control over actual message content (Balasubramanian, 1994). In contrast, advertising can be customized such that the ad content fits well with the target audience, while DM, in addition, can be fully personalized (Batra & Keller, 2016; Calder & Malthouse, 2005).

Third, while DM and advertising are paid media, publicity is free (abstracting from public relations costs). This is an important difference because charity organizations and donors alike are highly concerned about the organization's overhead, that is, all money that does not directly go to the charitable mission, like fundraising costs. Charity assessment organizations, such as Charity Navigator, use overhead ratios (the overhead divided by total donation funds) to rate charities (Barrett, 2011). Recent research demonstrates that donors display "overhead aversion," avoiding charities with high overhead (Caviola, Faulmüller, Everett, Savulescu, & Kahane, 2014; Gneezy et al., 2014; Sargeant, West, & Ford, 2001). In a similar vein, Townsend (2017) reports negative effects of expensive communication efforts on donor behavior. Clearly, publicity is not likely to trigger overhead aversion, but marketing communication is. Especially mass advertising may elicit the question: "Is that how they spend my money?" DM campaigns also draw on the charity's operational budget but since their scale – and thus the investment involved – is less observable to individual donors, these campaigns are likely to meet with less resentment.

Fourth, the three communication channels may also differ in the extent to which they cause customers to feel irritated. Existing evidence shows that DM can evoke irritation among donors (van Diepen et al., 2009a). Similarly, advertising may trigger irritation and reactance (e.g., Aaker & Bruzzone, 1985; Liu, Sinkovics, Pezderka, & Haghirian, 2012), in particular when it uses strong guilt appeals (e.g., Coulter & Pinto, 1995). Overall, irritation is most likely to occur when message content is controlled by the charity. Publicity, over which charities exert far less control, is therefore less likely to lead to irritation.

Table 2. *Strengths and Weaknesses of DM, Advertising, and Publicity in a Charity Context*

	Credibility	Customizability	Overhead aversion	Irritation
DM	−	+ +	−	−
Advertising	−	+	− −	−
Publicity	+ +	−	+	+

Table 2 shows that all three communication channels have advantages and disadvantages. Publicity seems to emerge as the most effective channel but, because we do not know the relative importance of the different principles, it is hard to predict the channels' (relative) net effects. In fact, the evaluation in Table 2 does not exclude the possibility that some of the net effects are even negative. We leave the (relative) effects of the three studied channels as an empirical question, which we will address when we discuss our results. Also in a for-profit context, there is debate about which communication channel is most effective. Specifically, previous research comparing advertising with publicity in a for-profit setting does not offer consistent insights (Eisend & Küster, 2011). While some authors argue in favor of publicity (e.g., Pohl, 2009), other studies find advertising to be equally or even more effective (e.g., Jo, 2004; Salmon, Reid, Pokrywczynski, & Willett, 1985).

3.2 Impact of Contractual Relationship on Donors' Non-Contractual Donations and

   Communication Responsiveness

Engaging in a contractual relationship with a charity may have several implications for a donor's donation behavior. First, we expect that donors who adopt a contract are likely to at least partly compensate for the recurring donations by decreasing their noncontractual spending (relationship 3 in Figure 1). According to licensing theory, after showing altruistic behavior, people may feel "licensed" to engage in more self-indulgent choices (Khan & Dhar, 2006). This is because each individual has an ideal level for his or her moral self-worth and feeling "too moral" after a good deed may encourage people to internally balance it by refraining from moral behavior (Sachdeva, Iliev, & Medin, 2009). More specifically, contractual donations may reduce donors' feelings of guilt (Strahilevitz & Myers, 1998), which could decrease the willingness to make additional (noncontractual) donations (e.g., Bendapudi et al., 1996; Cunningham, Steinberg, & Grev, 1980).

   The same prediction can be made on the basis of mental budgeting theory (Heath & Soll, 1996; Thaler, 1985). If donors hold a single mental periodic charity budget for both noncontractual and contractual donations (e.g., Gourville, 1998; Sussman, Sharma, & Alter, 2015), they may consider that budget at least partly depleted once they have subscribed to a contractual donation scheme (Flaherty & Diamond, 1999; Heath & Soll, 1996). As a result, contractual donors are less willing to make noncontractual donations and if they donate, the amounts are likely to be smaller. On the basis of the above discussion, we formulate the following hypothesis:

H_1: Adopting a contract lowers the (a) incidence and (b) amounts of noncontractual

   donations.

We expect these negative effects to be most outspoken when the contractual periodic donation amount is substantial. Indeed, a high contractual donation amount may reinforce the licensing mechanism. Similarly, the donor's remaining mental charity budget will be smaller when the contractual amount is large such that he or she may become even less likely to make a (sizeable) noncontractual donation. Hence, we hypothesize that:

H_2: The contractual periodic amount strengthens the (a) incidence and (b) amount effects in H_1.

The second implication of the adoption of a contract is that it may change the effects of the three focal communication devices on a donor's noncontractual donation decisions (relationship 4 in Figure 1). We identify two underlying mechanisms that could determine how a contract influences donors' communication responsiveness. On the one hand, following the logic of licensing theory, a contractual relationship authorizes donors to be less responsive to any subsequent communication efforts (Khan & Dhar, 2006). Specifically, it tempers the relative importance of any positive channel characteristic mentioned in Table 2, whether it is credibility, customizability, or the absence of overhead aversion and irritation. As a result, the effectiveness of the three communication channels may decrease once the donor has established a contractual relationship with the charity.

On the other hand, according to relationship theory, donors who subscribe to a contract enhance their involvement with and commitment to the charity (Garbarino & Johnson, 1999). Contractual donors may even identify themselves with the charity and create a joint identity (Arnett, German, & Hunt, 2003). As a consequence, they may consider any related messages more personally relevant. Previous research has shown that when involvement is high, people attend more extensively to any relevant communication (Celsi & Olson, 1988; Gordon, McKeage, & Fox, 1998). Thus, contractual donors will assign greater weights to the communication channels' weaknesses and strengths summarized in Table 2, such that the net

effects get reinforced. Positive net effects will become more positive and negative net effects, if any, will become more negative.

The above discussion offers two clearly different expectations. While the first line of thought implies that a contractual relationship negatively moderates the communication effects on noncontractual donation incidence and amount, the second line of thought suggests that adopting a contract reinforces the communication effects. Because these two expectations are equally plausible, we present competing hypotheses:

H_3: Adopting a contract decreases the impact of (marketing) communication on the (a) incidence and (b) amounts of noncontractual donations.

H_3^{alt}: Adopting a contract reinforces the impact of (marketing) communication on the (a) incidence and (b) amounts of noncontractual donations.

The moderation effects are likely to be strongest when the donor's contractual donation amount is high. A large contractual amount may strengthen the licensing mechanism and thus further decrease the communication effects. Alternatively, under relationship theory, a large contractual amount signals stronger involvement with the charity and may therefore further reinforce the communication effects. In summary, we can thus hypothesize that:

H_4: The contractual periodic amount strengthens the (a) incidence and (b) amount effects in H_3 (H_3^{alt}).

3.3 Impact of Contractual Relationship on Donors' Total Spending

A crucial question is whether and how a donor´s adoption of a contract will affect the total donation amount. On the one hand, entering a contract and fixing a periodic donation amount enables donors to control their spending behavior, while noncontractual donations may be more impulsive and harder to keep track of (Taute & McQuitty, 2004). As a result, adoption

of a contract may lead donors to spend less than when they would have stayed in a purely noncontractual relationship.

On the other hand, there are several convincing reasons to believe that the revenues generated by the contract will more than compensate for the decrease in noncontractual spending, leading to an *increase* in total spending. As argued before, donors may see the adoption of a contract as a way to step up their involvement with the charity. Consequently, they may be willing to give more than they would have done in a purely noncontractual relationship. Garbarino and Johnson (1999) found that people with a season pass for a theater company showed higher levels of involvement and greater future purchase and donation intentions than individual ticket buyers. In fact, in line with the work by Ariely and Wertenbroch (2002) and Wertenbroch (1998) on procrastination and self-control, donors may use the contract as a strategic pre-commitment device that overcomes postponement and forces them to donate sufficiently generously.

Even when a donor subscribes to a contract for convenience reasons – merely to replace anticipated individual noncontractual donations – two specific psychological mechanisms may trigger more and higher donations. First, hyperbolic discounting implies that consumers discount efforts in the remote future more heavily than near-term efforts (Breman, 2011; Thaler & Benartzi, 2004). As a result, when adopting a contract, donors may unintentionally commit to a more generous donation pattern than the pattern that would have emerged from separate noncontractual donation decisions, made at successive points in time. Second, once a donor has adopted a contract, the ensuing money transfers may be less salient in the donor's mind than individually contemplated and manually executed donations (Soman, 2001). Thus, the donor may not fully account for his or her contractual transactions when considering any additional noncontractual donations, and end up spending more than in the absence of a contract.

In summary, given the prevalence of arguments in favor of increased total spending, we hypothesize that:

H5:   Entering a contractual relationship increases the total donation amount.

4. Data

For this study, we collaborated with a branch of an international human-rights organization based in a Western European country. The organization garners donations in two ways: either donors give on an ad-hoc basis, without further commitment (henceforth "noncontractual donors"), and/or they commit to donate a self-determined amount on a recurring basis (henceforth "contractual donors"). Contractual payments are made through a standing order that instructs the bank to transfer money to the charity's account at regular intervals, whereas noncontractual payments are executed manually by the donor.[2] During the observation period, the organization made use of direct-marketing and mass advertising, and regularly received publicity in the media.

The dataset contains six years of transaction data for 8,170 people who became donor before the start of our observation period and have complete gender and age information (we use these data as controls in our model). Furthermore, we only keep those donors who made at least one donation during the last five years of the observation period, which we use for estimation. After matching the data with additional sociodemographic information (annual income and household size at census-block level) obtained from the studied country's national statistics office, we are left with a dataset of 7,817 donors. Of these donors, 3,070 people (39.3%) were contractual at the start of the observation period and 2,271 people (29.05%) became so during the observation period. The descriptive statistics in Table 3 show

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[2] In the studied period, donors who opted for a recurring donation scheme could also choose to not use a standing order and instead periodically transfer the money manually by themselves. We do not include those people because the dataset does not allow us to systematically distinguish between their recurring payments and any additional noncontractual payments.

that contractual donors (i.e., the donors that were contractual at some point during the observation period) were younger when they made their first donation, skew less male, have a somewhat lower annual income, and joined the organization more recently than donors who did not engage in a contractual relationship during the observation period.

We aggregate each donor´s transaction decisions to the monthly level. While the first 12 months of the dataset are used to initialize our recursive variables (see model section), the remaining 60 months are for estimation. Importantly, since we do not study donors' decision to end a contract, we discard the observations of contractual donors after the month of their last contractual donation.[3] For donors who remained noncontractual during the entire observation period or were still in a contractual relationship at the end of the observation period, the donation history remains complete. In total, we use 424,207 monthly observations for estimation.

We merge the donation data with monthly direct-marketing, advertising, and publicity information. Our direct-marketing variable captures the number of contacts (usually via regular mail, exceptionally through email or phone) with a given donor in a given month, and is based on the organization's own records. Furthermore, we rely on syndicated data to compute a share-of-voice advertising variable. Specifically, we divide the focal organization's advertising expenditures (print, TV, radio, theatre, and outdoor) in a given month by the advertising expenditures of all human rights organizations. Finally, following Burmester et al. (2015), we consider print media coverage to measure the amount of publicity. More precisely, using a print media database, we derive a share-of-voice publicity measure by dividing the number of articles in which the focal charity was mentioned in a

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[3] Notice that, in the present context, the termination of a contractual relationship is typically latent. When contractual donations stop at a certain point, we only know that the donor ended the contract between the month of the last contractual donation and the month in which the next donation should have taken place if the donor had not terminated the contract. Hence, we are only certain about the exact month of contract termination if contractual donations occurred on a monthly basis.

given month by the number of articles mentioning *any* human rights organization. In Table 3, we report descriptive statistics for direct marketing, advertising, and publicity for observations under noncontractual and contractual conditions.

Table 3. *Descriptive Statistics*

	Noncontractual donors		Contractual donors	
	Mean	Std. dev.[a]	Mean	Std. dev.
Age (years, on first donation)	47.016	14.085	30.183	14.340
Gender (1 = male)	.701	.458	.545	.498
Annual income (€, average of census block)	26,962.300	6,054.348	25,988.980	5,684.272
Household size (members, average of census block)	2.408	.322	2.409	.328
Relationship length (years, at start of observation period)	11.069	3.200	7.145	4.658
Number of donors	2,476 (31.7%)		5,341 (68.3%)	

	Observations under noncontractual conditions		Observations under contractual conditions	
	Mean	Std. dev.	Mean	Std. dev.
Monthly noncontractual donation incidence	.057	.232	.005	.072
Noncontractual donation amount (conditional on incidence, €)	101.139	193.760	33.109	57.211
Monthly contractual amount (€)	–	–	5.152	7.787
Total monthly amount (€)	5.747	51.782	5.323	9.298
Direct marketing (contacts)	.342	.478	.130	.339
Advertising (share-of-voice)	.340	.430	.348	.432
Publicity (share-of-voice)	.493	.093	.496	.093
Number of monthly observations	191,941 (45.2%)		232,266 (54.8%)	

Notes: [a] Std. dev. = Standard Deviation

A first descriptive analysis of the donation data (see Table 3) shows that donors with a contractual relationship are, on average, much less likely to make a noncontractual, ad-hoc donation than donors without a contractual relationship (.005 versus .057 times per month). Moreover, when contractual donors do make an additional, noncontractual donation, the amount they give is smaller than for noncontractual donors (€33.109 versus €101.139). Interestingly, even when we account for their recurring periodic donations, contractual donors seem to spend less per month than donors without a contract (€5.323 versus €5.747).

As we will demonstrate, such a descriptive comparison may lead to erroneous conclusions as it ignores the role of covariates and self-selection.

5. Model

To study the phenomena of interest, we model donors' monthly decisions (a) whether or not to become a contractual donor (contractual incidence), (b) if so, how much to donate on a recurring basis (contractual amount), (c) whether or not to make any noncontractual payment (noncontractual incidence), (d) and if so, how much to donate (noncontractual amount). The goal is to investigate how marketing communication and publicity affect these four decisions (relationships 1 and 2 in Figure 1), and how the contractual donation decisions (a) and (b) influence the process underlying the noncontractual donation decisions (c) and (d) (relationships 3 and 4 in Figure 1). Although most contractual payments (85%) occur on a monthly basis, donors are free to determine a different donation frequency. Therefore, we systematically express the amounts in decision (b) in monthly terms. Furthermore, notice that once a donor has decided to start a contractual relationship, the payments that automatically follow from this contract are not modeled as separate decisions. Still, a donor can decide to make discrete noncontractual payments parallel to the contractual transactions. Below, we discuss our model structure in detail.

5.1 Contractual Donation Models

We use a binary probit model for the decision whether or not to become a contractual donor. U_{it}^C, which represents the latent utility when donor i adopts a contract in month t, is written as follows:

$$U_{it}^C = \alpha_{0i} + \alpha_{1i}DMStock_{it} + \alpha_{2i}AdvStock_t + \alpha_{3i}PubStock_t + \alpha_{4i}X_{it} + \varepsilon_{it}, \qquad (1)$$

where $\alpha_{0i}, \alpha_{1i}, \ldots, \alpha_{4i}$ are donor-specific coefficients and ε_{it} is an error term following a standard-normal distribution. $DMStock_{it}$, $AdvStock_t$, and $PubStock_t$ are direct-marketing,

advertising, and publicity stock variables, which account for communication efforts in previous periods (e.g., Braun & Moe, 2013; Iyengar, Van den Bulte, & Valente, 2011). Specifically, $DMStock_{it} = \lambda^{DM} DMStock_{i(t-1)} + (1 - \lambda^{DM}) DM_{it}$, $AdvStock_t = \lambda^{Adv} AdvStock_{t-1} + (1 - \lambda^{Adv}) Adv_t$, and $PubStock_t = \lambda^{Pub} PubStock_{t-1} + (1 - \lambda^{Pub}) Pub_t$. DM_{it} is the number of direct-marketing contacts received by donor i in month t, Adv_t the advertising share-of-voice in month t, and Pub_t the publicity share-of-voice in month t. λ^{DM}, λ^{Adv}, and λ^{Pub} are decay parameters capturing the extent to which previous communication carries over to the next period. They are modeled as logit transformations to guarantee they are between 0 and 1, and are estimated along with the other parameters. As indicated before, we use the first 12 months of our observation period to compute the initial values of the stock variables. The coefficients of the stock variables shed light on the effect of the communication channels on the choice to become a contractual donor (see relationship 2 in Figure 1).

X_{it} is a vector of control variables. We account for the role of relationship length by including the time since the donor's first donation (e.g., Foubert & Gijsbrechts, 2016). We also add a stock variable $DonStock_{it}$ that captures the impact of previous noncontractual payments: $DonStock_{it} = \lambda^{Don} DonStock_{i(t-1)} + (1 - \lambda^{Don}) Don_{i(t-1)}$, with $Don_{i(t-1)}$ the noncontractual donation amount in the previous month and λ^{Don} a decay parameter that determines the carry-over effect of prior donations. λ^{Don} is also modeled as a logit transformation, and estimated with the other parameters. The donation stock variable enables us to control for state dependence. Finally, to capture seasonal effects in a parsimonious way, we include a goniometric wave in the model (e.g., Kiygi Calli, Weverbergh, & Franses, 2012). Specifically, we add a pair of sine and cosine functions of time with a one-year periodicity ($\sin(2\pi t/12)$ and $\cos(2\pi t/12)$), and a second sine-cosine pair with a half-year periodicity ($\sin(4\pi t/12)$ and $\cos(4\pi t/12)$).

For the contractual amount decision, we use an ordered probit model to accommodate the discrete spikes in the amount distribution (e.g., Breman, 2011). For example, as shown in Figure 2, panel a, many contractual donors gave €2.5 per month because total yearly amounts of at least €30 were tax-deductible. We split the observed amounts into eight discrete intervals: [0, 1], (1, 2], (2, 3], (3, 4], (4, 5], (5, 6], (6, 10], and (10, +∞). We introduce the latent variable D_{it}^C, which determines the chosen amount interval as follows:

if $D_{it}^C \leq u_1$, the donor selects the first amount interval;

if $u_1 < D_{it}^C \leq u_2$, the donor selects the second amount interval;

…

if $u_7 < D_{it}^C$, the donor selects the eighth amount interval,

where $u_{1, ..., } u_7$ are thresholds and u_1 is set to zero for identification purposes. D_{it}^C receives the same functional form as U_{it}^C:

$$D_{it}^C = \beta_{0i} + \beta_{1i}DMStock_{it} + \beta_{2i}AdvStock_t + \beta_{3i}PubStock_t + \beta_{4i}X_{it} + \xi_{it}, \quad (2)$$

where $\beta_{0i}, \beta_{1i}, ..., \beta_{4i}$ are donor-specific coefficients and ξ_{it} is an error term following a normal distribution $N(0, \sigma^C)$. The variables $DMStock_{it}$, $AdvStock_t$, $PubStock_t$, and X_{it} are as defined before. The coefficients of the stock variables capture the effect of the communication channels on the contractual donation amount (see relationship 2 in Figure 1).

5.2 Non-Contractual Donation Models

Like for contractual incidence, we use a binary probit model for the decision whether or not to make a noncontractual donation. The underlying latent utility U_{it}^{NC} receives the following functional form:

$$U_{it}^{NC} = \gamma_{0i} + \gamma_{1i}DMStock_{it} + \gamma_{2i}AdvStock_t + \gamma_{3i}PubStock_t + \gamma_{4i}CR_{it} +$$

$$\gamma_{5i}CRAmount_{it} + \gamma_{6i}CR_{it} \times DMStock_{it} + \gamma_{7i}CR_{it} \times AdvStock_t +$$

$$\gamma_{8i}CR_{it} \times PubStock_t + \gamma_{9i}CRAmount_{it} \times DMStock_{it} + \gamma_{10i}CRAmount_{it} \times$$

$$AdvStock_t + \gamma_{11i}CRAmount_{it} \times PubStock_t + \gamma_{12i}Z_{it} + \zeta_{it}, \qquad (3)$$

where γ_{0i}, γ_{1i}, …, γ_{12i} are donor-specific coefficients and ζ_{it} is an error term following a standard-normal distribution. CR_{it} is a dummy variable indicating whether donor i has a contractual relationship in month t. If $CR_{it} = 1$, $CRAmount_{it}$ represents the mean-centered contractual monthly donation amount, otherwise it is zero. The coefficient of CR_{it} represents the direct impact of a contractual relationship with an average monthly donation amount, allowing us to test whether engaging in a contract decreases noncontractual donation likelihood and amount (H_{1a}). The coefficient of $CRAmount_{it}$ enables us to test H_{2a} which states that the hypothesized effect in H_{1a} will be stronger when the contractual amount increases. The interactions of CR_{it} with the communication stock variables enable us to test H_{3a} (H_{3a}^{alt}) which hypothesizes that entering a contractual relationship decreases (reinforces) the impact of the communication channels. The interactions of $CRAmount_{it}$ with the communication stock variables, in turn, are included to check whether the changes in H_{3a} or H_{3a}^{alt} are larger when the amount of the contractual donation is higher (H_{4a}). Z_{it} is a vector of control variables and is identical to X_{it}, except that it also includes a dummy variable indicating whether the donor has registered as a "member" of the organization. Members are contractual donors whose fixed payments are seen as membership fees and who receive a monthly magazine "in return." Members may be even less likely to make a noncontractual donation than contractual donors without membership, because the licensing effect may be more outspoken. Alternatively, they may be more committed, which could weaken the licensing effect.

Like before, we model the noncontractual amount decision by means of an ordered probit structure. Figure 2, panel b, demonstrates that the noncontractual amount distribution is indeed too clumpy to be represented by a continuous density function. Again, we divide the observed amounts into eight intervals: [0, 10], (10, 20], (20, 30], (30, 40], (40, 50], (50, 100], (100, 200], and (200, $+\infty$). We define a latent variable D_{it}^{NC} and seven thresholds, which together determine the amount interval selected by the donor. D_{it}^{NC} has the same functional form as U_{it}^{NC}:

$$
\begin{aligned}
D_{it}^{NC} = {} & \delta_{0i} + \delta_{1i}DMStock_{it} + \delta_{2i}AdvStock_t + \delta_{3i}PubStock_t + \delta_{4i}CR_{it} + \\
& \delta_{5i}CRAmount_{it} + \delta_{6i}CR_{it} \times DMStock_{it} + \delta_{7i}CR_{it} \times AdvStock_t + \\
& \delta_{8i}CR_{it} \times PubStock_t + \delta_{9i}CRAmount_{it} \times DMStock_{it} + \delta_{10i}CRAmount_{it} \times \\
& AdvStock_t + \delta_{11i}CRAmount_{it} \times PubStock_t + \delta_{12i}Z_{it} + \upsilon_{it}, \qquad (4)
\end{aligned}
$$

where δ_{0i}, δ_{1i}, …, δ_{12i} are donor-specific coefficients and υ_{it} follows a normal distribution $N(0, \sigma^{NC})$. In line with Equation 3, Equation 4 enables us to test H_{1b}, H_{2b}, H_{3b} (H_{3b}^{alt}), and H_{4b}.

Figure 2. *Distribution of Donation Amounts*
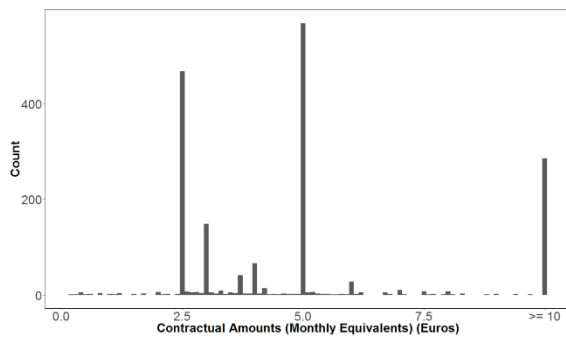
a. Contractual Amounts   b. Noncontractual Amounts
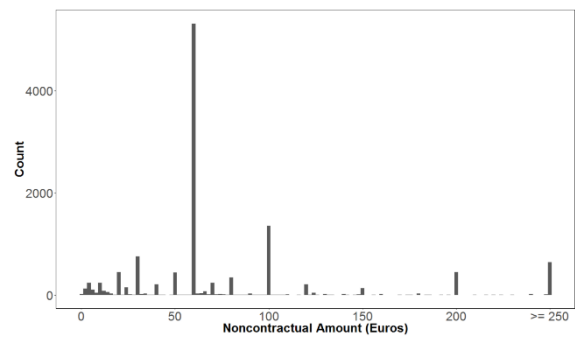
5.3 Donor Heterogeneity

To account for latent donor heterogeneity, all slope coefficients in Equations 1, 2, 3, and 4 follow normal mixing distributions with constant population-level means and standard

deviations. The intercepts α_{oi}, β_{oi}, γ_{oi}, and δ_{oi} are also normally distributed but their expected

values are functions of several donor characteristics:

$$
E\begin{pmatrix} \alpha_{0i} \\ \beta_{0i} \\ \gamma_{0i} \\ \delta_{0i} \end{pmatrix} = \begin{pmatrix} a_0 + a_W W_i \\ b_0 + b_W W_i \\ c_0 + c_W W_i \\ d_0 + d_W W_i \end{pmatrix},
\tag{5}
$$

where a_0, b_0, c_0, and d_0 are parameters and a_W, b_W, c_W, and d_W vectors of coefficients to

be estimated. W_i is a vector of donor characteristics, including the donor's age (in years, on

first donation) and gender (0 = female, 1 = male), and the average annual income (in ten

thousand euros) and average household size of the census block to which the donor belongs.

5.4 Endogeneity Correction

Since we want to assess the causal impact of a contractual relationship on noncontractual

spending (see Equations 3 and 4), we need to beware of interrelationships between the

contractual and noncontractual donation decisions that are not causal in nature. For example,

an intrinsically generous donor is not only likely to engage in a contractual relationship, but

may also be willing to make (additional) noncontractual donations. To prevent such

interdependencies from affecting the main and interaction effects of CR_{it} and $CRAmount_{it}$ in

Equations 3 and 4, we model the correlations across donors between the intercepts α_{oi}, β_{oi}, γ_{oi},

and δ_{oi} (e.g., Datta et al., 2015; Thomas et al., 2015). Thus, $(\alpha_{oi}, \beta_{oi}, \gamma_{oi}, \delta_{oi}) \sim N(E(\alpha_{oi}, \beta_{oi}, \gamma_{oi},$

$\delta_{oi}), \Sigma)$ with Σ a fully parameterized variance-covariance matrix.

In addition, the communication stock variables may lead to endogeneity issues. First,

direct marketing may correlate with the random intercepts α_{oi}, β_{oi}, γ_{oi}, and δ_{oi} when the

charity targets its efforts on the basis of donor characteristics that drive donation decisions

but are unobserved to the researcher. To address this potential problem, we follow Mundlak

(1978) and add the variable $\overline{DM}_i$ to all four equations. $\overline{DM}_i$ contains each donor's average

monthly number of direct marketing contacts and essentially guarantees that any effect

picked up by the coefficient of the direct-marketing stock variable is due to temporal variance, and not cross-sectional variance (see also Datta et al., 2015). Because advertising and publicity are not targeted communication channels, they do not suffer from cross-sectional endogeneity.

Second, we deal with the possible *temporal* endogeneity of all three communication variables. For instance, charities may enhance their communication efforts when donations start to slacken, or public attention may increase when a charity is particularly successful at raising funds. As a result, DM_{it}, Adv_{it}, and Pub_{it} (and thus the stock variables) may be correlated with the error terms in Equations 1-4. In line with a growing body of research (e.g., Burmester et al., 2015; Datta et al., 2015; Schweidel & Knox, 2013), we follow the instrument-free Gaussian copula approach suggested by Park and Gupta (2012). Gaussian copulas allow to partial out the part of the error term that is correlated with the endogenous variables by exploiting the non-normality of the distributions of those variables. Shapiro-Wilk tests indeed show that our communication variables are not normally distributed (direct marketing: $W = .810$, $p < .001$; advertising: $W = .681$, $p < .001$; publicity: $W = .978$, $p < .001$). We then compute $\Phi^{-1}\big(F_{DM}(DM_{it}^*)\big)$, $\Phi^{-1}\big(F_{Adv}(Adv_{it})\big)$, and $\Phi^{-1}\big(F_{Pub}(Pub_{it})\big)$, where Φ^{-1} is the inverse of the standard normal cumulative distribution function and $F_{DM}(.)$, $F_{Adv}(.)$, and $F_{Pub}(.)$ refer to the marginal cumulative distribution functions for direct marketing, advertising, and publicity respectively.[4] We include the outcome of these computations as control variables in our four equations to make sure that the (remaining) error in Equations 1-4 is unrelated to the regressors. Note that, since we have already corrected for the cross-sectional endogeneity of DM_{it}, our computation of $\Phi^{-1}\big(F_{DM}(DM_{it}^*)\big)$ is based on DM_{it}^*, which only contains the temporal variance in DM_{it}. Specifically, we find

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[4] We adopt nonparametric density estimation using the Epanechnikov kernel function to identify the marginal distributions of the communication variables. For more details, see Park and Gupta (2012, p. 571).

DM_{it}^* by centering DM_{it} around the donor's average number of monthly direct-marketing contacts $\overline{DM}_i$ (Datta et al., 2015).

6. Empirical Results

We estimate our four equations simultaneously with simulated maximum likelihood, using 100 Halton draws from the distributions of the random coefficients. We first check the performance of different model specifications. We then report the estimation results for our full model.

6.1 Model Selection

We compare the performance of our proposed model (M1) and alternative models that ignore the effects of contractual relationship and communication variables. Specifically, we consider models without the effect of contractual amount on the noncontractual donation decisions (M2), without the effects of contractual amount and the contractual relationship dummy (M3), without the effects of the communication variables on both the noncontractual and contractual decisions (M4), and without the effects of all of these variables (M5). We re-estimate our full and alternative models using a subsample of the original dataset (calibration sample) while the remaining dataset is used for out-of-sample validation (holdout sample). The calibration sample consists of the first 80% of the longitudinal observations for each donor while the holdout sample comprises the rest. We compare model performance in the calibration period using log-likelihood, Akaike information criterion (AIC), and Bayesian information criterion (BIC). As for out-of-sample predictive power, we evaluate our probit and ordered probit models on the basis of five fit measures: hit probability, hit rate (Gilbride, Allenby, & Brazell, 2006), area under the curve (AUC) for the receiver operation characteristic (ROC) (Chica & Rand, 2017) and the precision recall (PR) curves (Roy, Huh, Pfeuffer, & Srivastava, 2017), and top-decile lift (Lemmens & Croux, 2006).

Table 4 reports the average fit measures (across the contractual and noncontractual incidence and amount decisions) for the five models. Note that our full model M1 outperforms simpler benchmark models for seven out of eight fit criteria, except for average AUC for the ROC curve. In addition, when class imbalance is large for binary datasets (i.e., donation months are relatively rare) and it is more important to predict events (i.e., donation months) than no events (i.e., non-donation months) (Netzer et al., 2008), the PR curve is preferred over the traditional ROC curve (e.g., Stekler & Ye, 2017). In summary, we conclude that our model improves substantially on simpler models and therefore focus on model M1 in the remainder of our discussion.

Table 4. *Model Selection*

	M1	M2	M3	M4	M5
Model Description	Full model	Effect of contractual amount is excluded	Effects of contractual dummy and contractual amount are excluded	Effects of communication variables are excluded	Effects of communication variables, contractual dummy, and contractual amount are excluded
Number of Parameters	170	154	138	103	95
Within-Sample Fit[a]					
Log-Likelihood	**-49,920.238**	-50,076.568	-50,402.447	-55,338.154	-56,291.022
AIC[b]	**100,180.475**	100,461.135	101,080.893	110,882.308	112,772.045
BIC[b]	**102,005.394**	102,114.296	102,562.297	111,987.994	113,791.852
Out-of-Sample Fit[a]					
Average Hit Probability	**.741**	.740	.737	.476	.571
Average Hit Rates	**.748**	.733	.741	.495	.583
Average ROC AUC[b]	.835	**.837**	.835	.713	.701
Average PR AUC[b]	**.331**	.320	.324	.149	.115
Average Top-decile Lift	**6.093**	6.000	5.965	3.727	3.278

Notes: [a] The best model fit is highlighted in bold.
[b] AIC = Akaike information criterion, BIC = Bayesian information criterion, ROC AUC = area under the ROC (receiver operating characteristic) curve, PR AUC = area under the PR (precision recall) curve.

6.2 Estimation Results

There is no evidence of multicollinearity because the Variance Inflation Factor is below 10 for all variables in Equations 1, 2, 3, and 4. Similarly, the correlations between our

independent variables do not signal any major problems (see Appendix A). We report the parameter estimates for the selected model in Table 5. For brevity, we do not report the ordered probit models' threshold parameters, which are all significant at 1% (see Appendix B for details). In what follows, we first discuss the role of the communication variables advertising, DM, and publicity, and the impact of adopting a contractual relationship (see Figure 1). We then report the effects of the control variables. Whenever we discuss heterogeneous coefficients, we focus on the population means; in our counterfactual simulations (see below), we will account for the role of these coefficients' standard deviations. We use two-sided tests of significance and consider a result significant when $p < .05$.

Impact of communication efforts. We first notice that the carry-over effects of the communication instruments are in line with extant research. We find a monthly carry-over of .295 ($p < .001$) for DM, .981 ($p < .001$) for advertising, and .897 ($p < .001$) for publicity. This confirms previous findings that advertising and publicity have strong carry-over effects (e.g., Burmester et al., 2015), while the monthly decay parameter for direct marketing is much lower, meaning that its effect is immediate and forgotten quickly afterwards (i.e., after one month, a DM contact generates only about 30% of its initial effect) (e.g., Van Diepen et al., 2009b). We also find that the coefficients of the Mundlak and Copula-based correction terms are typically significant, suggesting that it is important to control for the endogeneity of the communication channels (Mundlak, 1978; Park & Gupta, 2012). Moreover, the intercepts of the contractual and noncontractual equations are generally significantly correlated, indicating that donors indeed selected themselves into noncontractual or contractual relationships (see Appendix C).

We now turn to the results with regard to the communication effects on contractual donation incidence and amount (relationship 2 in Figure 1). The DM ($\hat{\alpha}_1 = 2.258$, $p < .001$),

advertising ($\hat{\alpha}_2 = .020$, p < .001), and publicity ($\hat{\alpha}_3 = .193$, p < .001) stock variables on average all have a significantly positive effect on the probability to become a contractual donor. This is consistent with previous findings that marketing variables can drive migration to a contract (Ngobo, 2005; Polo & Sese, 2013). Interestingly, conditional on migration incidence, marketing communication does not have a significant impact on the contractual amount, only publicity does ($\hat{\beta}_3 = .557$, p = .006). To compare the communication channels' effects on contractual donation decisions, we report average elasticities in the upper part of Table 6.[5] Notice from the last column that publicity (elasticity of 4.886) has the greatest impact on unconditional contractual donation amount: the elasticities for DM (3.481) and especially advertising (.472) are substantially smaller. Specifically, publicity is relatively effective in terms of both contractual donation incidence (elasticity of 3.126) and amount (elasticity of 1.548). DM seems to be effective only at the incidence level (elasticity of 3.266). Advertising is the least effective channel at both the incidence (elasticity of .618) and amount level (elasticity of −.162).[6] In line with our conceptual framework, overhead aversion may lead donors to react less favorably to a charity with high advertising investments (e.g., Gneezy et al., 2014).

To a large extent, the communication effects on noncontractual donations (relationship 1 in Figure 1) correspond to the effect pattern for contractual donations. When inspecting the unconditional amount elasticities in Table 6 (last column of the middle part), we again find DM (elasticity of .950) and publicity (elasticity of .857) to be substantially more effective than advertising. The elasticity of advertising (−.331) is even negative and thus provides

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[5] To compute the elasticity for a given consumer in a given month, we estimate the extent to which the (non)contractual donation likelihood or amount changes if we increase, respectively, DM, advertising, and publicity by 1%. For this computation, we use the means of the donor-specific posterior distributions of the coefficients. The reported elasticities are averages across donors and months.

[6] The elasticity of the conditional contractual amount with respect to advertising is slightly negative but it is based on a non-significant coefficient.

further support to the principle of overhead aversion. Like before, this pattern mainly results from the effects at the incidence level, less from those at the (conditional) amount level. As we show in Table 5, the mean coefficients capturing the impact of DM and publicity stock on noncontractual donation incidence are significantly positive ($\hat{\gamma}_1 = .817$, p < .001 and $\hat{\gamma}_3 = .074$, p = .046, respectively), while the mean coefficient for advertising stock is significantly negative ($\hat{\gamma}_2 = -.026$, p < .001); the corresponding elasticities in Table 6 reflect this pattern. In contrast, the coefficients at the (conditional) amount level ($\hat{\delta}_1 = -.401$, p = .001 for DM; $\hat{\delta}_2 = .017$, p = .119 for advertising; and $\hat{\delta}_3 = .055$, p = .581 for publicity) and corresponding elasticities are typically small or insignificant. While DM stock does have a significantly negative effect, the elasticity remains very small ($-.034$). Thus, DM encourages donors to give more frequently, yet in slightly smaller amounts.

Impact of contractual relationship on noncontractual donations. The significantly negative coefficients of CR in the noncontractual donation decisions (for incidence: $\hat{\gamma}_4 = -1.922$, p < .001; for amount: $\hat{\delta}_4 = -3.253$, p = .004) indicate that, once a donor has started a contractual relationship, both the frequency and the amounts of the noncontractual donations decrease (see relationship 3 in Figure 1). This finding supports H_1. Importantly, this substitution effect takes place irrespective of the contractual amount: indeed, CRAmount does not have any significant effect on the noncontractual donation decisions (for incidence: $\hat{\gamma}_5 = -.003$, p = .951; for amount: $\hat{\delta}_5 = .205$, p = .369). Thus, H_2 is not supported. These results lend support to licensing theory, which suggests that adopting a contract entitles a donor to make less frequent and smaller noncontractual donations. The fact that this effect occurs irrespective of the contractual amount makes the results less compatible with mental budgeting; this theory implies that donors internally balance their mental donation budget such that there should be at least some proportionality between the contractual amount and the noncontractual spending pattern (e.g., Khan & Dhar, 2006; Sussman et al., 2015). Netzer

et al. (2008) also argue that the act of donating as such is a stronger indicator of relationship strength than the amount donated.

Table 5. *Estimation Results[a]*

	Binomial Probit Incidence Model				Ordered Probit Amount Model			
	Population Mean		Standard Dev.		Population Mean		Standard Dev.	
Contractual Donation								
Intercept	−1.125***	(.152)	.011	(.016)	−.087	(.787)	.046	(.104)
Age	−.007***	(.001)			.009***	(.002)		
Gender: Female	.056***	(.013)			−.135**	(.054)		
Household size	−.028	(.021)			−.079	(.084)		
Household income	−.033***	(.013)			.031	(.054)		
DMStock	2.258***	(.019)	.360***	(.020)	.182	(.222)	.046	(.096)
AdvStock	.020***	(.005)	.001	(.002)	−.030	(.024)	.006	(.010)
PubStock	.193***	(.038)	.001	(.003)	.557***	(.204)	.047**	(.023)
Copula-based DM	−.052***	(.019)			.010	(.017)		
Copula-based Adv	.002	(.035)			−.040**	(.016)		
Copula-based Pub	−.032***	(.006)			−.034	(.036)		
Mundlak-based DM	−7.986***	(.109)			1.524*	(.790)		
Control Variables								
Sine1[b]	−.006	(.008)	.016	(.016)	.008	(.043)	.047	(.151)
Sine2[b]	.005	(.008)	.020	(.017)	−.028	(.040)	.151	(.116)
Cosine1[b]	.028***	(.009)	.010	(.016)	−.016	(.043)	.011	(.135)
Cosine2[b]	−.008	(.008)	.050**	(.020)	.014	(.040)	.015	(.210)
Relationship length	−.057***	(.006)	.003	(.006)	.075***	(.028)	.019	(.050)
DonStock	−.002***	(.001)	.002***	(.000)	.020***	(.006)	.010	(.010)
Noncontractual Donation								
Intercept	−3.809***	(.161)	.536***	(.011)	1.640***	(.469)	1.359***	(.043)
Age	.006***	(.001)			−.012***	(.002)		
Gender: Female	.051**	(.020)			−.606***	(.069)		
Household size	.017	(.031)			−.096	(.089)		
Household income	−.033**	(.016)			.445***	(.043)		
DMStock	.817***	(.038)	.020	(.015)	−.401***	(.120)	.118***	(.045)
AdvStock	−.026***	(.006)	.010***	(.002)	.017	(.011)	.006	(.004)
PubStock	.074**	(.037)	.008***	(.003)	.055	(.100)	.403***	(.026)
CR	−1.922***	(.325)	.610***	(.028)	−3.253***	(1.143)	.541***	(.076)
CRAmount	−.003	(.041)	.020***	(.004)	.205	(.228)	.088***	(.018)
CR x DMStock	.082**	(.037)	.009	(.048)	.391***	(.127)	.034	(.117)
CR x AdvStock	−.092***	(.014)	.008**	(.003)	−.046	(.036)	.115***	(.010)
CR x PubStock	.430***	(.089)	.126***	(.010)	.309	(.302)	.021	(.018)
CRAmount x DMStock	.000	(.006)	.000	(.004)	.061**	(.027)	.152***	(.031)
CRAmount x AdvStock	−.004**	(.002)	.007***	(.001)	−.012*	(.007)	.008***	(.001)
CRAmount x PubStock	.004	(.010)	.001	(.001)	−.007	(.060)	.005	(.003)
Copula-based DM	−.196***	(.015)			−.139	(.108)		
Copula-based Adv	.130***	(.041)			.097***	(.008)		
Copula-based Pub	−2.344***	(.080)			.048**	(.023)		
Mundlak-based DM	3.181***	(.129)			7.327***	(.393)		
Control Variables								

Sine1[b]	.034***	(.009)	.194***	(.015)	.054**	(.024)	.076**	(.032)
Sine2[b]	−.101***	(.008)	.002	(.013)	−.033	(.027)	.108***	(.032)
Cosine1[b]	.205***	(.009)	.346***	(.012)	.004	(.024)	.006	(.036)
Cosine2[b]	.178***	(.010)	.356***	(.012)	−.032	(.023)	.060*	(.031)
Relationship length	.057***	(.008)	.023***	(.004)	.177***	(.027)	.063***	(.008)
DonStock	−.024***	(.001)	.016***	(.001)	.004***	(.001)	.001**	(.001)
Membership	−.355***	(.046)	.179***	(.042)	1.112***	(.128)	.122	(.110)

Carry-Over Parameters

λ^{DM}	.295***	(.008)
λ^{Adv}	.981***	(.003)
λ^{Pub}	.897***	(.006)
$\lambda^{DonStock}$	.662***	(.009)

[a] Numbers in brackets are standard errors.

[b] Controls used to cover yearly cycle: $Sine1 = sin\left(\frac{2\pi t}{12}\right)$; $Sine2 = sin\left(\frac{4\pi t}{12}\right)$; $Cosine1 = cos\left(\frac{2\pi t}{12}\right)$; $Cosine2 = cos\left(\frac{4\pi t}{12}\right)$

* $p < .10$; ** $p < .05$; *** $p < .01$.

Notes: Log-likelihood = −57,928.72; N = 424,207; Bayesian information criterion = 116,814; Akaike information criterion = 116,197. In the table, we report two-sided tests of significance (df = 424,037).

Impact of contractual relationship on communication effectiveness. The coefficients of

the interactions between CR and the communication stock variables indicate that entering a

contractual relationship changes the impact of communication efforts on noncontractual

spending (relationship 4 in Figure 1). More precisely, in the noncontractual donation

incidence model, there are significantly positive interaction effects for DM ($\hat{\gamma}_6 = .082$, $p =$

.027) and publicity ($\hat{\gamma}_8 = .430$, $p < .001$), while the interaction effect for advertising is

significantly negative ($\hat{\gamma}_7 = −.092$, $p < .001$). These findings are in line with H_{3a}^{alt} and support

relationship theory which implies that a contractual relationship with a charity makes donors

more involved and thus more attentive to any subsequent charity-related information. As a

result, the already existing positive effects of DM and publicity become even more positive

and the negative effect of advertising turns even more negative.

For the noncontractual amount model, we found before that the communication stock

variables hardly have any effect. The coefficients of the interactions between CR and the

stock variables now show that adopting a contractual relationship does not fundamentally

change this pattern, such that we do not find support for either H_{3b} or H_{3b}^{alt}. Specifically, while

the interaction effect is significantly positive for DM ($\hat{\delta}_6$ = .391, p = .002), it is non-significant for advertising ($\hat{\delta}_7$ = −.046, p = .194) and publicity ($\hat{\delta}_8$ = .309, p = .307). The positive interaction effect for DM more or less compensates the negative main effect of DM ($\hat{\delta}_1 = −.401$). In other words, when a contractual donor makes an additional noncontractual donation in response to a DM contact, he will give more or less the amount that he would have given without a DM contact.

We learnt before that the contractual amount does not influence the extent to which a contractual relationship affects noncontractual giving. Our results for the interactions between CRAmount and the communication stock variables indicate that, also when it comes to the impact of a contractual relationship on communication effectiveness, the role of the contractual amount remains limited. In support of H$_4$, we find that the contractual amount significantly reinforces the effects of a contractual relationship on advertising effectiveness at the incidence level (γ_{10} = -.004, p = .011) and on DM effectiveness at the (conditional) amount level (δ_9 = .061, p = .024). However, all other interaction effects between the communication variables and contractual amount are non-significant.

Table 6. *Elasticities*

	Incidence	Amount, Conditional on Incidence	Unconditional Amount
Contractual Donation Elasticities			
DMStock	3.266	.043	3.481
AdvStock	.618	−.162	.472
PubStock	3.126	1.548	4.886
Noncontractual Donation Elasticities for Donors Without a Contractual Relationship			
DMStock	1.029	−.034	.950
AdvStock	−.375	.031	−.331
PubStock	.577	.169	.857
Noncontractual Donation Elasticities for Donors With a Contractual Relationship			
DMStock	1.136	.131	1.390
AdvStock	−1.541	−.401	−1.626
PubStock	4.244	.553	4.449

A comparison of the communication elasticities in the bottom part of Table 6 with those in the middle part shows how the adoption of a contract influences the communication effects on noncontractual donations. We find that the elasticities for the unconditional noncontractual amount (last column) are higher in absolute value when donors move from a noncontractual to contractual relationship. Indeed, for noncontractual donors, the elasticities with respect to DM, advertising, and publicity equal .950, -.331, and .857 respectively, while they are 1.390, -1.626, and 4.449 for contractual donors. As pointed out before, this shift is mainly due to effects that take place at the incidence level. Interestingly, overall, DM is somewhat more effective than publicity for noncontractual donors, while publicity is by far the most effective communication channel for contractual donors. Advertising appears ineffective across the board.

Our last hypothesis (H_5), about the difference in total spending between contractual and noncontractual donors will be tested by using simulation, of which the results will be reported in the next part.

Control variables. The effects of previous noncontractual donations, captured by the donation stock variable DonStock, are significant in all models and, as indicated by the relatively large carry-over parameter ($\lambda^{Don} = .662$, $p < .001$), are rather persistent. Consistent with the licensing principle, donors who have already donated a lot in the past are less likely to engage in a contractual relationship or make additional noncontractual donations. However, once they become a contractual donor or decide to make a noncontractual donation, they give larger amounts. Similarly, Van Diepen et al. (2009b) find a positive effect of prior donation amount on current amount and argue that people tend to be consistent and stable in terms of donation sizes. We also find that people who have been donor for a longer time are less inclined to become contractual donor. On the other hand, their contractual amounts are bigger and they make more and larger noncontractual donations. Furthermore,

contractual donors who registered as "members" of the charity are less likely to make additional noncontractual gifts than other contractual donors, but the amounts are more sizeable. As expected, a donor's sociodemographic characteristics also play an important role. For example, female donors or donors with lower family incomes are more likely to adopt a contract or make noncontractual donations, but tend to give smaller amounts. In addition, older donors (at first donation) are less inclined to engage in a contractual relationship, but if they do, they give larger periodic amounts. Vice versa, they are more likely to make noncontractual donations but use to give smaller noncontractual amounts. Finally, the estimated coefficients of the goniometric terms reveal seasonality, especially in the noncontractual incidence model.

7. Counterfactual Simulations

7.1 Effect of Contractual Relationship on Total Spending

Our estimation results show that entering a contractual relationship decreases noncontractual spending. To check whether, overall, migration to a contract pays off despite this substitution effect (see H_5), we simulate how much revenue a donor on average would generate per month with and without contractual relationship. We first impose everyone to be noncontractual donor by fixing the contractual relationship dummy variable to 0 for the whole simulation period (which corresponds to the 60-month estimation period). We then fix the contractual relationship dummy variable to 1 so that every donor is contractual throughout the simulation. To obtain standard errors, we simulate each of the two above cases 1000 times by drawing from the t-distributions of the parameter estimates (e.g., Foubert & Gijsbrechts, 2007). Total spending is computed as the sum of noncontractual and contractual donations (if any).

Following previous research (e.g., Datta et al., 2015), we use donor-specific posterior parameter distributions for heterogeneous parameters (Train, 2009). The values for the

explanatory variables (other than the contractual relationship dummy variable) are those observed in the dataset. Noncontractual donation amounts during the warm-up period (the twelve months preceding the simulation period) are set to zero (see Appendix D for more details about the settings of our simulations).

Figure 3. *The Impact of a Contractual Relationship on Total Monthly Donation Amount*
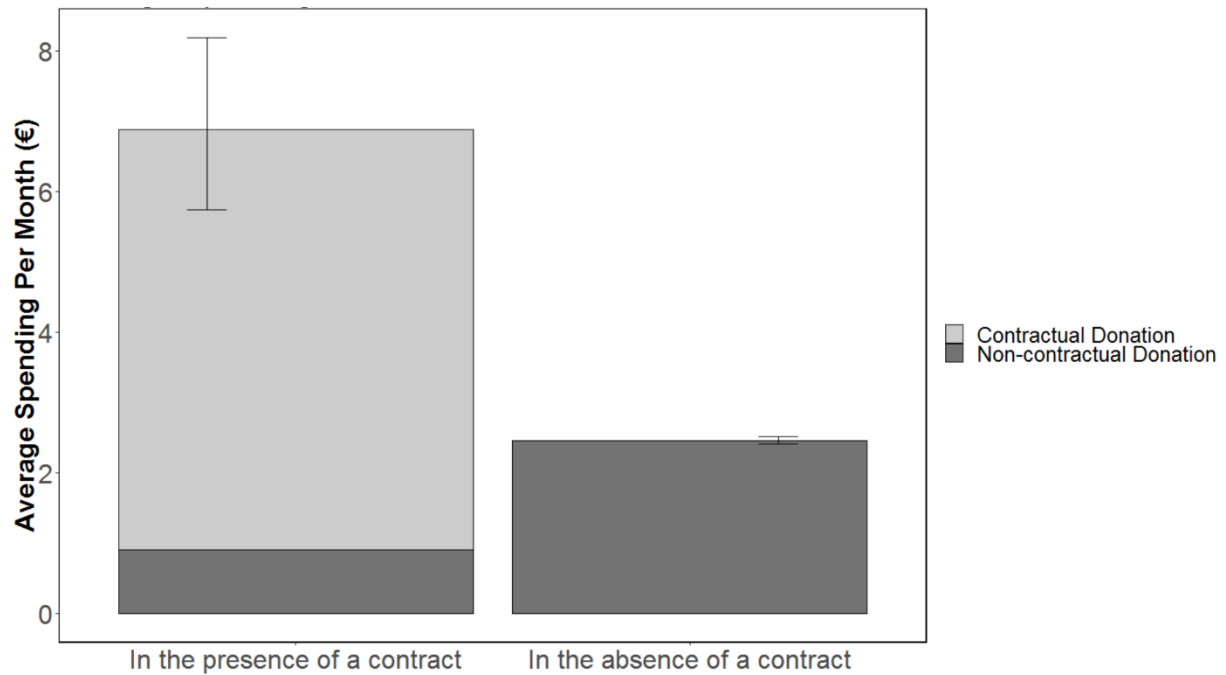
We present our results in Figure 3. We find that a contractual relationship significantly increases an average donor's monthly revenue from €2.46 to €6.88. Because the difference is significantly different from zero (95% confidence interval = [3.27, 5.73]), H_5 is supported. The results suggest that although donors reduce their noncontractual donations after adopting a contract, the contractual spending largely outstrips the decrease in noncontractual spending. These simulation results seem to run counter to the descriptive statistics in Table 3, which suggested that noncontractual donors spend at least as much as contractual donors. However, these descriptive insights do not account for the fact that contractual and noncontractual donors may not only differ in terms of their contractual state but also in terms of other

(possibly unobserved) characteristics. Said differently, in contrast with our simulation results, the descriptive results do not capture the *causal* effect of migration to a contractual state.

7.2 Effects of Increased (Marketing) Communication Efforts on Customer-Base Lifetime

Value

To understand how different communication strategies influence contractual and noncontractual donors' behavior, we examine the changes in customer-base lifetime value (CBLV) due to changes in communication. We first impose that initially no one has a contractual relationship with the charity. The settings are similar to those in the previous simulation, except that we now compare scenarios with varying communication efforts; in the baseline scenario, all communication variables are set to their global means during the warm-up and simulation periods.[7] Though we do not model churn in this paper, we allow contractual donors to end their contractual relationship to make our computations of CBLV more realistic (see Appendix D for more details).

Again, we simulate donation behavior over a 60-month time period. We compute CBLV as the difference between, on the one hand, the (discounted) sum of all donors' donations and, on the other hand, the (discounted) sum of all communication costs. We assume publicity to be free whereas the advertising cost per donor is computed as the charity's monthly advertising expenditures divided by the total number of contacts in the charity's database. For DM, we follow Datta et al. (2015) and assume that one DM contact costs €.37. For the computation of the net present value of future cash flows, we use an annual discount rate of 8.5% (roughly equivalent to a monthly rate of .68%) (e.g., Datta et al., 2015). When

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[7] To compute the global mean of the advertising variable in the baseline scenario, we divide the average of the focal organization's advertising expenditures by the average of the advertising expenditures of all human rights organizations. Similarly, we compute the global mean of the publicity variable by dividing the average number of times that the focal charity was mentioned by the average number of mentions for all human rights organizations. Finally, for DM, we compute the overall average monthly probability that a donor receives a DM contact and then randomly assign DM contacts on the basis of that probability. When we simulate increases or decreases in DM efforts, we refer to increases or decreases in this baseline probability.

discussing the CBLV results, we distinguish between the lifetime value that is due to contractual spending (i.e., "contractual lifetime value") and the lifetime value that stems from noncontractual spending (i.e., "noncontractual lifetime value").

Effectiveness of different communication strategies. Firstly, we start with changes in DM efforts. Specifically, we consider increases and decreases of 10%, 20%, 30%, 40%, and 50% in the probability that a donor receives a DM contact in any given month. The results are shown in the first panel of Figure 4. As we can see from the solid line, when the DM effort increases, so does CBLV. For example, when we increase DM by 20%, the CBLV in the presence of contract increases from approximately 2.35 to 2.44 million euros. Interestingly, this increase in CBLV stems almost exclusively from the change in contractual lifetime value, which increases from around 2.01 to 2.12 million euros. Indeed, when DM increases, more people will become contractual donors and, as we learnt before, adopting a contract leads donors to spend more and reinforces the positive impact of DM and publicity. In contrast, noncontractual lifetime value remains relatively stable. Although donors reduce their noncontractual spending after adopting a contract, other donors keep their noncontractual relationship and even increase their noncontractual spending as a result of the enhanced DM effort. This is also reflected by the increasing line for total CBLV in the absence of a contract.

We adjust publicity in a similar way to investigate its impact on CBLV. As the solid line in the second panel of Figure 4 shows, CBLV rises considerably when we scale up publicity. In line with our results for DM, the increase in publicity especially leads to an expansion of contractual lifetime value. For example, when we increase publicity by 30%, CBLV goes up from around 2.35 to 2.99 million euros. About 90% of this increase in CBLV is due to a major change in contractual lifetime value, which increases from around 2.01 to 2.56 million euros. Despite the fact that donors who enter a contractual relationship usually do so at the

expense of their noncontractual donation amounts, we observe a modest increase in noncontractual lifetime value. The reason is that donors who remain noncontractual increase their donation amounts in response to the intensified publicity.

Figure 4. *Effects of Changes in (Marketing) Communications on Customer-Base Lifetime Value (CBLV)*
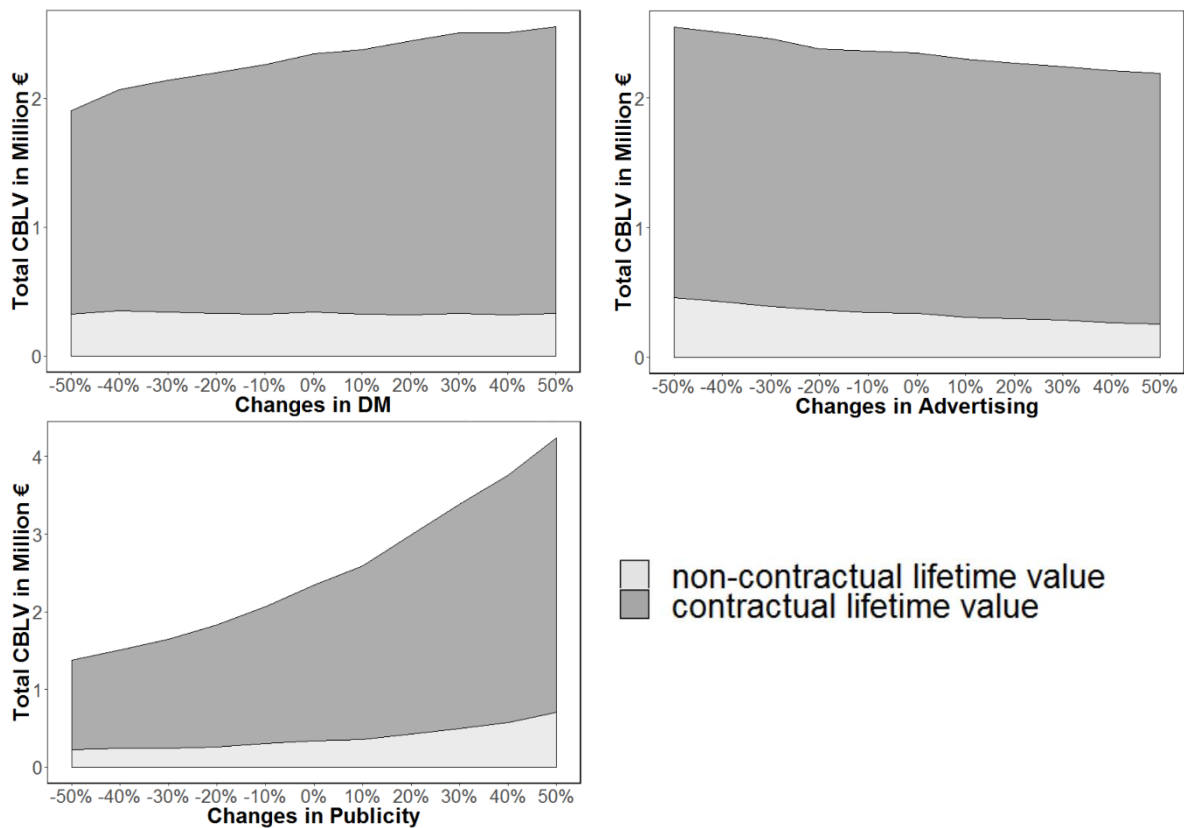
Finally, we investigate the impact of advertising on CBLV. We found before that advertising has a direct negative impact on noncontractual spending, especially among contractual donors (see Table 6). The third panel of Figure 4 indeed shows that CBLV decreases when advertising increases, and that this is mainly due to a drop in noncontractual lifetime value. For example, when we increase the advertising effort by 10%, noncontractual lifetime value decreases from 0.34 to 0.31 million euros, and CBLV drops from 2.35 to 2.30 million euros. The effect of advertising on contractual lifetime value appears very subtle: while advertising may help to attract contractual donors (see Table 6), the advertising costs may nullify the increase in contractual donations.

The above simulation results demonstrate that DM and especially publicity allow to considerably increase donors' lifetime value, mainly by converting more people into contractual donors. Advertising, in contrast, tends to *decrease* CBLV, primarily because it discourages noncontractual spending.

Should DM target contractual or noncontractual donors? Charities, which are often on a tight marketing budget, may wonder how to optimally target their DM efforts. On the one hand, DM is effective at converting people into contractual donors. Since contractual donors spend more than when they would not have adopted a contractual relationship, targeting noncontractual donors may seem the best strategy. On the other hand, because contractual donors are more responsive to DM than noncontractual ones, a charity may rather consider targeting contractual donors. To address this trade-off, we run another simulation to compare different targeting scenarios. Suppose that, thanks to an increase in the monthly DM budget, the charity's marketing manager can afford to contact 20% more donors every month. Now she can choose to use the additional DM budget to target noncontractual donors only, contractual donors only, or a random mix of both. As shown in Figure 5, the strongest increase in CBLV is realized when the extra DM efforts exclusively target noncontractual donors. Compared to the baseline case (without additional DM efforts), noncontractual spending drops but this is largely compensated by an increase in contractual spending. In contrast, exclusively targeting contractual donors – to exploit their greater responsiveness to DM – generates the smallest increase in CBLV compared to the baseline case. Finally, not surprisingly, allocating the extra DM contacts randomly across contractual and noncontractual donors, leads to an outcome that falls between the outcomes of the two other targeting scenarios.

Figure 5. *Effect of Targeting DM on Customer-Base Lifetime Value (CBLV)*
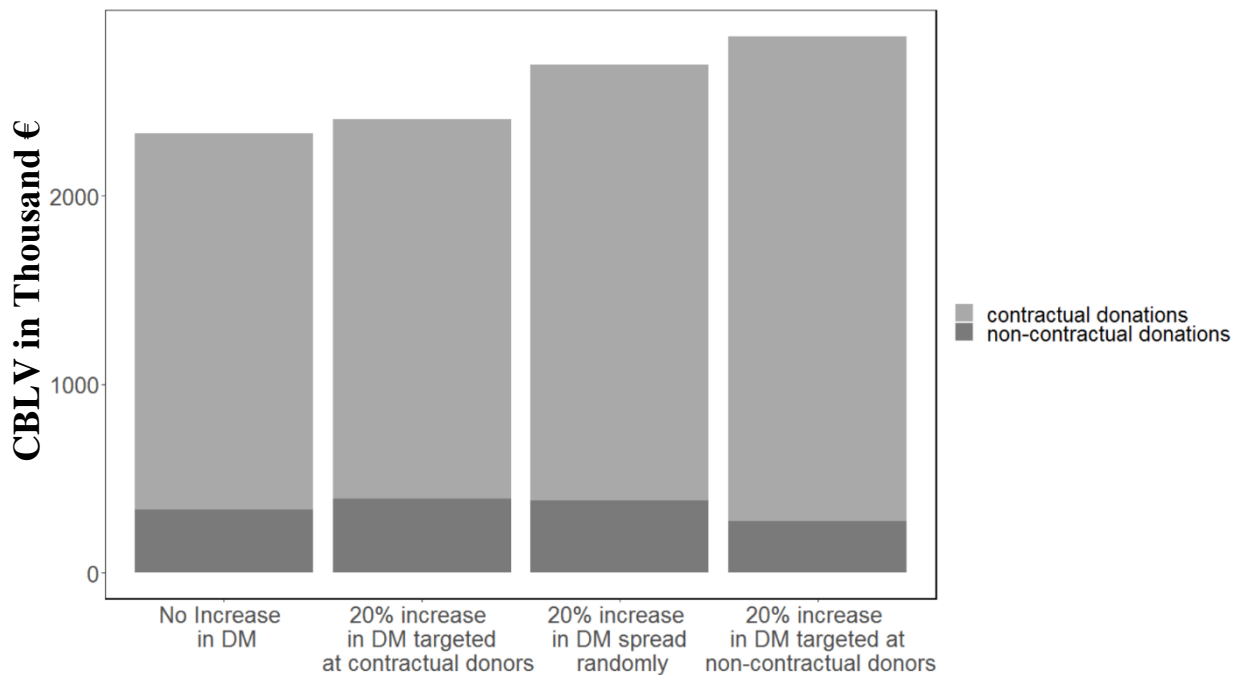
8. Conclusions and Future Research

Previous research claims that contractual donors are more beneficial to charities than

noncontractual "ad hoc" donors (e.g., Anik et al., 2014). In line with this assumption,

charities invest large amounts in communication efforts designed to persuade ad hoc donors

to establish long-term contractual relationships. However, no empirical evidence is provided

to support this assumption. Moreover, the advantage of contractual relationships is not

straightforward. While contractual donors contribute on a regular basis, they could be less

responsive to other requests from the same charity. A second unanswered issue is how to

persuade donors to become contractual donors. We know very little about how market

communication activities influence consumer decisions to become contractual donors.

To answer these important questions, we build a model to analyze the main effects of

communication (i.e., DM, advertising, and publicity) on the decision to donate on a

contractual basis and the interaction effect of this contractual relationship and communication

activities on noncontractual donations. We apply the model to a unique panel data set

containing monthly contractual and noncontractual transactions for 7,817 donors of a large

international human-rights organization. Our model accounts for the endogeneity of the

communication variables, and explicitly models their dynamic effects on donation decisions

through stock variables. Based on parameter estimates, we simulate an average donor's

monthly total spending to see how it is affected by having a contractual relationship. In

addition, we simulate CBLV to see how it changes when the charity varies its communication

efforts.

Our results suggest that advertising, but especially DM and publicity significantly

encourage donors to start a contractual relationship with the charity. Publicity seems to be the

most effective channel because it affects both the willingness to engage in contractual

relationships and the amount of contractual donations. Importantly, entering into a

contractual relationship significantly decreases the donor's noncontractual spending but the

contractual payments largely compensate for this, leading to a considerable boost in total

spending. We find that over a 60-month period, a donor with a contractual relationship

donates 2.8 times more than a donor without a contractual relationship on average. Moreover,

in line with relationship marketing theory, becoming a contractual donor reinforces the

effects of direct marketing, advertising, and publicity on noncontractual donations.

8.1 Managerial Implications

The findings of this study offer several notable implications for non-profit managers. From a

long-term perspective, as contractual donors donate more in total, charities should prioritize

converting occasional donors into regular contributors over recruiting new donors to

contribute money on a one-time basis. Further, though all three studied communication

channels are effective in persuading donors to establish a contractual relationship, charities

should invest in DM and publicity instead of mass advertising given the negative effects of

advertising on donors' noncontractual spending. Indeed, our simulation analysis shows that

while CBLV increases with more DM and publicity, it decreases when advertising increases. One possible reason is that donors do not want to support charities with high overhead (i.e., advertising expenditure). A recent paper suggests that charities, however, can make people less concerned about the high expenses in advertising if those costs are covered by initial donations (Gneezy et al., 2014). This can be a way for non-profit managers to avoid the negative effects of advertising if they consider it as an unavoidable method to, for example, raise customer awareness.

In addition, our simulation shows that charities are better off targeting noncontractual donors than targeting contractual donors or spreading their budget randomly. In other words, to maximize the effectiveness of their DM efforts, charitable organizations should focus on converting noncontractual donors into contractual ones despite the fact that contractual donors are more responsive to direct contacts.

8.2 Further Research

We propose several avenues for further research. First, we could investigate the stage of a customer's lifecycle in which conversion to a contractual relationship is most rewarding. For example, Netzer et al. (2008) identify three latent stages in a noncontractual donor's lifecycle including dormant, occasional, and active stages based on their previous interactions with the organization. While one can argue that converting an "active" noncontractual donor to a contractual relationship is faster and easier, it might be that the charity is already getting the most out of the active donors and therefore will not benefit more from converting them to contractual ones. Further research should therefore investigate whether an early or late conversion to a contractual donor is more beneficial.

Second, future research could examine the effects of marketing communication and publicity on contractual customers' churn behavior. In addition, it would be interesting to

evaluate the impact of charities' communication on the "second lifetime value" of donors who churned and started another contractual relationship (Kumar, Bhagwat, & Zhang, 2015; Stauss & Friege, 1999). We expect that the commitment level of these win-back contractual donors would be even higher than that of the brand-new ones, leading to stronger reinforcement of the communication effects.

Third, some messages from charities might be designed to explicitly encourage people to become contractual donors, while others might be sent only to solicit noncontractual donations. This might be a reason why advertising has a positive effect on contractual donation decisions but a negative effect on noncontractual decisions. While we do not have the necessary information, future research might classify communication variables into different types based on their content to learn more about when and why advertising has such an impact on donation behaviors.

Finally, in the present context, contractual and noncontractual spending are highly substitutable. Indeed, we observe a strong cannibalization effect in which contractual donors compensate for their regular payments by significantly reducing noncontractual spending. However, in industries in which contractual relationships trigger noncontractual add-on purchases, contractual donors might not reduce but increase their noncontractual payments. One example context might be telecommunication companies in which contractual customers often have a limit on their data usage, which encourages them to pay more to get extra data allowance. A promising avenue for future research would be to validate our framework in other contexts.

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Appendix A. Correlations between and VIFs of Independent Variables

CORRELATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	1.38														
2. Gender: Female	-.14***	1.04													
3. Household size	-.05***	-.04***	1.17												
4. Household income	.06***	-.07***	.37***	1.18											
5. Mundlak-based DM	.49***	-.17***	-.01***	.09***	4.13										
6. DMStock	.42***	-.14***	.00***	.08***	.83***	3.37									
7. AdvStock	.00	.00	.00	.00	.00	.00	1.08								
8. PubStock	.01***	.00**	.00	.00*	.01***	-.03***	-.18***	1.23							
9. Sine1	-.01***	.00	.00	.00	-.01***	.08***	-.08***	.17***	1.07						
10. Sine2	.00**	.00	.00	.00	.00**	.01***	.10***	-.29***	.00	1.10					
11. Cosine1	.00	.00	.00	.00	.00	.02***	.02***	-.07***	.00**	.01***	1.01				
12. Cosine2	.00	.00	.00	.00	.00	-.01***	.16***	.18***	.00***	.00	.00**	1.08			
13. Relationship length	.36***	-.15***	.00*	.11***	.46***	.39***	.00	.01***	-.01***	.00**	.00	.00	1.45		
14. DonStock	.17***	-.09***	.00*	.06***	.40***	.32***	.00***	.02***	.00***	.00	.00	.00*	.19***	1.19	
15. Membership	-.28***	.09***	.01***	-.06***	-.40***	-.31***	.00	-.01***	.00**	.00	.00	.00	-.43***	-.18***	1.32

* p < .10; ** p < .05; *** p < .01. The corresponding variance inflation factors (VIFs) (shown in the main diagonal of the matrix) are less than 10 in all models

Appendix B. Threshold Parameters in Noncontractual and Contractual Donation Amount

Models

THRESHOLD PARAMETER ESTIMATES FOR ORDERED
PROBIT DONATION AMOUNT MODELS[a]

	Population Mean	
	Estimate	Standard Error
Contractual Donation		
Threshold 1	**0.324**	0.077
Threshold 2	**2.274**	0.123
Threshold 3	**2.489**	0.127
Threshold 4	**3.494**	0.148
Threshold 5	**3.608**	0.151
Threshold 6	**4.490**	0.176
Noncontractual Donation		
Threshold 1	**1.192**	0.045
Threshold 2	**2.396**	0.056
Threshold 3	**2.749**	0.059
Threshold 4	**3.265**	0.063
Threshold 5	**7.843**	0.063
Threshold 6	**9.198**	0.059

[a] Numbers in bold are significant at the $p < .01$ level (two-sided).

Appendix C. Estimated Correlations between Random Intercepts of Noncontractual and

Contractual Donation Incidence and Amount Models

ESTIMATED CORRELATIONS BETWEEN RANDOM INTERCEPTS

	Correlation coefficient[a] (SE)			
	1	2	3	4
NC[1] Incidence				
NC Amount	**-.743** (.010)			
C[2] Incidence	.012 (.012)	**-.089** (.013)		
C Amount	-.096 (.084)	**.198** (.086)	-.120 (.105)	

Note: [1] NC = Noncontractual, [2] C = Contractual

[a] Numbers in bold are significant at p < .05 level (two-sided)

Appendix D. Description of the Simulations

1) Effects of contractual relationship on total spending

To simulate noncontractual and contractual amounts, we first draw one of eight amount intervals and then set the actual amount equal to the empirical mean in that interval.

2) Effects of increased communication efforts on CBLV

Once a donor starts a contractual relationship, a certain contractual amount is set simultaneously. We assume that the contract donation amounts in the next months remain unchanged. In addition, to simulate customer churn, we compute the empirical average probability that a donor, after a specific number of months, terminate the contractual relationship. Based on those probabilities, we simulate the number of dropouts over months. Note that customer churn does not occur within the first month of the contract. Moreover, after churned, donors can re-establish their contractual relationships with the charity. For simplification purposes, we use the same churn probabilities even if they have churned before and then come back. To compute noncontractual and contractual lifetime value, we allocate the costs of communication efforts to the noncontractual and contractual parts on the basis of the noncontractual donation amounts relative to the contractual ones. In the month without contractual donations, all the costs are allocated to the noncontractual part.

In the last simulation, we increase the number of people who receive DM contacts in all months of the simulation period. As such, in case of targeting only (non-)contractual donors, there are some months in which we run out of (non-)contractual donors. To overcome this problem, we allocate the extra direct marketing efforts to the remaining category of donors. Additionally, at the beginning of the simulation, donors keep their relationship states as they are in the actual data. To compute churn probability, we also assume that existing contractual

donors all started their contractual relationships at the beginning of our simulation period,

given that we lack information about the exact months when the contracts are made.

Article 2:

Effects of Non-specific Social Information on Consumers' Willingness to Donate:

Mediators and Boundary Conditions

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Effects of Non-specific Social Information on Consumers' Willingness to Donate: Mediators and Boundary Conditions

Abstract

Previous research has found that consumers are more willing to donate to a charity when exposed to specific social information about the contribution of other people (e.g., previous participation rates). However, social information about large charity campaigns in the media is often less specific. The current research investigates the effects of non-specific social information (e.g., many/few have donated) on willingness to donate in this context. We find that presenting people with the positive information that many have donated increases their willingness to support a new charity if they have an interdependent self-construal. In contrast, people with an independent self-construal are more willing to donate when they receive the negative information that few have donated. Attitude toward the charity, attitude toward donating, and response efficacy are all significant mediators of the effect of positive social information on willingness to donate. Finally, we find that the effect of social information (for interdependent individuals) is no longer significant when individuals perceive the cause as very important or when they receive background information on the charity.

Introduction

Local and national news media often report on ongoing charity campaigns. Such reports influence people's awareness of campaigns, shape their opinion and significantly affect donations to campaigns. For instance, Brown and Minty (2008) showed that, when the New York Times reported from the 2004 Tsunami catastrophe, daily average donations increased by 18.2% compared to days with no coverage. Media reports on charity campaigns often contain social information, that is, information about the donation behavior of other people. Previous research has shown that various types of specific social information may increase people's willingness to donate, such as lists of previous donors (Bennett, Kim, & Loken, 2013; Reingen, 1982), the gender of previous donors (Shang, Reed, & Croson, 2008), specific donation amounts (Croson & Shang, 2008), or information on response rates compared to earlier campaigns (Allen, Eilert, & Peloza, 2018). However, social information in media reports on large ongoing campaigns is usually less specific because statistics are not yet available and because many campaigns are unique and lack a comparison standard. Thus, news media often report on the status of large ongoing campaigns in broad terms, such as: "*the campaign has been a success so far*", "*the response has been slow*", or "*many/few have contributed so far*" (e.g., GitLab, 2013; Veterans of Foreign Wars, 2017).

We test the effects of this common, but less researched type of social information about charity campaigns by comparing the effects of positive information (many have donated) and negative information (few have donated). Although previous research has shown favorable effects of positive social information (that many have donated) (e.g., Croson, Handy, & Shang, 2009; Croson & Shang, 2013; Frey & Meier, 2004), this effect is not straightforward (Allen et al., 2018). Information that many have donated may provide the social proof of a credible cause and charity, but may also indicate reduced need for support and lower impact of additional contributions (Bennett et al., 2013). Information that few have donated may

trigger guilt or perceptions of high levels of personal impact, but also negative thoughts about the credibility of the charity (Elgaaied-Gambier, Monnot, & Reniou, 2018). We expect that the effects of positive/negative non-specific social information on consumers' willingness to donate will depend on the self-construal of consumers (interdependent vs. independent self-view) (Markus & Kitayama, 1991). We also test relevant mediators and boundary conditions of these effects.

Specifically, we offer four contributions. First, we show that non-specific social information communicated in a news media setting (many/few have donated) significantly influences consumers' willingness to support a new charity. Secondly, we find that the self-construal of customers decides the nature of this effect. Positive social information enhances willingness to support a charity among consumers with an interdependent self-construal, whereas negative social information increases the willingness to support among consumers with an independent self-construal. Third, in line with a social proof account, we show that attitude toward the charity toward donating and response efficacy are significant mediators of the effect of positive social information (among consumers with an interdependent self-construal). Alternative explanations (feelings of guilt, temporal empathy, and perceived needs) are not supported. Finally, we show that knowledge about the charity and perceived importance of the cause are important boundary conditions for the effects of social information. When consumers increase their knowledge of the charity or perceive the cause as very important, the effects of non-specific social information are no longer significant.

THEORETICAL BACKGROUND

Social information is information about the attitudes or behaviors of other people. A number of studies show that social information affects consumer decision making, especially in

ambiguous or uncertain situations (Cialdini, 2007; Croson et al., 2009; Crutchfield, 1955). The typical behavior of others is often considered as *descriptive social norms*, which refers to the perceptions of what most other people actually do (Cialdini, 2007; Cialdini, Reno, & Kallgren, 1990). Previous research differentiates this type of norm from *injunctive social norms*, which are perceptions of what most others approve of, or what people should do (Cialdini et al., 1990; Croson et al., 2009). Both types of social norms may influence consumer behavior (e.g., Burnkrant & Cousineau, 1975; Cialdini & Trost, 1998; White & Simpson, 2013). Specifically, injunctive social norms facilitate compliance through social evaluation, such as anticipated (dis)approval by friends or families, while descriptive social norms motivate people to act by providing social information about what is effective or appropriate behavior in a specific situation (Agerström, Carlsson, Nicklasson, & Guntell, 2016; Cialdini, 2007; Cialdini et al., 1990). According to the principle of social proof, people tend to follow what they see the majority of people doing, assuming that this is the right course of action (Cialdini, 2013). Prior research has demonstrated that people tend to conform to the behavior of the majority, such as responding to sales pitches (e.g., selling museum tickets: Griskevicius et al., 2009), littering in public places (Cialdini et al., 1990), reusing hotel towels (Goldstein, Cialdini, & Griskevicius, 2008), and energy consumption (Allcott, 2011). Surprisingly, the effects of social norms, especially descriptive social norms, on charitable behaviors have received limited attention (Agerström et al., 2016).

A few studies on effects of descriptive social norms in the context of donation behavior indicate that social information may significantly influence donation decisions. Bryan and Test (1967) show that people are more likely to donate after having observed the support of other people. Reingen (1982) finds that showing a list of people who have already donated to an organization increases participation rates in a charity campaign. Frey and Meier (2004) manipulate students' beliefs about descriptive social norms by informing them about previous

participation rates for an annual campaign. Their results reveal that students were more likely to contribute to a charitable fund when they were informed that the contribution rate of other students was high (i.e., 64%) compared to when it was low (i.e., 46%). Research by Agerström et al. (2016) suggests that positive social information may have even stronger impact on donation behavior than common appeals for contributions. In their study, exposing students to descriptive social norms (i.e., that 73% of students have contributed previously) triggered higher donations than "industry standard" altruistic appeals.

These studies suggest that social information about the prosocial behavior of the majority may have a positive effect on donation behavior. In contrast, Allen et al. (2018) find that some consumers (with an interdependent self-construal) are more willing to donate when they learn that *few others* have donated. Notably, the social information in this study was framed in terms of specific performance norms, that is, response rates compared to previous campaigns. This type of social information is very specific and probably directs the attention of respondents more toward the performance of the charity than toward the behavior of other people. Still, the findings of Allen et al. (2018) suggest the presence of important moderators, mediators and boundary conditions for the effects of social information on donation behavior – a topic largely unexplored in previous research. We start filling this gap in the literature.

HYPOTHESES

Previous research has shown that specific and positive social information (e.g., 73% donated or lists of previous donors) may stimulate donation behavior (e.g., Frey & Meier, 2004; Reingen, 1982). We focus on the effects of non-specific social information, a kind of social information typically found in news reports on ongoing charity campaigns (few/many have donated). A first question is if such non-specific and unobtrusive social information exposed

in a news media setting will influence consumers' willingness to donate in a similar way as demonstrated for specific information. The major advantage of specific information is that such information is processed more quickly and recalled more accurately than verbal information (Viswanathan & Childers, 1996; Viswanathan & Narayanan, 1994). However, we suggest that verbal information about social norms (e.g., few/many have donated) more readily and accurately conveys the meaning of social norms than specific numerical information (e.g., 60% vs. 40% people donated). In fact, specific information on response rates could be more ambiguous. For instance, the information that 62% have donated to a campaign is open to interpretation. Does this mean 62% of people contacted or 62% of some other population? Is 62% considered as few or many compared to similar or previous campaigns? If 62% is considerably less than for last campaign, 62% is actually "few". If the comparison standard is 30%, 62% is "many". The terms "few" and "many" are non-specific, but still provide precise information on the behavioral norm. Thus, we expect that consumers will attend to and use information that many/few have donated when deciding on their contribution. However, it is not evident that the information that many have donated will always trigger more positive responses than the information that few have contributed. We expect different results for consumers with interdependent vs. independent self-construals.

The concept of self-construal refers to "how individuals define and make meaning of the self" (Cross, Hardin, & Gercek-Swing, 2011, p. 143). According to Markus and Kitayama (1991), people are different because of their independent and interdependent self-construals. While people with independent self-construals view themselves separate from other people, those with interdependent self-construals consider them connected with others and define themselves by those relationships (Cross et al., 2011; Markus & Kitayama, 1991). Previous research has shown that people with dominant independent self-construal tend to focus more on their uniqueness and own benefits, and try to differentiate themselves from others. In

addition, they are less likely to cooperate with people or enjoy maintaining the relationships with others unless it helps benefit themselves or confirm their uniqueness (Cross et al., 2011; Duclos & Barasch, 2014). In contrast, individuals with dominant interdependent self-construal pay greater attention on interrelatedness and the behavior of others (Ng & Houston, 2006). They are more likely to adjust themselves to the demands of others as maintaining harmony in relationships is meaningful and important to their lives and self-concepts (Cross et al., 2011; Duclos & Barasch, 2014; Markus & Kitayama, 1991).

Previous studies have demonstrated that descriptive and injunctive norms have stronger impact on consumers' behavior when they have a dominant interdependent self-construal, compared to an independent view of the self (e.g., Trafimow, Triandis, & Goto, 1991; White & Simpson, 2013). In other words, individuals with interdependent self-construals are more likely to conform to social norms, whereas individuals with independent self-construals are more likely to deviate from such norms and be more tolerant of that deviation (Triandis, 1989). This is because interpersonal goals that are activated by descriptive and injunctive norms are in harmony with a more interdependent mind-set (White & Simpson, 2013). In the charity area, Shang et al. (2008) found that providing the information that another person with similar gender has donated to a charity will significantly increase donation amounts, but only if the thoughts of respondents were focused on other people. They also observed a tendency of independent participants to lower their donations when being informed that other people had donated, but these effects were not significant.

In line with these empirical findings, we suggest the following hypothesis:

Hypothesis 1: The effect of non-specific social information (many vs. few have donated) on willingness to support a charity depends on the self-construal of consumers. Specifically, interdependent people will be more willing to support a charity when they learn that many

have donated, while independent people will be more willing to contribute when learning that few have donated.

Mediators

Previous research has identified two major components of attitudes in a donation context: attitude toward the act of donating (i.e., helping others by making a donation) and attitude toward the charity (Webb, Green, & Brashear, 2000). Both attitude toward helping others (e.g., Burnkrant & Page, 1982; Pessemier, Bemmaor, & Hanssens, 1977; Xie, Bagozzi, & Grønhaug, 2015) and attitude toward charitable organizations (e.g., Harvey, 1990; Schlegelmilch, 1988) have strong impact on people's donation behaviors. As demonstrated by Webb et al. (2000), strengthening attitudes toward donating to a charity and attitude toward a charity are both effective means of enhancing the likelihood of giving (breadth of giving), though only attitude toward the act (i.e., helping others via donation) had significant impact on how much people gave (magnitude of giving). As our study focuses on individuals' willingness to support a nonprofit, we analyze both kinds of attitudes: toward the act of donating and toward the charity. If social information works as social proof, it is reasonable to expect that the effect of the interaction between social information and self-construal will lead to changes in attitudes first before these attitudinal changes in turn influence the willingness to donate. This leads to the following hypothesis:

Hypothesis 2: Two types of attitudes mediate the interaction effect of social information (many vs. few have donated) and self-construal (interdependent vs. independent self) on willingness to donate: (a) attitude toward the charity and (b) attitude toward donating.

A third relevant mediator in this context is response efficacy. From a social learning perspective, any observed changes in people's behavior can be explained by alterations of individuals' expectations of efficacy (Bandura, 1977). While self-efficacy is defined as

beliefs about one's ability to perform a specific action, response efficacy refers to beliefs about whether a given behavior will result in desired outcomes (Bandura, 1982; Han, Duhachek, & Agrawal, 2016). For charitable giving, self-efficacy is about people's belief that they are able to support a cause. Response efficacy can be understood as the belief that donations will be effective and make an impact (Sharma & Morwitz, 2016).

While previous research has provided empirical evidence for the predictive role of self-efficacy in explaining individuals' behavior in general and charitable giving in particular (Basil, Ridgway, & Basil, 2008; Bendapudi, Singh, & Bendapudi, 1996), response efficacy has been largely ignored. We argue that, when people are presented with information that many have donated, interdependent individuals, who are more likely to conform to social norms, will feel more confident that the charity will reach its goals and successfully complete the programs (Allen et al., 2018). Consequently, such positive social information (i.e., many have donated) may enhance people's beliefs about the effectiveness of their own donations (greater response efficacy), leading to higher willingness to donate. In contrast, when few have donated information is provided, interdependent persons might conclude that the charity's program is likely to fail and hence their individual donations will have less impact (lower response efficacy). Thus, these donors are less likely to donate.

One the other hand , when people have a dominant independent self-construal, they attend to their uniqueness and personal impact and avoid being dependent on the behavior of other people (e.g., Cross et al., 2011). Therefore, the fact that many have donated information is not likely to alter their perception of the effectiveness of donating to a charity. Instead, when they learn that few have donated, independent people might conclude that the marginal influence of his/her own individual contribution becomes larger (Bennett et al., 2013), resulting in increased willingness to donate. Thus, we expect that:

Hypothesis 3: Response efficacy mediates the interaction effect between social information (many vs. few have donated) and self-construal (interdependent vs. independent self) on willingness to donate.

Knowledge about the charity and importance of the cause

According to social influence literature, descriptive norms primarily influence consumers when the situation is ambiguous and the level of uncertainty is high (Cialdini, 2013; Croson et al., 2009; Goldstein et al., 2008). In such contexts, available social information is often used to reduce uncertainty, even though it might be incorrect (Crutchfield, 1955). In contrast, when the situation is unambiguous and the correct thing to do is obvious, people already know how to behave appropriately (White & Simpson, 2013). Therefore, what others are doing will be less useful and have very limited (if any) influence on decisions (Croson et al., 2009; Wooten & Reed II, 1998).

Consumers often lack relevant information about charities and their causes, especially when they consider new campaigns and/or charities. Thus, we expect that descriptive norms will normally play a significant role when consumers make donation decisions. However, we also expect that this effect will be less important, when consumers learn more about the charity. Knowledge about the charity makes social information superfluous. In a similar vein, we suggest another potential boundary condition for the effect of non-specific social information: perceived importance of the cause. When the cause is very important, social information is not needed to reduce risk and consumers may decide to contribute even if they have limited knowledge about the charity behind the campaign. Indeed, previous research suggests that perceived recipient neediness is one of the most important considerations when prospective donors make decisions (Cryder, Botti, & Simonyan, 2017). Thus, when the cause is very important, consumers have enough information to make a decision and pay less attention to social information. Thus, we predict the following:

Hypothesis 4: The effects of social information on willingness to support a charity are reduced when (a) the perceived importance of the cause is very high or (b) consumers receive positive background information on the charity.

TESTS OF HYPOTHESES

We tested H1-H4 in a series of four experiments. In the first two, we used individuals' dominant regulatory focus as a proxy for their self-construal. In Study 1, we tested how non-specific social information (many vs. few have donated) influences people's willingness to support an unknown charity given their different dominant self-construals (H1). In Study 2, in addition to replicating findings from Study 1, we tested the mediators (H2 and H3). Studies 3 and 4 strengthen the results in previous studies by measuring donors' self-construal directly. Moreover, these two studies tested the two different boundary conditions for the effects of non-specific social information (H4). Figure 1 summarizes our conceptual framework.

Figure 1. *Conceptual framework.*
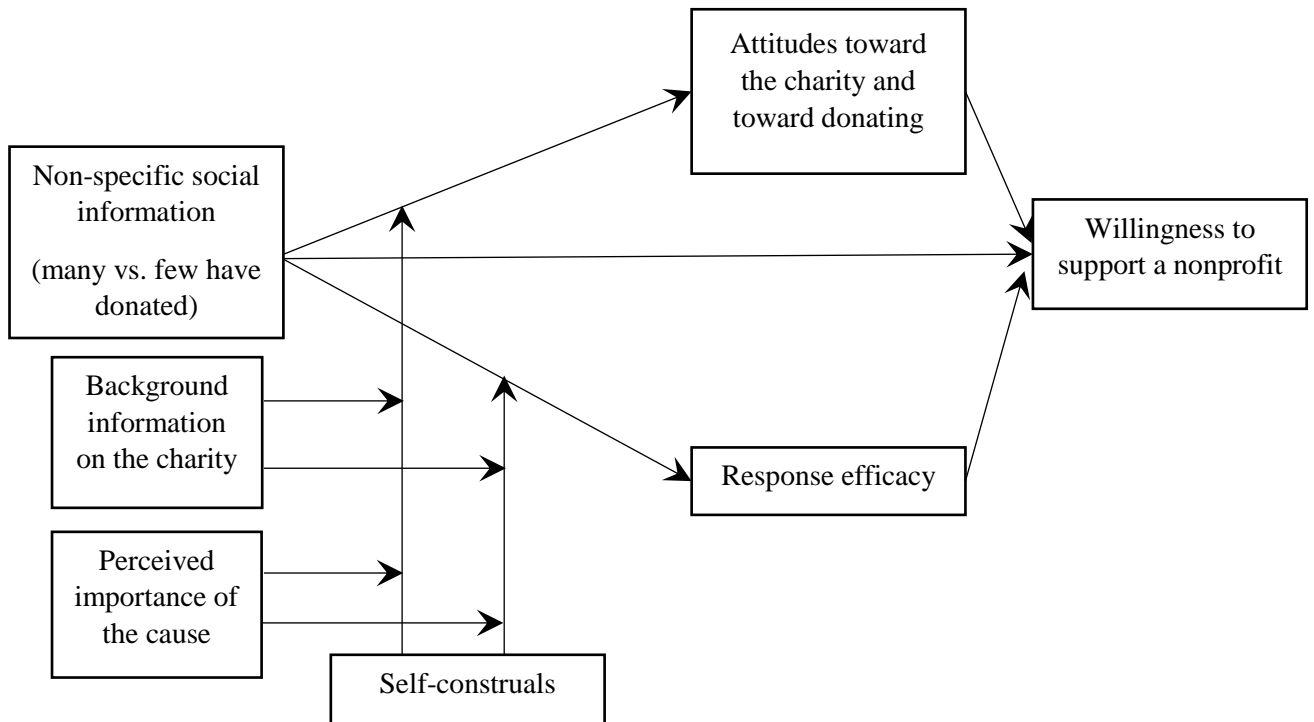
STUDY 1

The objective of the first study was to test the prediction of H1 that people with an interdependent self-construal will increase their willingness to support a charity when they receive information that *many have donated*, whereas those with an independent self-construal will increase their willingness to donate when they learn that *few have donated*.

In this study, we used individual differences in their dominant regulatory focus as a proxy for self-construal. Regulatory focus theory (Higgins, Roney, Crowe, & Hymes, 1994) postulates that most people can be distinguished by their self-regulation, which is related to a promotion or a prevention focus. People with a promotion focus are more sensitive to the presence of positive outcomes (gains), and thus focus more on accomplishments, attainment, advancement, and aspirations. People with a prevention focus are more sensitive to the presence of negative outcomes (losses), and thus focus more on caution, protection, safety, and responsibilities (Higgins, 1997). Although both promotion- and prevention-focused motivations coexist within an individual, people often have one focus more chronically accessible over another (Higgins et al., 1994). Importantly, research suggests that an individual's self-regulatory focus is strongly associated with his/her self-construal (Cross et al., 2011; Lin, Chang, & Lin, 2012). Specifically, as independents enjoy self-achievements relative to others, they tend to have a dominant promotion focus, whereas interdependents tend to have a prevention focus as they often focus on trying to avoid mistakes that block them from being assimilated with others (Aaker & Lee, 2001; A. Y. Lee, Aaker, & Gardner, 2000). Previous studies further show that the effect of self-construal on different consumer behavior is fully mediated by self-regulatory focus (Cross et al., 2011; Zhang & Mittal, 2007). Therefore, we consider a dominant regulatory focus scale as a proper proxy for self-

construal. Studies 3 & 4 that measure self-construal directly show that the use of this proxy does not significantly affect the core results.

Method

Participants. We recruited 102 US participants (age = 19 – 70 years, M_{age} = 33 years, 41.18% female) via Amazon Mechanical Turk (MTurk), who took part in exchange for money ($2). Participants were randomly assigned to one of two conditions (social information: many vs. few have donated) in a single-factor between-subjects design.

Procedure. We first presented participants with an excerpt from middle pages of a fictitious newspaper in which we asked them to focus on a charity serving legal immigrant and refugee communities in US. We included general description of the charity's main activities as well as the newly launched start-up fund. Then participants read the information "many [few] people have donated to the charity so far" used for the manipulation of social information. All irrelevant text in the excerpt was made unreadable.

Measures. We then measured their willingness to support the charity using a 2-item scale (adapted from Bennett et al. (2013)). The two items were highly correlated (r = 0.831) and were combined into a single "willingness to help" index. (Bennett et al., 2013). A six-item dominant regulatory focus scale (adapted from Mishra, Mishra, and Nayakankuppam (2010), α = 0.7) was used to measure self-construal. Higher average scores indicate that participants were dominated by an interdependent self-construal (prevention focus), whereas lower average scores indicate that participants were dominated by an independent self-construal (promotion focus).

Participants indicated the extent to which each statement accurately described them on a 7-point Likert scale (1 = "strongly disagree" and 7 = "strongly agree"). We also collected other demographic information (i.e., age, gender, household income, marital status, and

ethnicity). Responses to an open question at the end about the purpose of the study showed that no participants correctly predicted our hypotheses.

Analysis, Results, and Discussion

Manipulation check. To check whether our manipulation of social information was successful, participants indicated whether they remembered the extent of support that the charity received from others (i.e., many, few, all of them, none of them, or not given). We excluded participants who could not recall the correct information given. Of 102 participants, we retained 85 participants (83.33%). The demographic characteristics of the sample remained the same (age = 19 – 70 years, M_{age} = 33 years, 42.35% female).

Hypothesis testing. We conducted an ANCOVA on willingness to support the charity. Our predictors included social information (many vs. few donated), mean-centered self-construal, and their interaction. Income, gender, ethnicity, and marital status were included as control variables. Significant effects were found for income ($F(6, 67) = 2.852$, $p = .016$) and marital status ($F(1, 67) = 5.121$, $p = .027$) but not the other covariates ($Fs < 2.490$, $ps > .05$). Results showed that the main effect of social information ($F(1, 67) = 1.551$, $p = .217$) was not significant but the main effect of dominant self-construal was ($F(1, 67) = 7.729$, $p = 0.007$). The interaction between social information and self-construal was significant ($F(1, 67) = 4.536$, $p = .037$), supporting H1.

As recommended by Spiller, Fitzsimons, Lynch Jr., and McClelland (2013), we analyzed the interaction using the Johnson-Neyman floodlight technique. This indicated that people provided with the information that many had donated were more willing to donate to the charity than those provided with the information that few had donated, when their self-construal scores were greater than or equal to .443, which equates to people who have a dominant interdependent self-construal ($B_{JN} = .858$, $SE = .430$). As expected, the effect of

social information changes direction when participants' regulatory focus scores get higher (B_{JN} = -8.070, SE = 4.042) but the upper threshold (construal score = -10.364) is out of the range of our observed data.

Figure 2. *Study 1: The interaction of self-construal (measured through dominant regulatory focus) and social information.*
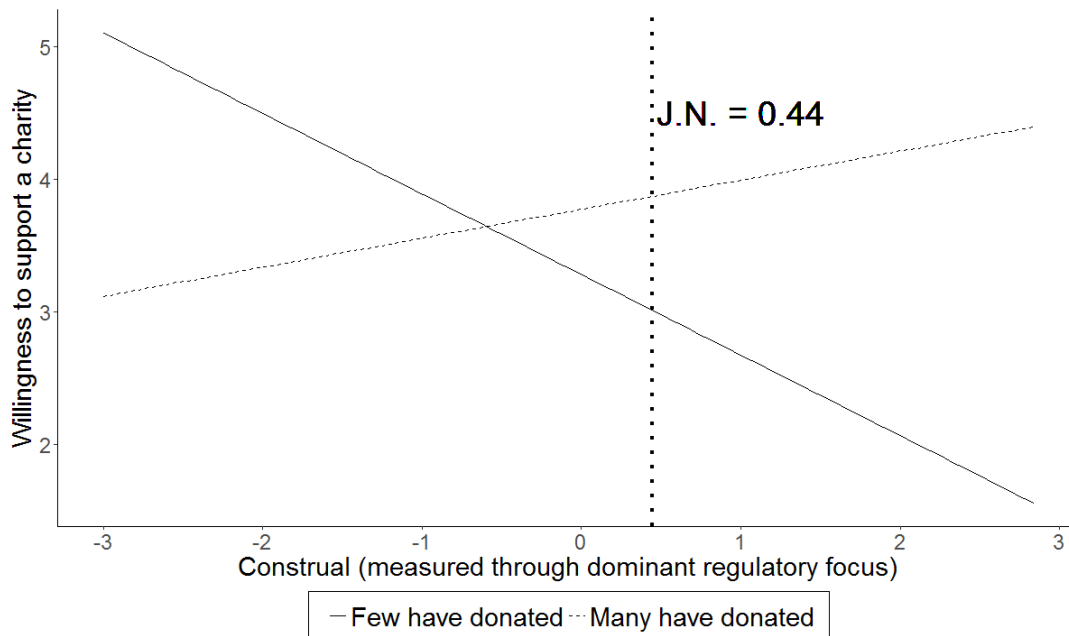
Note: Construal (x-axis) is measured through mean-centered dominant regulatory focus in which a negative value means promotion focus/independent self-construal, while a positive value means prevention focus/interdependent self-construal; J.N. = Johnson-Neyman point. The lower J.N. threshold (-10.36) is out of the range of our observed data (min = -3.00, max = 2.84) and is not plotted.

We further tested the effects of self-construal for each type of provided social information. When many donated information was presented, the effect of dominant self-construal was not significant (β = -.106, p = .788), meaning that people with different self-construals react similarly to positive social information (i.e., many donated). In contrast, when few donated information was presented, the effect of dominant self-construal was negative and significant (β = -.799, p < .001), indicating that participants with dominant independent self-construal (promotion focus) were more likely to support the charity compared to those with dominant interdependent self-construal (prevention focus) (Figure 2).

STUDY 2

In Study 2, our objective was threefold. First, we aimed to provide convergent support for our finding in Study 1 that the effectiveness of social information in lifting up willingness to help is dependent on individuals' regulatory focus. Second, we tested two of our mediators: attitude toward the charity (H2a) and response efficacy (H3). Finally, we also tested two alternative explanations for effects of social information: feelings of guilt and perceived need for donations. Previous research demonstrated the role of people's moral emotions in driving consumers' charitable behaviors (e.g., Xie & Bagozzi, 2014). One of the most relevant moral emotions for the influence of social information on individuals' willingness to support nonprofits is guilt (Bennett et al., 2013). However, we expected emotions to be less relevant in this case because we study the effects of social information in a news media context, in which social information is communicated in a less obtrusive and less persuasive manner. Emotions are more likely mediators when social information is part of explicit donation requests. We also expected that perceived need is less relevant as a mediator in our media context. Perceived need may influence consumers' motivation to donate (e.g., Allen et al., 2018), but primarily when social information is very specific and comparative. The need for donation is a complicated issue for consumers to consider, and general social information that many (few) have donated is probably insufficient as a basis for evaluating need.

Method

Participants. A total of 122 US participants were recruited online via MTurk (age = 23 – 68 years, M_{age} = 36 years, 49% female) who took part in the study in exchange for money ($2). We randomly assigned them into one of two groups: one provided with many have donated information while another provided with few have donated information.

Procedure. The manipulation of social information was similar to Study 1.

Measures. As in Study 1, our dependent variable was measured by a willingness-to-support scale (Bennett et al. (2013). The reliability of this 5-item scale was α = 0.95. To measure self-construal, we used the same 6-item dominant regulatory focus scale as in Study 1. To examine the process underlying the interaction effect of social information and self-construal, we measured attitude toward the charity by one item adapted from Xie et al. (2015) and response efficacy by 3 items adapted from Cryder, Loewenstein, and Scheines (2013) (α = 0.94). As immigration is a political, controversial issue for to U.S. participants (Goswami & Urminsky, 2016), we controlled for political view (libertarianism vs. conservatism) with a scale adapted from Mehrabian (1996) (α = 0.93). Similarly, we collected measures for perceived credibility of the charity (Newell and Goldsmith (2001), α = 0.96) and psychological reactance (Trampe, Konus, and Verhoef (2014), α = 0.84), as controls. We also measured money scarcity to avoid potential effects of budget constraints (Liu & Aaker, 2008) and collected some demographic information (age, gender, income, and ethnicity).

Analysis, Results, and Discussion

Manipulation check. Similar to Study 1, we used a memory check to exclude all participants who did not recall the correct information they were given. Of 122 participants, we retained 103 participants (84.43%). The demographic characteristics of the sample remained the same (age = 23 – 68 years, M_{age} = 36 years, 47% female).

Hypothesis testing. We conducted an ANCOVA on willingness to support with social information dummy, mean-centered construal (measured by dominant regulatory focus), and its interaction as predictors. We controlled for income, gender, money scarcity, ethnicity, political view, perceived credibility, and psychological reactance. As with study 1, we found a significant interaction effect of social information and dominant self-construal on people's willingness to support the charity ($F(1, 84) = 4.244$, $p = .042$) (see Figure 3). As expected, the results suggest that people provided with many (vs. few) donated information were more

likely to support the charity when their dominant construal scores were larger than or equal

.619 (B_{JN} = .624, SE = .314), meaning that participants were dominated by an interdependent

self-construal.

Figure 3. *Study 2: The interaction of self-construal (measured through dominant regulatory focus) and social information.*
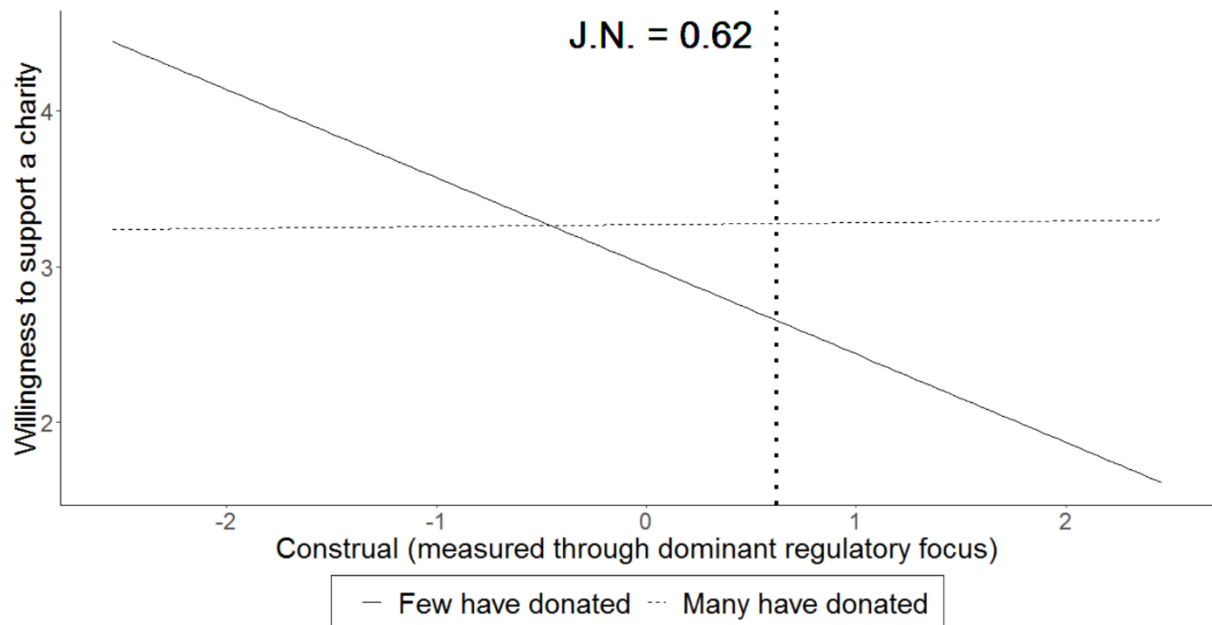
Note: Construal (x-axis) is measured through mean-centered dominant regulatory focus in which a negative value means promotion focus/independent self-construal, while a positive value means prevention focus/interdependent self-construal; J.N. = Johnson-Neyman point. The lower J.N. threshold (-15.16) is out of the range of our observed data (min = -2.54, max = 2.46) and is not plotted.

Moderated mediation analysis. We tested our proposed moderated mediation using

the bootstrapping method.[1] We tested multiple potential mediators at the same time: response

efficacy and attitude toward the charity. We examined whether individual differences in their

self-construal (measured through dominant regulatory focus) moderate the direct effects of

social information on attitude toward the charity and response efficacy.

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[1] All (moderated) mediation analyses in this paper (over the 4 studies) were done using the bootstrapping method with 10,000 bootstrap iterations (Hayes, 2013) and bias-corrected bootstrap method to compute confidence intervals (MacKinnon, Lockwood, & Williams, 2004). They are done using Mplus version 7.4 (Muthén & Muthén, 1998-2017).

Results show that after controlling for attitude toward the charity and response efficacy, the direct effect of many donated information (β = -1.306, 95% CI = [-3.434, .472]) and its interaction effect with donor construal (β = .279, 95% CI = [-.182, .789]) were no longer significant, while the direct effect of self-construal was negative and significant (β = -.265, 95% CI = [-.574, -.003]). Importantly, the main effects of both attitude toward the charity (β = .528, 95% CI = [.336, .699]) and response efficacy on willingness to support (β = .347, 95% CI = [.131, .542]) were significant. As predicted, the indirect effect through attitude was significant for people with higher self-construal (one standard deviation (SD) above the mean): indirect effect = .480, 95% CI = [.187, .914], while it was not significant for people with lower self-construal (one SD below the mean): indirect effect = .022, 95% CI = [-.267, .367]. Similarly, the indirect effect through response efficacy was significant for people with higher self-construal (one SD above the mean): indirect effect = .341, 95% CI = [.117, .712], while it was not significant for people with lower self-construal (one SD below the mean): indirect effect = .032, 95% CI = [-.218, .306]. Importantly, the index of moderated mediation (Hayes, 2015) was significant for both attitude toward the charity (index = .238, 95% CI = [.045, .494]) and response efficacy (index = .160, 95% CI = [.003, .417], meaning that self-construal moderated the mediation through attitude toward the charity and response efficacy. Hence, H2a and H3 are supported.

We also tested several alternative explanations. Consumer guilt (measured by two items from Bennett et al. (2013), r = .854) were not influenced by our social information manipulation (F(1, 99) = 2.359, p = .128). The interaction between guilt and construal was not significant (F(1, 99) = .707, p = .403). The effect of social information on guilt remained insignificant when construal was excluded (F(1, 101) = 2.402, p = .124).

Second, we rule out perceived needs as a potential explanation for the observed effects of social information (Allen et al., 2018). Perceived needs (measured by one item from S. Lee,

Winterich, and Ross Jr. (2014), see Appendix 1) were not influenced by social information $(F(1, 99) = 1.696, p = .196)$ and its interaction with construal was not significant $(F(1, 99) = .653, p = .421)$. The effect of social information remained insignificant when construal was excluded $(F(1, 101) = 1.732, p = .191)$. In summary, we can rule out guilt and perceived needs for donation as alternative explanations for the effects of social information.

STUDY 3

Study 3 intends to bestow robustness on the effects of social information in Studies 1 & 2. We do this by making two major changes: (1) creating a new charity and donation cause, (2) measuring self-construals directly by a scale from Johnson, Selenta, and Lord (2006). While the use of new charity/cause enhances the generalizability of our results, the direct measure of self-construal helps us confirm the previous effects based on regulatory focus.

Importantly, this study aims to test attitude toward donating to the charity as a mediator (H2b) and perceived importance of the cause as a boundary condition for the effects of social information on willingness to donate (H4a). Previous research has shown that individuals are more likely to donate when they consider the cause highly important to them (e.g., Lichtenstein, Drumwright, & Braig, 2004) and that the importance of the cause is among the most crucial determinants of donors' behavior (Pentecost & Andrews, 2010; Ranganathan, Loebl, & Radosevich, 2012). Consequently, we expected that when the perceived importance of the cause increases, it is easier for donors to intrinsically justify their donation decision, reducing the uncertainty and ambiguity in making the donation decision (S. Lee et al., 2014). Then, this reduction in ambiguity should lead to a lower impact of descriptive norms (i.e., social information) on donors' mind (Croson et al., 2009).

Moreover, we also control for potential moderating effects of several variables including need for uniqueness, self-sufficiency, and temporal (activated) empathy. Specifically, one can

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argue that independent people with higher level of need for uniqueness might prefer the few have donated information and then establish a higher donation intention (Allen et al., 2018). Similarly, independent people might prefer achieving personal goals through their own efforts (high level of self-sufficiency) and then focus more on themselves and less on what others are doing, indicating that few have donated information might be more effectual (Vohs, Mead, & Goode, 2006). In addition, one can also expect that people with high level of temporal empathy would be more likely to act when the few have donated information is presented as they expect that the beneficiaries of the charity are in need of further support. By controlling for all three variables, we rule out alternative explanations for our effects. Finally, we rule out the possibility that temporal empathy and need for uniqueness can also act as a potential mediator explaining the interaction effect of social information and donor construal on their willingness to support (Basil et al., 2008).

Method

Participants. A total of 287 UK participants were recruited online via Prolific (age = 18 – 74 years, M_{age} = 38 years, 67% female) who took part in the study in exchange for monetary compensation (£1.5). We randomly assigned them into one of the four conditions in a 2 (social information: many have donated vs. few have donated) x 2 (importance of the donation cause: more vs. less important cause) between-subjects design.

Procedure. The overall procedures in this study is similar to those in Studies 1 and 2, except for one major change: a different donation cause. Specifically, the participants were presented with a news article describing a new (fictitious) charity helping people suffering from primary bone cancer. We used a different charity than the one in previous studies in order to check if our results remain robust when the donation cause is not socially controversial like before (i.e. immigration and refugee assistance) (Goswami & Urminsky, 2016). In order to manipulate the importance level of the donation cause, we provided the

participants with an extra "fact box" in which the seriousness of the problem on which the

charity is currently working and the potentially large impact of that work on people were

highlighted (see Appendix 3).

Measures. We measured willingness to support a charity using the same five-item

scale as in Study 2. Attitude toward donating to the charity was measured by a two-item scale

adapted from Xie et al. (2015) (r = .90) while response efficacy was measured using the same

three-item scale as in Study 2 (α = .92). We measure individuals' self-construals using

independent/interdependent self-view scales from Johnson et al. (2006) (for independent

scale: α = .86, for interdependent scale: α = .88). Following previous research (e.g., Hong &

Chang, 2015; Wu, Cutright, & Fitzsimons, 2011), a dominant chronic self-construal score is

created by subtracting participants' mean ratings on the independent items from their mean

ratings on the interdependent items. Participants with lower score have a dominant

independent self-construal, while those with higher score have a dominant interdependent

self-construal. In addition, we measured psychological reactance and money scarcity as in

Study 2. We also control for social distance (measured by a 3-item scale adapted from Jones

(2004), α = .78) as previous research has shown that asking people about money (i.e.,

donation request) might make them feel more distant from other donors (higher social

distance), leading to a lower level of willingness to donate (e.g., Ma, Fang, Zhang, & Nie,

2017). Finally, we collected measures for need for uniqueness (measured by a 4-item scale

from Lynn and Harris (1997), α = .72), self-sufficiency (measured by a 4-item scale from

Lammers, Galinsky, Gordijn, and Otten (2012), α = .84), and temporal empathy (measured by

a 3-item scale from Basil et al. (2008), α = .86).

Analysis, Results, and Discussion

Manipulation check. We measured participants' perceptions of others' support to the

charity by a one-item. Participants were asked to indicate the extent to which they thought the

charity has been supported so far this year on a 1-7 not at all to very much scale. Then we

excluded participants with answers that were clearly opposite to what they are supposed to

answer (e.g., answer 7 while they were in the few have donated condition). Of 287

participants, 264 people remained (92%) with similar sample characteristics (age = 18 – 74

years, M_{age} = 38 years, 65% female). As expected, we found that people in the "many have

donated condition" perceived others' support to the charity significantly higher than those in

"few have donated condition" (M_{many} = 4.17 > M_{few} = 3.32; $F(1, 262) = 23.11$, $p < .001$).

We measured participants' perceptions of the importance of the donation cause with a 7-

point scale ("To what extent do you feel that this is an important cause"). We found that

people in the more important cause condition (M_{more} = 5.54) were more likely to agree that

the charity supports an important cause than those in the less important condition (M_{less} =

5.20, $F(1, 262) = 4.005$, $p = .046$). Therefore, both manipulations were successful.

Hypothesis testing. In order to test the proposed hypotheses, we run an ANCOVA on

willingness to support a charity as the dependent variable. Our predictors include social

information dummy (1 = many donated, 0 = few donated), importance of the cause (1 = more

important cause, 0 = less important cause), mean-centered chronic self-construal score, and

their corresponding 2-way and 3-way interaction terms. Temporal empathy, psychological

reactance, need for uniqueness, self-sufficiency, social distance, and money scarcity were

included as covariates. There were no significant effects for self-sufficiency and

psychological reactance ($Fs < .533$, $ps > .05$), while the effects of need for uniqueness ($F(1$,

$250) = 13.669$, $p < .001$), activated empathy ($F(1, 250) = 34.398$, $p < .001$), and social

distance ($F(1, 250) = 20.296$, $p < .001$) were significant. No main effects of social

information ($F(1, 250) = 2.292$, $p = .131$, importance of the cause ($F(1, 250) = .029$, $p =$

$.865$), or chronic self-construal ($F(1, 250) = .050$, $p = .824$) emerged. However, in line with

predictions, we found a significant effect on willingness to support the charity for the three-

way interaction (F(1, 250) = 3.994, p = .047). We further examined the interaction between self-construal and social information in less and more important cause conditions.

In the less important cause condition, main effects of social information (F(1, 123) = 2.171, p = .143) and self-construal (F(1, 123) = .033, p = .857) were not significant. However, we found a significant interaction between social information and self-construal as predicted (F(1, 123) = 5.116, p = .025). Our floodlight analysis using Johnson-Neyman technique shows that when many have donated information is presented, people were more likely to support the charity than when few have donated information is presented if their dominant self-construal scores are higher than or equal to .393, meaning that they have a dominant interdependent self (B_{JN} = .410, SE = .207).

Figure 4. *Study 3: The interaction of self-construal, social information, and importance level of the donation cause.*

a) Less important donation cause
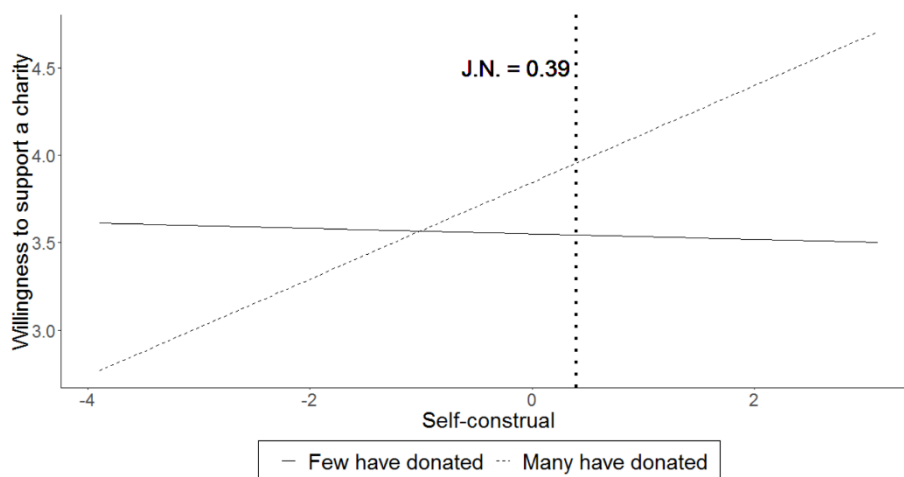
b) More important donation cause
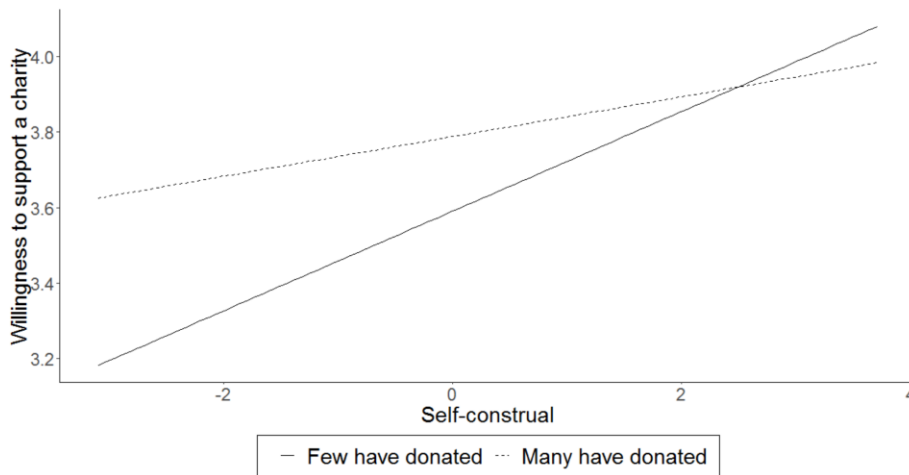
Note: The x-axis represents individual dominant construal, in which a negative value means an independent self-construal, while a positive value means an interdependent self-construal; J.N. = Johnson-Neyman point. In the less important donation cause condition, the lower J.N. threshold (-8.87) is out of the range of our observed data (min = -3.89, max = 3.11) and is not plotted.

We further assessed the slopes of self-construal at each type of provided social information (many vs. few have donated) in the less important cause condition. When many have donated information was provided, the slope of self-construal was positive and significant (β = .239, p = .025). This means that interdependent participants were more likely to support the charity compared to independent ones when many have donated information is presented. When few have donated information was provided, the slope of self-construal was non-significant (β = -.045, p = .665) (see Figure 4).

In the more important cause condition, the interaction between social information and self-construal had no significant effect on willingness to help ($F(1, 121)$ = .476, p = .492). In addition, neither the main effect of social information ($F(1, 121)$ = 1.117, p = .293), nor the main effect of self-construal ($F(1, 121)$ = 2.317, p = .131) on willingness to support was found to be significant. To conclude, making the cause more important reduces the

interaction effect of social information and self-construal, in support of our hypothesis H4a (see Figure 4).

Moderated mediation analysis. To replicate our findings in Study 2, we tested whether response efficacy and attitude toward donating to the charity mediate the effects of many have donated information (compared to few have donated) and its interaction with dominant chronic self-construal on willingness to donate when the cause is considered less important. We tested this moderated mediation effect for both mediator variables by bootstrapping. Results reveal that the interaction between social information (many vs. few have donated) and self-construal significantly affected attitude toward donating to the charity (b = .212, 95% CI = [.015, .429]) and response efficacy (b = .312, 95% CI = [.020, .613]). As both attitude toward donating to the charity and response efficacy exerted significant positive effects on willingness to support the charity (attitude: b = .525, 95% CI = [.307, .735], response efficacy: b = .216, 95% CI = [.060, .367]), the moderated mediation effects are satisfied for willingness to donate with both attitude and response efficacy as mediators and self-construal as the moderator. Indeed, the moderated mediation index was significant for attitude (index = .111, 95% CI = [.014, .240]) and response efficacy as mediators (index = .067, 95% CI = [.006, .189]), confirming hypotheses H2b and H3. In other words, individual scores on self-construal moderate the attitude they have toward donating to the charity and response efficacy caused by social information (many vs. few have donated). Attitude and response efficacy further mediate such moderated effect on willingness to support the charity.

We also tested temporal empathy and need for uniqueness as alternative explanations. We reran the moderated mediation analysis when attitude, response efficacy, temporal empathy, and need for uniqueness were all included as mediators. The results show that the interaction between social information and self-construal had no significant effects on temporal empathy (b = .097, 95% CI = [-.229, .418]) and need for uniqueness (b = -.236, 95% CI = [-.482,

.022]). Further, we observed insignificant moderated mediation index of both temporal empathy (index = .013, 95% CI = [-.025, .089]) and need for uniqueness (index = -.039, 95% CI = [-.124, .000]). Note that the moderated mediation index of attitude toward donating (index = .111, 95% CI = [.014, .240]) and response efficacy (index = .067, 95% CI = [.006, .189]) remained significant in this test. Therefore, we can safely rule out temporal empathy and need for uniqueness as alternative explanations.

STUDY 4

In this study, we aim to shed lights on the effects of social information on willingness to support a charity by including the control group in which people do not receive any social information. By including the control group with no social information, we could examine the effectiveness of "*many have donated*" and "*few have donated*" information separately. In addition, this study aims to confirm the second proposed boundary condition, knowledge of the charity (H4b). We expected that providing people with background information on the charity would reduce uncertainty and thus lessen the need for more (social) information.

Method

   Participants. A total of 416 UK participants were recruited online via Prolific (age = 15 – 71 years, M_{age} = 38 years, 64% female), who took part in the study in exchange for monetary compensation (£1.5). We randomly assigned them into one of the six conditions in a 3 (social information: many have donated vs. few have donated vs. no information) x 2 (background information about the charity: present vs. absent) between-subjects design.

   Procedure. The overall procedures in this study is similar to those in Study 3.

   Measures. We collected measures for willingness to support a charity and self-construal as in Study 3. Similar to Studies 2 and 3, we collected measures for psychological reactance, social distance, and demographic variables. To control for potential effects of time

and budget constraints when people are making charitable decisions, we followed Liu and Aaker (2008) to control for money scarcity and time scarcity (see Appendix 1).

Analysis, Results, and Discussion

Manipulation check. We measured participants' perceptions of others' support to the charity by a one-item. Participants were asked to indicate the extent to which they thought the charity has been supported so far this year on a 1-7 not at all to very much scale. As in previous studies, we excluded people who could not retrieve the correct information indicated by their answers obviously opposite to what should be expected (e.g., if people in the few have donated condition gave an answer of 7 and vice versa). Of 416 people, 402 participants remained (96.6%) with similar sample characteristics (age = 15 – 71 years, M_{age} = 38 years, 64% female). As expected, we found that people in the many have donated condition perceived others' support to the charity significantly higher than those in few have donated condition (M_{many} = 4.338 > M_{few} = 3.530; $F(1, 262)$ = 18.76, $p < .001$).

As one important factor leading to uncertainty in charitable decisions is the severity of the cause, we checked our manipulation using a one-item 7-point-Likert scale (i.e., "To what extent do you think [name of charity] supports a serious problem") (S. Lee et al., 2014). We found that people in the background information condition ($M_{with\ background}$ = 6.052) were more likely to agree that the charity is doing a serious job than those in the without background information condition ($M_{without\ background}$ = 5.620, $F(1, 400)$ = 13.38, $p < .001$), suggesting that uncertainty is lowered when background information is provided. Therefore, all of our manipulation were successful.

Hypothesis testing. In order to test the proposed hypotheses, we an ANCOVA on willingness to donate. Our main predictors include social information (2 dummies: "many" dummy: 1 = many have donated information, 0 = no info; and "few" dummy: 1 = few have

donated information, 0 = no info), dummy for the use of background information, mean-centered dominant chronic self-construal score, and the corresponding two-way and three-way interaction terms. Psychological reactance, social distance, household income levels, the scarcity of money and time were included as covariates. Our results reveal that only social distance ($F(1, 381) = 86.987$, $p < .001$) and time scarcity ($F(1, 381) = 4.032$, $p = .045$) had significant effects on willingness to support, whereas the effects of other covariates were not significant ($Fs < 1.99$, $ps > .05$). The main effects of social information ($F(1, 381) = .020$, $p = .886$), background information dummy ($F(1, 381) = .493$, $p = .483$), and self-construal ($F(1, 381) = 2.409$, $p = .121$) were not significant. However, in support of our H4b, we found a three-way interaction between "few" dummy, background information dummy, and self-construal on willingness to support the charity ($F(1, 381) = 4.961$, $p = .027$). The three-way interaction between "many" dummy, background information dummy, and self-construal did not have a significant effect on willingness to support ($F(1, 381) = 2.108$, $p = .147$). For interpretative purposes, we decomposed the interactions by testing the "with background" and "without background information" conditions separately.

Simple effects tests in the without background condition show a marginally significant effect of self-construal ($F(1, 193) = 3.071$, $p = .081$), and a strongly significant effect of its interaction with the "few" dummy ($F(1, 193) = 6.477$, $p = .012$), though the main effect of the "few" dummy ($F(1, 193) = .067$, $p = .797$) was not significant. In contrast, both the main effect of many have donated ($F(1, 193) = .014$ $p = .906$) and its interaction effect with self-construal ($F(1, 193) = 2.888$, $p = .091$) were not significant.

Figure 5. *Study 4: The interaction of self-construal, social information, and background information.*

a) Without background information condition
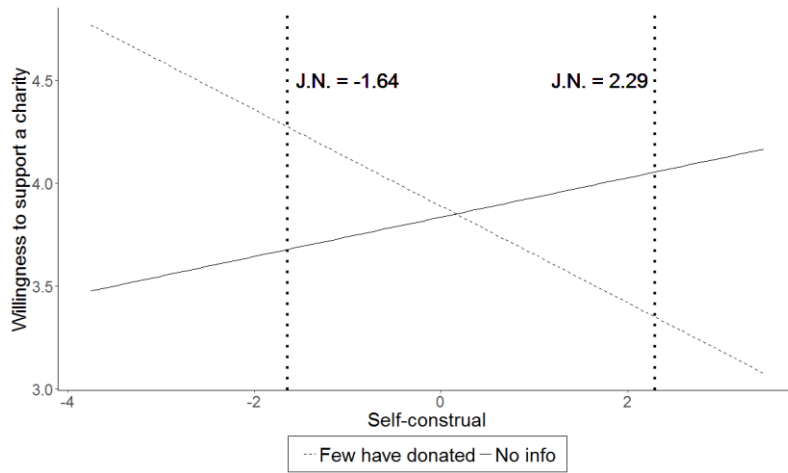
b) With background information condition
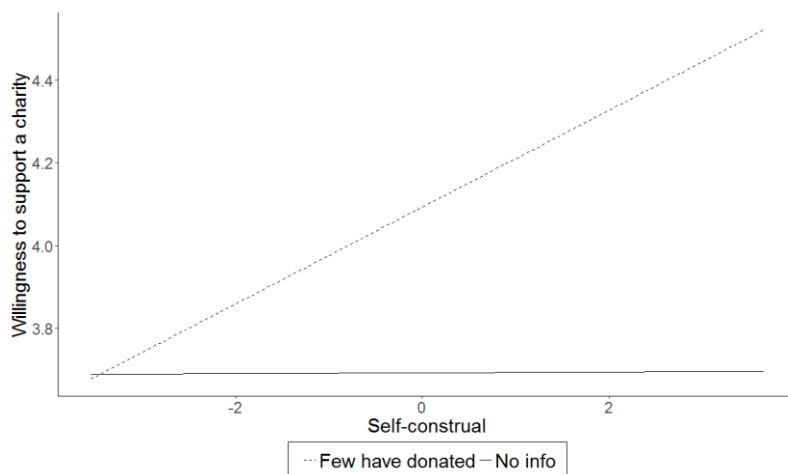
Note: The x-axis represents individual dominant construal, in which a negative value means an independent self-construal, while a positive value means an interdependent self-construal; J.N. = Johnson-Neyman point.

As expected, the floodlight analysis using Johnson-Neyman technique suggests that when people are provided with few have donated information, they are less likely to support a charity than they are when no information is provided, given that their self-construal scores are larger than 2.292, meaning they have a dominant interdependent self-construal (B_{JN} = -

.704, SE = .357). In contrast, when their self-construal scores are smaller than -1.645, meaning that they have a dominant independent self-construal, people increase their willingness to support a charity when few have donated information is provided compared to when there is no provided information (B_{JN} = .597, SE = .303) (see Figure 5).

As we found no significant effect of the information that many have donated (vs. no information), it seems that "negative" social information (i.e. few have donated) has a stronger impact than "positive" (i.e. many have donated). One possible reason for this is that people often remember negative information better and process it more thoroughly compared to when information is positive (e.g., Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). In addition, as the used charity is fictitious with no background information, people would consider the few have donated information more credible and consistent with their own expectation, leading to its stronger effects on their subsequent donation intentions.

In the with background information condition, simple effects tests suggest that people were not responsive to social information regardless of their dominant chronic self-construal scores. In other words, we found no significant main effects of few ($F(1, 179)$ = 3.421, p = .066) and many have donated information ($F(1, 179)$ = .652, p = .421), and no significant interaction effects between those variables and self-construal values (few x construal: $F(1, 179)$ = .536, p = .465; many x construal: $F(1, 179)$ = .240, p = .625). Self-construal also exerted no significant main effect on willingness to support ($F(1, 179)$ = .040, p = .843) (see Figure 5). In overall, H4b is supported such that the interaction effect of social information and self-construal on willingness to support a non-profit is reduced to insignificant when background information is provided.

General discussion

Media reports on charity campaigns may influence consumer awareness and donation behavior (Brown & Minty, 2008; Gneezy, Keenan, & Gneezy, 2014). However, our knowledge of the nature and conditions for the effects of publicity on donation behavior is limited and there is a call for more research (Aravindakshan, Rubel, & Rutz, 2015). We contribute to this literature by testing the effects of non-specific social information (*many* vs. *few* have donated), and the boundary conditions of such effects, on donation behavior. Non-specific social information is quite common in news reports on charity campaigns in the critical early stages of campaigns. The opportunities for media coverage are often better in these periods because news are fresh and campaigns have not yet attracted the attention of the dominating media. However, in those early stages of campaigns, validated figures on donations are often not available. Rather, charity representatives tend to report on the response from target groups in general terms conveying non-specific social information (e.g., *many/few* have donated). Over four experiments, we tested the effects of non-specific social information on the willingness to support a new charity, and the boundary conditions for such effects. Our results advance prior research by providing new insights into how and when non-specific social information influences donation behavior.

Theoretical contributions

Research shows that specific social information, such as lists of previous donors, gender of donors, and specific donation rates may influence donation behavior (Bennett et al., 2013; Croson & Shang, 2008; Shang et al., 2008). In general, specific information is considered more diagnostic and credible (Jerez-Fernandez, Angulo, & Oppenheimer, 2014; Mason, Lee, Wiley, & Ames, 2013), and therefore more persuasive than non-specific information (Schindler & Yalch, 2006). More importantly, according to social proof theory, social information is more readily accepted and applied in decision processes when it is specific and

comes from a credible source (Bennett et al., 2013; Cialdini & Trost, 1998). When social information is non-specific and less credible, it might be less useful as social proof of the appropriate cause of action. Rather, an alternative theory on responses to social information might be relevant in this situation: *social loafing theory*. This theory predicts that people reduce their effort when working collectively toward a goal compared to situations in which they work individually towards the same goal (Karau & Williams, 1993; Latané, Williams, & Harkins, 1979). A number of studies show that people tend to reduce their effort in the real or imagined presence of others (Karau & Williams, 1993). In our context, social loafing theory would predict that the information that "many have donated" would reduce willingness to support. However, we expected that, when a charity is less known and there is little other information available, even non-specific social information (i.e., many have donated) would work as social proof and increase consumers' willingness to donate. The results of four experiments support this prediction for consumers with an interdependent self-view. Thus, our findings imply that social proof theory is also relevant to situations in which social information is non-specific and the credibility of the source is unknown ("many people"). We suggest that one reason for this finding is that non-specific social terms such as "few" and "many" actually provide quite precise information *on behavioral norms*, often more precise than specific information, such as "60% have donated" or "2% increase in donations".

This research identified and found support for three mediators of the positive effect of non-specific social information on willingness to donate. First, we find that the information that many have donated strengthens attitude toward donating, which in turn affects willingness to support the charity. Secondly, we find that attitude toward the charity is also a significant mediator. Thus, information that many have donated enters into two types of attitude formation process, one about the charity and another one about the act of donating as such, and both attitudes influence willingness to support. These mechanisms are consistent

with social proof theory. The information that many have donated serves as an informational cue in both types of attitude formation processes.

We also identify a third mediator of the positive effect of non-specific social information: response efficacy. In our context, this variable regards the belief that donating to the charity will result in the desired outcome, that is, to effectively help the people in need (refugees in Study 1-2 and victims of bone cancer in Study 3-4) (Sharma & Morwitz, 2016). A number of studies have explored the effects of *self-efficacy* (beliefs about the individual ability to perform a certain action), also in the context of charitable giving (Basil et al., 2008; Bendapudi et al., 1996), but our knowledge about the role and impact of response efficacy is limited. The results of study 2 and 3 show higher levels of response efficacy when consumers learn that many have donated. Interdependent consumers feel more confident that the charity will be effective when they receive this information, and the higher level of confidence in turn increases their willingness to donate.

We also contribute to the literature by showing that there are two important boundary conditions for the positive effects of non-specific social information on willingness to donate. First, we find that the effect of non-specific social information is dependent on perceived importance of the cause. We manipulated perceived importance in Study 3 and found that the positive effect of information that many donated was significant only in the group with lower score on perceived importance. The information that many have donated had no impact when the cause was extremely important. We suggest that respondents in this group felt lower levels of uncertainty when considering their willingness to support the charity. When the cause is extremely important, it stands out in a favorable way and people activate fewer, if any, counter-arguments. In this situation, it is easy to arrive at a positive decision to support the cause and there is less need for information of any kind, including social information.

The second boundary condition identified here is background information on the charity. The information that many have donated had no effect on willingness to donate when respondents received information on the background of the charity (Study 4). Again, a likely explanation is that the background information reduced uncertainty and lowered the need for (non-specific) social information.

Also in support of a social proof account, we found that empathy could not explain the positive effect of non-specific social information on willingness to donate (Study 3). In sum, we extend social proof theory to a new context (non-specific social information in a PR context) and provide new insights on why and when social proof affects behavior in this situation.

Managerial implications

Our findings have implications for nonprofit managers. For less known charities, early reports on campaigns in the media communicating to the public that the response is good and that many have donated may increase people's willingness to support. Managers should actively "sell" such stories to the media, especially when campaigns focus on causes not regarded as "must supports" (extremely high scores on perceived importance). For causes that trigger more ambiguity and more counter-arguments (e.g., supporting immigrants in need), the information that many have donated may reduce uncertainty and stimulate donations. However, this is only the case for people with an interdependent self-view. Thus, managers need to know the dominating self-view of their target groups.

The finding that positive non-specific information (many have donated) has a positive effect on attitude toward the charity suggests that such information is relevant in efforts to strengthen the reputation of new charities. New charities typically have limited budgets and

positive news reports of the kind discussed here could be an efficient low-cost strategy to improve both the awareness of, and the attitudes toward, charity start-ups.

Limitations and directions for future research

This research also raise some unanswered questions that await scholarship for future research. We found, in line with social proof theory, that non-specific social information positively affected interdependent consumers' willingness to support a nonprofit. In order to understand the importance and role of specificity, however, we need research which manipulates the type and level of specificity within the same study. Such research may provide new insights on desirable characteristic of social proofs in a PR context.

Interestingly, the information that few had donated (negative social information) increased the willingness to support among consumers with an independent self-view. Social proof theory cannot explain this finding (nor can social loafing theory). We included two potential mediators in this study: need for uniqueness and self-sufficiency. Neither was significant. Clearly, more research is needed on the motivational effect of negative (non-) social information for people with an independent self-view. In particular, we welcome studies on how independent people interpret and process negative (non-specific) social information. One potential explanation for the positive effect of negative social information (few have donated) for this group of people is that such information increases the perceived impact of individual donations.

In a real news report, non-specific social information (many/few have donated) is typically combined with other types of information about the charity. Will the effect of non-specific social information disappear or increase when other types of information are included? The finding that providing more background information on the charity removed the positive effect of non-specific social information for interdependent people (Study 4)

suggests that the effect is sensitive to the presence of other types of information. However, it is not a given that other types of information will always reduce the effect of (non-specific) social information. The direction of the combined effects of social- and background information may depend on the congruity of the two types of information. If, for instance, the background information regards the creativity or competence of charity employees, this information may reinforce the effect of information that many have donated.

Another area of future exploration is the combined effects of social information via the media (PR) and explicit requests to donate money to the same charity via other channels. Oftentimes charities request people to donate via emails, social media or print ads at the same time as the media report on campaigns. When does (non-specific) social information reinforce or reduce the effect of requests, respectively? Will consumers respond differently to (non-specific) social information before, compared to after, requests to donate? Will requests containing a message that is congruent with the non-specific social information conveyed in the media be more effective than requests low on congruity? Answers to these questions will advance our knowledge of how (non-specific) social information influence donation behavior and provide new practical insights for managers of nonprofits.

Data Collection Information

The first author collected and analyzed the data for the studies reported in the current article under the guidance of the second author. The data for Studies 1 and 2 were collected in August and October 2016 respectively through Amazon's Mechanical Turk. Study 3 was conducted in July 2017 through Prolific. The data for Study 4 were collected in two phases: one in July 2017 and one in February 2018.

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Appendix 1. Measures used in all studies

Dependent Variables

Willingness to support a charity (Study 1 (only first two items), Studies 2, 3, and 4 (all five items)). Adapted from Bennett et al. (2013): $\alpha = 0.831$ (correlation score, Study 1), $\alpha = 0.95$ (Study 2), $\alpha = 0.92$ (Study 3), $\alpha = 0.93$ (Study 4). Measured on a 7-point Likert scale anchored by 1 = "Very unwilling" and 7 = "Very willing"; all scale points numbered and labeled.

- To what extent would you be willing to donate money to the [*campaign*] of [*name of the charity*]?
- To what extent would you be willing to solicit your friends and family members to donate money to the [*campaign*] of [*name of the charity*]?
- To what extent would you be willing to give your time to support [*name of the charity*]'s programs?
- To what extent would you be willing to volunteer for [*name of the charity*]?
- To what extent would you be willing to ask your friends and family members to volunteer for [*name of the charity*]?

Note: In studies 1 and 2: [campaign] = start-up fund, [name of the charity] = IMRA (the Immigration & Refugee Assistance); In studies 3 and 4: [campaign] = campaign, [name of the charity] = BCT (the Bon Cancer Trust)

Independent Variables, Mediators, and Control Variables

Regulatory focus (to measure self-construal in studies 1 and 2). Adapted from Mishra et al. (2010): $\alpha = 0.7$ (Study 1), $\alpha = 0.72$ (Study 2). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- Right now, I feel I should pay more attention to my duties and obligations, even at the expense of my aspirations
- I think it is important to avoid making mistakes, even if it means not acting on possible but risky gains
- I think preserving what one has is more important in life than gaining more
- I think it is very important to pursue one's hopes and dreams at all costs
- One should be willing to stake everything one has in order to pursue one's desire
- I would regret missed opportunities more than actions I take that were mistakes in hindsight

Self-construal (Study 3 and 4). Adapted from Johnson et al. (2006) in which 5 items are related to an interdependent self-construal (relational self-concept): $\alpha = 0.88$ (Study 3), $\alpha = 0.89$ (Study 4), and 5 items are related to an independent self-construal (individual self-concept): $\alpha = 0.86$ (Study 3), $\alpha = 0.85$ (Study 4). Participants' dominant self-construal was computed as the difference between mean ratings on the interdependent and independent items (e.g., Hong & Chang, 2015). Measured on a 7-point Likert scale anchored by 1 = "Does not describe me at all", 4 = "Describe me moderately well", and 7 = "Describe me very well"; all scale points numbered and labeled.

- If a friend was having a personal problem, I would help him/her even if it meant sacrificing my time or money
- I value friends who are caring, empathic individuals

- It is important to me that I uphold my commitments to significant people in my life
- Caring deeply about another person such as a close friend or relative is important to me
- Knowing that a close other acknowledges and values the role that I play in their life makes me feel like a worthwhile person
- I thrive on opportunities to demonstrate that my abilities or talents are better than those of other people.
- I have a strong need to know how I stand in comparison to my coworkers
- I often compete with my friends
- I feel best about myself when I perform better than others
- I often find myself pondering over the ways that I am better or worse off than other people around me

Attitude toward the charity (Study 2). Adapted from Xie et al. (2015). Measured by one 7-point, evaluative bi-polar item anchored by 1 = "Very Negative" and 7 = "Very Positive." The question was "What is your general attitude towards the charity Immigration & Refugee Assistance (IMRA)?"

Attitude toward donating (Study 3). Adapted from Xie et al. (2015) (correlation score = 0.90). Measured by two 7-point, evaluative bi-polar items: "Very negative (1) – Very positive (7)" and "Very unfavorable (1) – Very favorable (7)".The question was "What is your general attitude towards donating to this charity?"

Response efficacy (Studies 2 and 3). Adapted from Cryder et al. (2013) (Study 2: α = 0.94, Study 3: α = 0.92). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- My individual contribution would be important to the charity
- My individual contribution would help immigrants and refugees in USA (Study 3: My individual contribution would be a great help to the recipients)
- My individual contribution would really matter

Political view (libertarianism vs. conservatism) (Study 2). Adapted from Mehrabian and Russel (1974) (α = 0.93). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- I am politically more liberal than conservative
- In any election, given a choice between a Republican and a Democratic candidate, I will select the Republican over the Democrat
- I cannot see myself ever voting to elect conservative candidates
- The major national media are too left-wing for my taste
- On balance, I lean politically more to the left than to the right

Perceived credibility (Study 2). Adapted from Newell and Goldsmith (2001) (α = 0.96). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- IMRA seems to be a reliable nonprofit
- IMRA seems to be an organization that can be trusted
- The call for individual donations from IMRA seems to be truthful

Psychological reactance (Studies 2, 3, and 4). Adapted from Trampe et al. (2014): α = 0.84 (Study 2), α = 0.81 (Study 3), α = 0.80 (Study 4). Measured on a 7-point Likert scale

anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- That column made me feel that I was forced to donate to the charity;
- I felt that the column forced me into a specific behavior;
- I felt that my freedom to donate to the charity was threatened after reading that column;
- I felt that the column was used as an attempt to influence my choice of donating or not;

Feelings of guilt (Study 2). Adapted from Bennett et al. (2013) (correlation score = 0.85). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- I would feel guilty if I did not donate money or time to this organization
- I would feel uncomfortable if I did not donate money or time to this organization

Perceived needs for donation (Study 2). Adapted from S. Lee et al. (2014). Measured on a 7-point Likert scale anchored by 1 = "Not at all" and 7 = "Very much"; all scale points numbered and labeled.

- To what extent are target recipients of IMRA in need of financial support?

Money (Time) scarcity (Studies 3 and 4). Adapted from Liu and Aaker (2008). Measured on a 7-point Likert scale anchored by 1 = "Not at all scarce" and 7 = "Very much scarce"; all scale points numbered and labeled.

- How scarce is money (time) to you at this moment?

Social distance (Studies 3 and 4). Adapted from Jones (2004): $\alpha = 0.78$ (Study 3), $\alpha = 0.78$ (Study 4). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- In general, I think that I have, or would have, little in common with donors of the BCT. (reversed)
- In general, I think that I have, or would have, similar views to donors of the BCT.
- In general, I think that I have, or would have, some similarities with donors of the BCT.

Need for uniqueness (Study 3). Adapted from Lynn and Harris (1997) ($\alpha = 0.72$). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- I am very attracted to rare objects
- I enjoy having things that others do not
- I like to try new things before others do
- I would prefer to have things custom-made than to have them ready-made

Self-sufficiency orientation (Study 3). Adapted from Lammers et al. (2012): ($\alpha = 0.84$). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- I think I can deal with most problems by myself
- I currently feel that I do not really need the help of others
- Currently, I think that I can obtain most things by myself
- I could use some helps by others, at the moment (reversed item)

Temporal (activated) empathy (Study 3). Adapted from Basil et al. (2008) (α = 0.86). Measured on a 7-point Likert scale anchored by 1 = "Strongly disagree" and 7 = "Strongly agree"; all scale points numbered and labeled.

- I imagined what it would feel like to be a needy person.
- When reading the news column I put myself in the shoes of a needy person
- After seeing the news column, I empathized with needy people

Appendix 2. Study 1 Stimuli
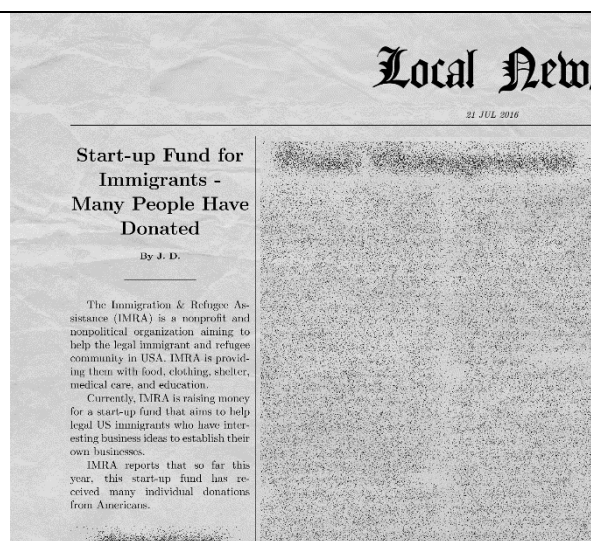
Many have donated condition　　　　　**Few have donated condition**
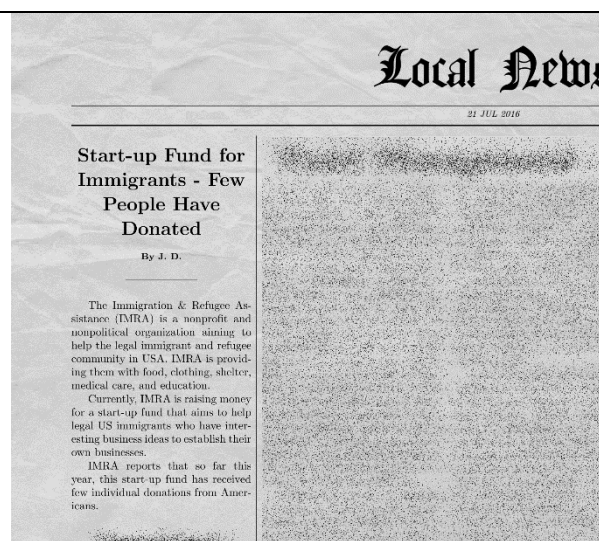
Appendix 3. Study 3 Stimuli

Many have donated condition, less important donation cause

Few have donated condition, less important donation cause

Many have donated condition, more important donation cause

Few have donated condition, more important donation cause

Appendix 4. Study 4 Stimuli

Many have donated condition, no background information

Local News

21 FEB 2018

New Campaign by Bone Cancer Trust – Many People Have Donated

By CARSON

Bone Cancer Trust (BCT) is a charity devoted to improving the lives of people suffering from primary bone cancer. The charity provides them and their families with relevant information, counselling services, and raises funds to promote research into the causes and treatment of primary bone cancer.

This year BCT has launched a new year-long campaign to raise funds that will be used to fund more research, provide more information, raise more awareness, support more individuals, and eventually save more lives.

According to BCT's report, so far this year, many people have supported the BCT's new campaign by donating money to the charity.

Few have donated condition, no background information

Local News

21 FEB 2018

New Campaign by Bone Cancer Trust – Few People Have Donated

By CARSON

Bone Cancer Trust (BCT) is a charity devoted to improving the lives of people suffering from primary bone cancer. The charity provides them and their families with relevant information, counselling services, and raises funds to promote research into the causes and treatment of primary bone cancer.

This year BCT has launched a new year-long campaign to raise funds that will be used to fund more research, provide more information, raise more awareness, support more individuals, and eventually save more lives.

According to BCT's report, so far this year, few people have supported the BCT's new campaign by donating money to the charity.

Many have donated condition, with background information

Local News

12 JUL 2017

New Campaign by Bone Cancer Trust - Many People Have Donated

By CARSON

Bone Cancer Trust (BCT) is a charity devoted to improving the lives of people suffering from primary bone cancer. The charity provides them and their families with relevant information, counselling services, and raises funds to promote research into the causes and treatment of primary bone cancer.

Since established 10 years ago, BCT has made some amazing contributions to fight against bone cancer. This year BCT has launched a new year-long campaign to raise funds that will be used to fund more research, provide more information, raise more awareness, support more individuals, and eventually save more lives.

According to BCT's report, so far this year, many people have supported the BCT's new campaign by donating money to the charity.

Few have donated condition, with background information

Local News

12 JUL 2017

New Campaign by Bone Cancer Trust - Few People Have Donated

By CARSON

Bone Cancer Trust (BCT) is a charity devoted to improving the lives of people suffering from primary bone cancer. The charity provides them and their families with relevant information, counselling services, and raises funds to promote research into the causes and treatment of primary bone cancer.

Since established 10 years ago, BCT has made some amazing contributions to fight against bone cancer. This year BCT has launched a new year-long campaign to raise funds that will be used to fund more research, provide more information, raise more awareness, support more individuals, and eventually save more lives.

According to BCT's report, so far this year, few people have supported the BCT's new campaign by donating money to the charity.

Appendix 5. Detailed results on study 1

a) Full results of ANCOVA on willingness to support *with* covariates

Group size: $N_{many} = 40$, $N_{few} = 45$

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	**df**	**F-value**	**p-value**
Intercept	20.90	1	8.32	0.01
Many donated info (1 = Many, 0 = Few)	3.90	1	1.55	0.22
Mean-centered regulatory focus	19.42	1	7.73	0.01
Many x Regulatory focus	11.40	1	4.54	0.04
Household income[a]	42.99	6	2.85	0.02
Gender[b]	12.51	2	2.49	0.09
Ethnicity[c]	11.68	5	0.93	0.47
Marital status[d]	12.87	1	5.12	0.03
Residuals	168.33	67		

Notes: [a] Household income (unit: $1000): 1 = 0 – 25, 2 = 25 – 35, 3 = 35 – 50, 4 = 50 – 75, 5 = 75 – 100, 6 = 100 – 150, 7 = 150 – 200, 8 = 200 or more; [b] Gender (1 = Female; 0 = Otherwise); [c] Ethnicity (1 = African American; 2 = Asian; 3 = Hispanic; 4 = Pacific Islander; 5 = White; 6 = Other); [d] Marital status (1 = Being married, 0 = Otherwise).

b) Full results of ANCOVA on willingness to support *without* covariates

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	**df**	**F-value**	**p-value**
Intercept	522.19	1	177.87	< 0.01
Many donated info (1 = Many, 0 = Few)	1.20	1	0.41	0.53
Mean-centered regulatory focus	10.70	1	3.64	0.06
Many x Regulatory focus	4.30	1	1.47	0.23
Residuals	237.80	81		

c) Simple effect testing on regulatory focus

- In many donated condition

ANOVA table (Type II)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Household Income	13.44	5	0.89	0.50
Mean-centered regulatory focus	0.22	1	0.07	0.79
Gender	0.53	1	0.17	0.68
Ethnicity	3.70	3	0.41	0.75
Marital status	2.08	1	0.69	0.41
Residuals	84.82	28		

- In few donated condition

ANOVA table (Type II)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Household Income	68.45	6	8.06	< 0.01
Mean-centered regulatory focus	26.44	1	18.68	< 0.01
Gender	27.57	2	9.74	< 0.01
Ethnicity	15.02	4	2.65	0.05
Marital status	9.87	1	6.97	0.01
Residuals	42.46	30		

Appendix 6. Detailed results on study 2

a) ANCOVA results *with* covariates

Group size: $N_{many} = 46$, $N_{few} = 57$

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	0.47	1	0.31	0.58
Many donated info (1 = Many, 0 = Few)	1.50	1	0.98	0.32
Mean-centered regulatory focus	14.63	1	9.58	0.00
Many x Regulatory Focus	6.48	1	4.24	0.04
Household Income[a]	8.73	5	1.14	0.34
Ethnicity[b]	10.26	5	1.34	0.25
Perceived Credibility	64.71	1	42.39	0.00
Political View	0.13	1	0.09	0.77
Psychological Reactance	2.21	1	1.45	0.23
Gender[c]	4.71	1	3.09	0.08
Money Scarcity	7.49	1	4.91	0.03
Residuals	128.23	84		

b) ANCOVA results *without* covariates

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	441.78	1	184.14	< 0.01
Many donated info	13.63	1	5.68	0.02
Mean-centered regulatory focus	9.13	1	3.81	0.05
Many x Regulatory focus	1.25	1	0.52	0.47
Residuals	237.52	99		

c) Moderated mediation analysis – Main model

Software: Mplus 7.4; Number of bootstrap draws: 10,000

Variables	B	SE	95% CI lower	95% CI upper
DV: Willingness to support				
Many	-1.306	.981	-3.434	.472
Regulatory focus	-.265	.145	-.574	-.003
Many x Regulatory focus	.279	.247	-.182	.789
Response Efficacy	.347	.104	.131	.542
Attitude toward charity	.528	.093	.336	.699
Household Income (Unit: 1000 USD) (ref. group = < 34)				
35 – 50	.000	.295	-.586	.557
50 – 75	.045	.336	-.620	.698
75 – 100	.648	.340	.019	1.365
100 – 150	-.352	.463	-1.230	.559
> 150	-.470	.352	-1.095	.301
Ethnicity (ref. group = African American)				
Asian American	-.127	.525	-1.147	.897
Hispanic Mestizos	-.556	.657	-2.017	.676
White or European American	-.320	.324	-.918	.369
Middle Eastern American	-2.629	.674	-4.012	-1.341
Multiracial	-.587	.521	-1.855	.301

Perceived Credibility	.044	.114	-.171	.284
Psychological Reactance	.188	.100	-.016	.376
Political View	.111	.084	-.060	.269
Intercept	-.447	.866	-2.128	1.248
R^2			.652	

DV: Response Efficacy

Many	-1.330	1.033	-3.215	.815
Regulatory focus	-.242	.179	-.578	.127
Many x Regulatory focus	.462	.243	-.034	.916
Perceived Credibility	.698	.075	.550	.847
Household Income (Unit: 1000 USD) (ref. group = < 34)				
35 – 50	-.163	.314	-.800	.440
50 – 75	-.141	.346	-.851	.503
75 – 100	.122	.351	-.560	.815
100 – 150	-.516	.570	-1.625	.599
> 150	-.323	.695	-1.587	.975
Ethnicity (ref. group = African American)				
Asian American	.889	.536	-.155	1.991
Hispanic Mestizos	.368	.863	-1.284	2.173
White or European American	.279	.469	-.646	1.200
Middle Eastern American	-1.450	.693	-2.674	.018
Multiracial	.883	.564	-.316	1.934
Money Scarcity	-.240	.080	-.402	-.085
Gender (ref. group = male)				
Female	-.479	.247	-.933	.046
Intercept	2.627	1.072	.473	4.659
R^2			.574	

DV: Attitude toward the Charity

Many	-1.344	.839	-2.870	.441
Regulatory focus	-.286	.174	-.597	.098
Many x Regulatory focus	.450	.201	.028	.824
Perceived Credibility	.823	.073	.679	.967
Household Income (Unit: 1000 USD) (ref. group = < 34)				
35 – 50	-.008	.311	-.613	.614

50 – 75	-.167	.320	-.817	.442
75 – 100	.379	.323	-.230	1.039
100 – 150	.175	.329	-.490	.810
> 150	-.094	.345	-.761	.591
Intercept	1.509	.847	-.419	2.970
R^2			.609	

d) Alternative testing: consumer guilt, perceived needs

- Consumer guilt

ANOVA table (Type III)

Dependent variable: Consumer guilt

	Sum Sq	**df**	**F-value**	**p-value**
Intercept	272.95	1	121.72	< 2e-16
Many donated info	5.29	1	2.36	0.13
Mean-centered regulatory focus	1.10	1	0.49	0.49
Many x Regulatory focus	1.59	1	0.71	0.40
Residuals	222.01	99		

- Perceived needs

ANOVA table (Type III)

Dependent variable: Perceived needs

	Sum Sq	**df**	**F-value**	**p-value**
Intercept	1233.17	1	431.88	<2e-16
Many donated info	4.84	1	1.70	0.20
Mean-centered regulatory focus	1.37	1	0.48	0.49
Many x Regulatory focus	1.87	1	0.65	0.42
Residuals	282.68	99		

Appendix 7. Detailed results on study 3

a) ANCOVA results *with* covariates

Group size:

	Less important	More important	Total
Few	70	69	139
Many	63	62	125
Total	133	131	264

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	0.15	1	0.13	0.72
Importance (1 = more, 0 = less)	0.03	1	0.03	0.86
Many donated info (1 = many, 0 = few)	2.63	1	2.29	0.13
Mean-centered self-construal	0.06	1	0.05	0.82
Importance x Many	0.17	1	0.15	0.70
Importance x Self-construal	0.52	1	0.45	0.50
Many x Self-construal	5.79	1	5.04	0.03
Importance x Many x Self-construal	4.59	1	3.99	0.05
Need for uniqueness	15.70	1	13.67	0.00
Temporal empathy	39.52	1	34.40	0.00
Reactance	0.53	1	0.46	0.50
Self sufficiency	0.46	1	0.40	0.53
Social distance	23.32	1	20.30	0.00
Money Scarcity	0.52	1	0.46	0.50
Residuals	287.24	250		

b) ANCOVA without covariates

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	854.57	1	518.13	< 2e-16
Importance (1 = more, 0 = less)	0.08	1	0.05	0.83
Many donated info (1 = many, 0 = few)	5.61	1	3.40	0.07
Mean-centered self-construal	3.98	1	2.42	0.12
Importance x Many	0.26	1	0.16	0.69
Importance x Self-construal	0.88	1	0.53	0.47
Many x Self-construal	3.01	1	1.82	0.18

	Sum Sq	df	F-value	p-value
Importance x Many x Self-construal	0.85	1	0.51	0.47
Residuals	422.23	256		

c) ANCOVA – less important cause condition

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	**df**	**F-value**	**p-value**
Intercept	0.62	1	0.52	0.47
Many donated info (1 = Many, 0 = Few)	2.60	1	2.17	0.14
Mean-centered self-construal	0.04	1	0.03	0.86
Need for uniqueness	4.84	1	4.05	0.05
Temporal empathy	16.18	1	13.51	0.00
Psychological reactance	0.67	1	0.56	0.46
Self sufficiency	1.13	1	0.94	0.33
Social distance	15.58	1	13.01	0.00
Money Scarcity	1.92	1	1.60	0.21
Many x self-construal	6.13	1	5.12	0.03
Residuals	147.29	123		

d) Simple effects testing – less important cause condition

- Many have donated condition

ANOVA table (Type II)

Dependent variable: Willingness to support

	Sum Sq	**df**	**F-value**	**p-value**
Mean-centered self-construal	5.41	1	5.33	0.02
Need for uniqueness	0.08	1	0.08	0.78
Temporal empathy	2.99	1	2.95	0.09
Psychological reactance	1.88	1	1.86	0.18
Self sufficiency	0.00	1	0.00	1.00
Social distance	13.07	1	12.87	0.00
Money Scarcity	0.01	1	0.01	0.94
Residuals	55.83	55		

- Few have donated condition

	Sum Sq	**df**	**F-value**	**p-value**
Mean-centered self-construal	0.26	1	0.19	0.67
Need for uniqueness	2.59	1	1.92	0.17
Temporal empathy	14.12	1	10.46	0.00
Psychological reactance	0.09	1	0.06	0.80

Self sufficiency	2.41	1	1.79	0.19
Social distance	6.91	1	5.12	0.03
Money Scarcity	3.22	1	2.38	0.13
Residuals	83.72	62		

e) ANCOVA – more important cause condition

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	0.14	1	0.12	0.72
Many donated info (1 = Many, 0 = Few)	1.26	1	1.12	0.29
Mean-centered self-construal	2.60	1	2.32	0.13
Need for uniqueness	12.24	1	10.89	0.00
Temporal empathy	23.29	1	20.73	0.00
Psychological reactance	0.07	1	0.07	0.80
Self sufficiency	0.04	1	0.04	0.85
Social distance	6.05	1	5.38	0.02
Money Scarcity	0.20	1	0.18	0.67
Many x self-construal	0.54	1	0.48	0.49
Residuals	135.97	121		

g) Moderated mediation analysis – Main model

Variables	B	SE	95% CI lower	95% CI upper
DV: Willingness to support				
Many info	.024	.254	-.489	.517
Self-construals	-.014	.090	-.187	.170
Many info x self-construals	.128	.105	-.078	.336
Response efficacy	.216	.078	.060	.367
Attitude toward the charity	.525	.110	.307	.735
Need for uniqueness	.165	.083	.003	.327
Psychological reactance	-.046	.093	-.229	.132
Self sufficiency	.034	.066	-.098	.161
Social distance	.116	.099	-.078	.311
Temporal empathy	.131	.066	.005	.266
Money Scarcity	.004	.052	-.092	.110
Intercept	-1.526	.634	-2.792	-.275

R^2			.529	

DV: Response Efficacy				
Many info	-.769	.438	-1.646	.081
Self-construals	-.065	.118	-.301	.161
Many info x self-construals	.312	.151	.020	.613
Self sufficiency	-.161	.100	-.361	.030
Social distance	.637	.127	.361	.866
Intercept	2.329	.196	1.086	3.500
R^2			.233	

DV: Attitude toward the Charity				
Many info	-.317	.315	-.973	.271
Self-construals	.047	.078	-.109	.197
Many info x self-construals	.212	.106	.015	.429
Self sufficiency	.165	.079	.008	.319
Social distance	.411	.105	.206	.614
Money scarcity	.143	.053	.044	.255
Intercept	1.474	.107	.250	2.603
R^2			.319	

h) Moderated mediation analysis – Alternative model including need for uniqueness and temporal empathy as additional mediators

Variables	B	SE	95% CI lower	95% CI upper
DV: Willingness to support				
Many info	.024	.254	-.489	.517
Self-construals	-.014	.090	-.187	.170
Many info x self-construals	.128	.105	-.078	.336
Response efficacy	.216	.078	.060	.367
Attitude toward the charity	.525	.110	.307	.735
Need for uniqueness	.165	.083	.003	.327
Psychological reactance	-.046	.093	-.229	.132
Self sufficiency	.034	.066	-.098	.161
Social distance	.116	.099	-.078	.311
Temporal empathy	.131	.066	.005	.266
Money Scarcity	.004	.052	-.092	.110

Intercept	-1.526	.634	-2.792	-.275
R^2			.506	

DV: Response Efficacy

Many info	-.769	.438	-1.646	.081
Self-construals	-.065	.118	-.301	.161
Many info x self-construals	.312	.151	.020	.613
Self sufficiency	-.161	.100	-.361	.030
Social distance	.637	.127	.361	.866
Intercept	2.329	.196	1.086	3.500
R^2			.233	

DV: Attitude toward the Charity

Many info	-.317	.315	-.973	.271
Self-construals	.047	.078	-.109	.197
Many info x self-construals	.212	.106	.015	.429
Self sufficiency	.165	.079	.008	.319
Social distance	.411	.105	.206	.614
Money scarcity	.143	.053	.044	.255
Intercept	1.474	.596	.251	2.603
R^2			.319	

DV: Need for uniqueness

Many info	.484	.401	-.319	1.251
Self-construals	-.028	.090	-.211	.138
Many info x self-construals	-.236	.130	-.482	.022
Intercept	3.811	.287	3.260	4.377
R^2			.064	

DV: Temporal empathy

Many info	.297	.427	-.559	1.122
Self-construals	.134	.113	-.084	.356
Many info x self-construals	.097	.165	-.229	.418
Intercept	3.305	.294	2.745	3.898
R^2			.077	

Appendix 8. Detailed results on study 4

a) ANCOVA results *with* covariates

Group size:

	With background info	Without background info	Total
Few	65	69	134
Many	63	67	130
Control	66	72	138
Total	194	208	402

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	5.71	1	3.99	0.05
Background info (1 = With background, 0 = without background)	0.71	1	0.49	0.48
Many info (1 = many, 0 = no info)	0.03	1	0.02	0.89
Few info (1 = few, 0 = no info)	0.10	1	0.07	0.79
Mean-centered self-construal	3.45	1	2.41	0.12
Reactance	2.84	1	1.98	0.16
Household income[a]	11.58	5	1.62	0.15
Money scarcity	0.91	1	0.64	0.43
Time scarcity	5.78	1	4.03	0.05
Social distance	124.58	1	86.99	$< 2.2e\text{-}16$
Background x many	0.31	1	0.21	0.64
Background x few	1.48	1	1.03	0.31
Many x self-construal	3.86	1	2.70	0.10
Few x self-construal	9.66	1	6.74	0.01
Background x self-construal	1.63	1	1.14	0.29
Background x many x self-construal	3.02	1	2.11	0.15
Background x few x self-construal	7.11	1	4.96	0.03
Residuals	545.65	381		

Notes: [a] Household income (unit = £1000): 1 = 0-10, 2 = 10-20, 3 = 20-30, 4 = 30-40, 5 = 40-50, 6 = 50 or more

b) ANCOVA results *without* covariates

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	1053.52	1	596.08	$< 2e\text{-}16$

	Sum Sq	df	F-value	p-value
Background info (1 = With background, 0 = without background)	1.16	1	0.66	0.42
Many info (1 = many, 0 = no info)	0.03	1	0.02	0.90
Few info (1 = few, 0 = no info)	0.02	1	0.01	0.91
Mean-centered self-construal	10.96	1	6.20	0.01
Background x many	0.99	1	0.56	0.46
Background x few	0.91	1	0.52	0.47
Many x self-construal	7.00	1	3.96	0.05
Few x self-construal	9.43	1	5.34	0.02
Background x self-construal	3.57	1	2.02	0.16
Background x many x self-construal	4.43	1	2.51	0.11
Background x few x self-construal	5.75	1	3.25	0.07
Residuals	689.29	390		

c) ANCOVA – Without background information condition

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	3.72	1	2.58	0.11
Many donated info (1 = Many, 0 = No info)	0.02	1	0.01	0.91
Few donated info (1 = Few, 0 = No info)	0.10	1	0.07	0.80
Mean-centered self-construal	4.43	1	3.07	0.08
Psychological reactance	3.66	1	2.54	0.11
Household Income	4.91	5	0.68	0.64
Money scarcity	2.07	1	1.43	0.23
Time scarcity	5.13	1	3.55	0.06
Social distance	41.37	1	28.68	0.00
Many x Self-construal	4.17	1	2.89	0.09
Few x Self-construal	9.34	1	6.48	0.01
Residuals	278.37	193		

d) ANCOVA – With background information condition

ANOVA table (Type III)

Dependent variable: Willingness to support

	Sum Sq	df	F-value	p-value
Intercept	1.43	1	0.99	0.32
Many donated info (1 = Many, 0 = No info)	0.53	1	0.36	0.55
Few donated info (1 = Few, 0 = No info)	3.67	1	2.54	0.11
Mean-centered self-construal	0.08	1	0.06	0.81

Psychological reactance	0.23	1	0.16	0.69
Household Income	3.65	1	2.52	0.11
Money scarcity	0.01	1	0.01	0.94
Time scarcity	1.55	1	1.07	0.30
Social distance	78.54	1	54.38	< .01
Many x Self-construal	0.29	1	0.20	0.65
Few x Self-construal	0.59	1	0.41	0.52
Residuals	264.31	183		

Article 3:

Effects of Social Information and Money Reminders on

Donation Behavior

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Effects of Social Information and Money Reminders on Donation Behavior

Abstract

Previous research has shown that social information may influence consumers' willingness to support charities. In our study, we focus on nonspecific social information (many vs. few have donated) and find that the information that many have donated can significantly increase consumers' willingness to donate (WTD), consumers' willingness to recommend the charity (WTR), and the donation amount to a new (fictitious) charity. We identify *response efficacy* and *the attitude toward the charity* as significant mediators of the effects of social information on people's donation behaviors. Importantly, these indirect effects are reduced when people are shown subtle money reminders (i.e., unrelated images of money). Alternative explanations are tested and rejected, and the findings have important implications for communication managers and for future research on donation behavior.

1. Introduction

A number of studies suggest that social information may influence donation behavior. Bryan and Test (1967) observed an increase in people's WTD after receiving information about the support of other people. Reingen (1982) tested the effects of showing prospective donors a list of people who had already donated to an organization and found that the participation rates in a charity campaign increased significantly. Frey and Meier (2004) manipulated information about previous participation rates for an annual campaign and found that their student subjects were more likely to contribute to a charitable fund when the previous contribution rate was high (i.e., 64%) compared to low (i.e., 46%). A study by Agerström, Carlsson, Nicklasson, and Guntell (2016) suggests that positive social information may have even stronger effects on donation behavior than explicit appeals for contributions.

We contribute to this stream of research in three ways. First, we test the effects of nonspecific social information on three types of donation behavior: WTD, WTR, and the donation amount. Previous research has focused on specific kinds of social information, such as lists of previous donors (Reingen, 1982) or specific dollar amounts donated to a cause (Croson & Shang, 2008). However, less is known about the effects of nonspecific social information (e.g., that many vs. few have donated), a type of information that is quite common in the news media but considered less diagnostic and trustworthy in the literature on consumer decision making (Bennett, Kim, & Loken, 2013; Cialdini & Trost, 1998). Second, we explain why nonspecific social information may influence donation behavior and test two new mediators of the effects of social information on donation behavior: response efficacy and the attitude toward the charity. Finally, we test the role of money reminders in this context.

Previous research suggests that money-related objects such as a picture of bank notes can change people's mind-sets and their subsequent behaviors (Vohs, 2015). In particular, people

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who are reminded of money feel less dependent on other people (e.g., Vohs, Mead, & Goode, 2006), prefer acting independently (e.g., Vohs, Mead, & Goode, 2008), and are less helpful to others (Vohs, 2015). We shed light on this issue by examining how consumers respond to social information when they are reminded of money. Indeed, prospective donors are highly likely to encounter money reminders when exposed to social information about charities (X. Zhou, Kim, & Wang, 2018). News articles about charities may contain information on the account number, typically at the end of articles, for readers who want to donate. Some charities put their donation appeals close to news reports on the same charity program. In addition, other articles and ads adjacent to a news report may refer to money in headings and images. We suggest that money reminders reduce the influence of nonspecific social information by weakening the mediating effects on response efficacy and the attitude toward the charity. To test our predictions, we conducted an experiment via the Amazon Mechanical Turk (MTurk), manipulating social information (many vs. few have donated) and the presence of money reminders. The results have important implications for marketing managers and for future research on donation behavior.

2. Theoretical Background and Hypotheses

2.1 Effects of Social Information on Donation Behaviors

Previous studies provide strong evidence for the impact of social information on donation behaviors (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2008; Martin & Randal, 2008; Shang & Croson, 2009; Smith, Windmeijer, & Wright, 2015). The positive effect of this social information on people's donation behaviors is often explained by the influence of descriptive social norms (e.g., Croson, Handy, & Shang, 2009). In our context, descriptive social norms, which are generally defined as "one's perception of what most others actually do" (Cialdini, 2007, p. 264), refer to one's perception of how much other people have donated or how many people have donated in the domain of charitable giving. Descriptive

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social norms have a powerful impact on people's behaviors, as people tend to believe that what many people do is the standard for appropriate behavior (e.g., Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). This impact is in line with the principle of social proof (or informational social influence) (see Cialdini, 2008), which suggests that the behaviors of many people are often considered to be more appropriate and effective (e.g., Bikhchandani, Hirshleifer, & Welch, 1992).

Following this logic, we expect that the information that "many have donated" will have a positive effect on individuals' donation behaviors compared to the information that "few have donated". Previous research has tested the effects of specific social information (e.g., a contribution rate of 73% (Agerström et al., 2016)) and of comparative social information (e.g., a rate that is higher this year than last year (Allen, Eilert, & Peloza, 2018)). However, less is known about the effects of social information that is nonspecific and not comparative (e.g., many or few have donated). This type of information is considered less diagnostic and less trustworthy than specific information, such as information revealing the actual percentage of contributions, the level of contributions compared to previous campaigns, or the identity of contributors (Bennett et al., 2013; Cialdini & Trost, 1998). We still expect that the positive nonspecific information that many have donated will have positive effects on donation behavior because this type of information actually provides highly accurate and concentrated information *on social norms*. Thus, we expect the following hypothesis to hold:

Hypothesis 1: The information that *many have donated* has positive effects on people's donation behaviors (i.e., WTD, WTR, and the donation amount) compared to the information that *few have donated*.

2.2 Mediating Effects of Response Efficacy and the Attitude toward the Charity

We suggest two psychological mechanisms underlying the effect of nonspecific social information on people's donation behaviors: individuals' response efficacy and their charitable attitudes. Efficacy is an important concept in social learning theory that is used to explain and predict observed changes in people's behavior (Bandura, 1977). Regarding individuals' expectations of efficacy, there are two major types: self-efficacy and response efficacy (Basil, Ridgway, & Basil, 2008). Self-efficacy refers to one's belief in how well he/she can execute a particular action, while response efficacy (or outcome expectancy) is defined as one's belief in whether a given behavior will help him/her achieve desired outcomes (Bandura, 1982; Han, Duhachek, & Agrawal, 2016). In the charity context, self-efficacy can be measured as the extent to which prospective donors think that they can support a cause, while response efficacy can be measured as the extent to which their donations will make an impact (or will be effective) (E. Sharma & Morwitz, 2016). Both self-efficacy and response efficacy are considered important drivers of individuals' behavior.

However, while previous research has extensively studied the effects of self-efficacy on donation behavior (Basil et al., 2008; Bendapudi, Singh, & Bendapudi, 1996), response efficacy has received much less attention. We contribute to the current literature by focusing on this particular variable and predict that when people are presented with the information that many others have donated, their response efficacy will increase. In other words, people's belief in the effectiveness or impact of their own contribution will be enhanced when they learn that many have donated. Indeed, many individual donors are aware that individual contributions, even those small in size, are still crucial to beneficiaries (e.g., saving lives) (e.g., An, 2015). However, small donations can have a large impact only if the charity is effective in utilizing its resources (Rosato, 2014). As mentioned by Frey and Meier (2004), contributions by many others indicate the good quality of the charity. In a similar vein, Allen

et al. (2018) show that prospective donors think that the charity is more likely to have a better performance when it is supported by many people. Therefore, it is reasonable to expect that the information that many have donated will increase people's response efficacy, which, in turn, will increase their donation behaviors.

Hypothesis 2a: Response efficacy mediates the positive effect of nonspecific social information on donation behaviors, such that people have a higher (smaller) level of response efficacy after learning that *many* (*few*) *have donated*. This enhanced response efficacy, in turn, positively influences donation behaviors (i.e., WTD, WTR, and the donation amount).

Another important mediator that we focus on this study is the attitude toward the charity. Previous research emphasizes two important kinds of charitable attitudes: the attitude toward helping others by making a donation and the attitude toward the charity (Webb, Green, & Brashear, 2000). As indicated by Webb et al. (2000), the attitude toward donating to a charity and the attitude toward the charity are equally effective tools for enhancing the likelihood of giving (the breadth of giving). Although the attitude toward charitable organizations has been suggested to have a strong impact on people's donation behaviors (e.g., Harvey, 1990; Schlegelmilch, 1988), previous donation studies often focus on the attitude toward helping others (e.g., Burnkrant & Page, 1982; Pessemier, Bemmaor, & Hanssens, 1977; Xie, Bagozzi, & Grønhaug, 2015) while ignoring the attitude toward the charity (Supphellen & Nelson, 2001). We argue that in this context, charities work similarly to intermediaries between donors and beneficiaries and that donors normally cannot observe the direct results of their contributions, nor can they obtain sufficient information to evaluate the quality of the charity's initiatives (Supphellen & Nelson, 2001). In fact, Cryder, Botti, and Simonyan (2017) show that donors choose to donate to more favorable beneficiaries instead of to those who are more needy.

Goldstein, Cialdini, and Griskevicius (2008) argue that in an attempt to maintain a state of balance, people adjust their attitudes and behavior according to the standard inferred through descriptive social norms. In line with this reasoning, we predict that the information that many have donated will make prospective donors' attitude toward the charity more favorable because of their beliefs that many others also evaluate the charity favorably. Thus, we propose the following hypothesis:

Hypothesis 2b: The attitude toward the charity mediates the positive effect of social information on donation behaviors, such that people have a more (less) favorable attitude toward the charity after learning that *many* (*few*) *have donated*. This increase in attitude favorability, in turn, enhances donation behaviors (i.e., WTD, WTR, and the donation amount).

2.3 Money Reminders Reduce the Effects of Social Norms

Existing evidence shows that people tend to focus more on themselves and less on maintaining social bonds when they have money-related thoughts. For example, Vohs et al. (2006) find that those primed with the concept of money prefer to do things alone and prefer to be separate from others. In a similar vein, Vohs et al. (2008) find that when the concept of money is activated, people tend to be more persistent in achieving personal goals but hesitate to include others in their own activities. This finding can be explained by the fact that money-related objects remind people of the opportunities, power, and capability associated with possessing money, with these thoughts triggering feelings of self-sufficiency and a desire for independence (Vohs et al., 2006). Therefore, we expect that priming people with money will reduce their motivation to adjust to the behavior of others and make them less sensitive to the influence of social norms.

In particular, we suggest that money reminders will reduce the effect of social information on response efficacy and the attitude toward the charity. On the one hand, money reminders make people become more self-interested (Gino & Mogilner, 2014), which might shift their focus from the interest of the beneficiaries (i.e., whether the program will succeed) to their own interest (i.e., maximizing the impact of their own contributions). Because people perceive that the impact of their personal donations will be higher when few have donated, we predict that the positive effect of the information that many have donated on response efficacy will be lower (or even nonsignificant) when people are reminded of money. Additionally, money reminders make people less sensitive to social rejection and social popularity (Z. Zhou, Vohs, & Baumeister, 2009). Therefore, we expect that social information will have a lower effect on the attitude toward the charity when money cues are present. In summary, we propose the following hypothesis:

<u>Hypothesis 3:</u> The positive effects of the information that *many* (vs. *few*) *have donated* on donation behaviors (H1) are reduced when consumers are reminded of money. Specifically, the effects of the information that *many have donated* on response efficacy (H2a) and the attitude toward the charity (H2b) are weaker when a money reminder is present than when it is absent.

Our proposed relationships are shown in Figure 1. Social information and money reminders are manipulated variables. In addition, two mediating variables, response efficacy and the attitude toward the charity, are measured. We expect that money reminders will moderate the effects of social information on response efficacy and the attitude toward the charity. Need for uniqueness, guilt, political views, money scarcity, and time scarcity are included as control variables.

Figure 1. *Conceptual model*
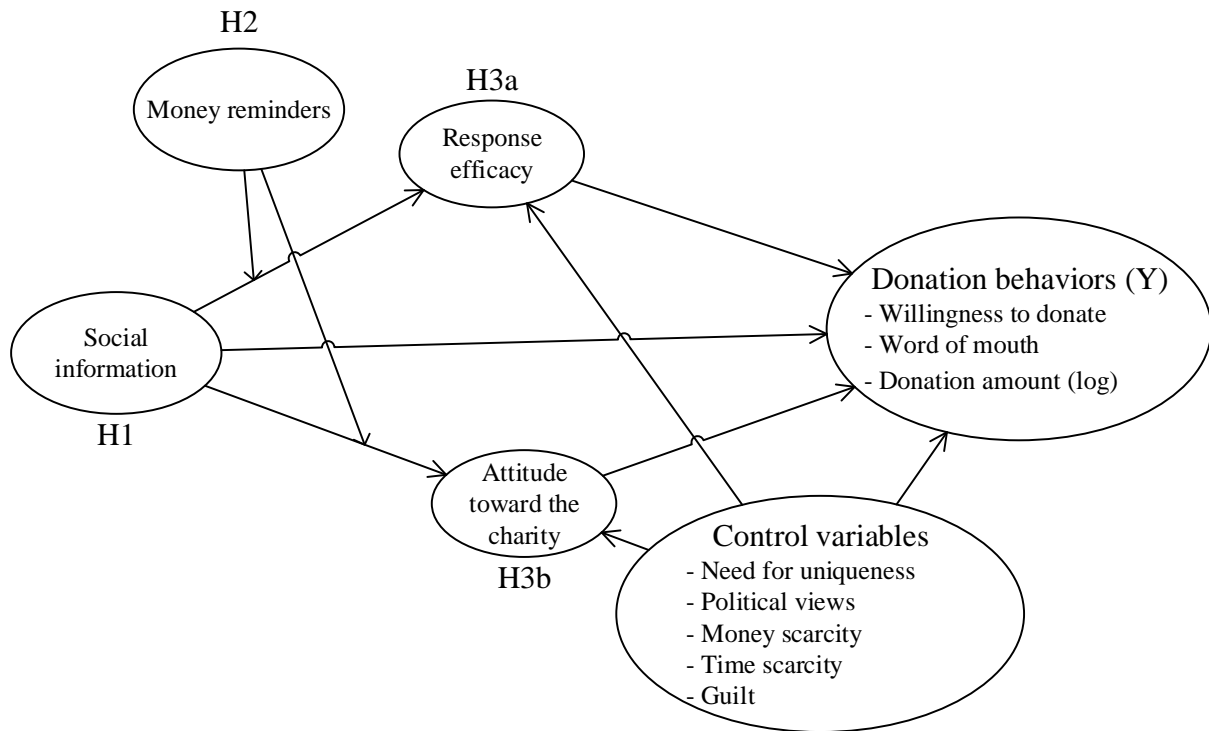
3. Method

3.1 Research Design

We conducted an experiment to test our proposed hypotheses. A total of 243 participants were recruited online via MTurk, with the participants completing the online questionnaire in exchange for $2. The participants were randomly assigned to one of four conditions in a 2 (social information: many vs. few) x 2 (money prime: present vs. absent) between-subjects design.

Our manipulation of social information was inspired by Frey and Meier (2004). In their study, the participants (students) were told that a relatively high (or low) percentage of people had contributed to a campaign in the past. In this research, we used relative terms (*many* vs. *few* have donated) instead of the exact percentages to indicate the quantity of previous donors. To check whether our manipulation of social information worked, we included a memory check in which the participants were asked to indicate the extent of support that the

charity had received from others (i.e., many, few, all of them, none of them, or not given).

We excluded those who could not precisely recall the social information that they had been

given and retained 202 participants (83%). Table 1 shows the characteristics of our sample.

Table 1. *Sample characteristics (N = 202)*

Variables	Description	Frequency	Percent
Gender	Female	108	46.5
	Male	94	53.5
	Lower than high school or equivalent	0	0
	High school or equivalent	72	35.6
Education	Bachelor's degree or equivalent	109	54.0
	Master's degree or equivalent	16	7.9
	Higher than master's degree or equivalent	1	0.5
	Other	4	2.0
	Single, never married	82	40.6
Marital status	Married or domestic partnership	103	51.0
	Widowed	2	1.0
	Divorced	13	6.4
	Separated	2	1.0
	< $35,000	73	36.1
	$35,000 to $49,999	44	21.8
Household income	$50,000 to $74,999	41	20.3
	$75,000 to $99,999	28	13.9
	$100,000 to $149,999	14	6.9
	> $150,000	2	1.0
Variables	**Unit/Scale**	**Mean**	**SD**
Age	Year (min = 20, max = 68)	35.75	9.58

3.2 Procedure

After accepting the informed consent form, the participants were asked to read an excerpt

from the middle pages of a fictitious local newspaper where they found a column introducing

a fictitious nonprofit that provides help to needy legal immigrants and refugees in the US. In

addition to general information about the activities of the nonprofit, the column informed the

participants that the nonprofit is currently raising money for its start-up fund aiming to help

immigrants establish their own businesses. In the positive (negative) social information

condition, the participants read the following information: "[S]o far this year, this start-up

fund has received many (few) individual donations".

Following previous research (e.g., Gasiorowska, Zaleskiewicz, & Wygrab, 2012), the concept of money was primed with a picture of large USD bank notes. To increase the external validity of our result, we located this picture and the description of the charitable organization in two different columns of the newspaper, such that the picture looked like an illustration of an (unrelated) news story. All the irrelevant text in the column showing the bank note picture was made unreadable to avoid unexpected effects. In the no-money-prime condition, the picture was replaced by normal text that was also made unreadable (see Appendix 1 for more details).

3.3 Measures

3.3.1 Outcome variables

In this study, the donation behaviors measured include three variables: WTD, WTR, and the donation amount. We measured WTD by three items on a 7-point Likert scale adapted from Bennett et al. (2013). Example items include "To what extent would you be willing to donate money to the [*name of the campaign*] of [*name of the charity*]" and "To what extent would you be willing to volunteer for [*name of the charity*]". WTR was measured by a two-item scale also adapted from Bennett et al. (2013), with items including "To what extent would you be willing to solicit your friends and family members to donate money to the [*name of the campaign*] of [*name of the charity*]". Regarding the donation amount, we asked the participants to indicate how much money they would donate to the charity. Because the donation amount was positively skewed (skewness = 5.95, SE = .17), we follow previous research to log-transform the amount after adding 1 to each value to avoid zero numbers (e.g., Goswami & Urminsky, 2016; X. Zhou et al., 2018).

3.3.2 Mediating variables

Response efficacy was measured with three seven-point items anchored with "1 = strongly disagree" and "7 = strongly agree" and adapted from Cryder, Loewenstein, and Scheines (2013). The following is an example item: "My individual contribution would really matter". Following Xie et al. (2015), the attitude toward the charity was measured with one evaluative bipolar, 7-point item: "What is your general attitude towards the charity [*name of the charity*]: 1 = very negative and 7 = very positive".

3.3.3 Control variables

Because we are interested in the moderating effect of money reminders, we need to control for the effects of some individual traits. One individual characteristic that can affect the influence of social norms on response efficacy is need for uniqueness. People scoring high on need for uniqueness tend to look for opportunities to stand out and to differentiate themselves from others (Allen et al., 2018). These people may consider a situation in which few others have donated to be an opportunity to stand out. Therefore, we include need for uniqueness as a control variable to have a clear test of the money effect. We also include guilt as a control variable because negative social information may trigger feelings of guilt (Bennett et al., 2013). Additionally, because supporting immigration is a controversial political matter (Goswami & Urminsky, 2016), we include a five-item scale, adapted from Mehrabian (1996), to control for political views (libertarianism vs. conservatism). Finally, we follow previous research and control for scarcity of money and scarcity of time, which can potentially affect people's donation behaviors (Liu & Aaker, 2008). Appendix 2 shows the full list of the items of our measures.

3.4 Analysis

To test our proposed hypotheses, we ran a structural equation model (SEM) using the Lavaan package version 0.6-3 in R (Rosseel, 2012). In a SEM, the default estimation method (maximum likelihood, ML) requires that all continuous variables in the data set follow a multivariate normal distribution (Kaplan, 2008). We first checked for univariate normality, as it is a necessary (but not sufficient) condition for multivariate normality. Our results show that the absolute values of the univariate kurtosis index ranged from .02 to 1.38, while those of the univariate skewness index ranged from .02 to 1.11, indicating that univariate nonnormality is not a problem (Kline, 2016) (see Appendix 3).

Next, we ran Mardia (1970) test to check for multivariate skewness and kurtosis. The results show a skew statistic of 2,778.74 (p < .001) and a kurtosis statistic of 19.56 (p < .001), suggesting that the shape of the joint distribution could be severely nonnormal. Because nonnormality can create some biases with the default ML method (see Olsson, Foss, Troye, & Howell, 2000), we applied the robust maximum likelihood (MLR) estimator in the confirmatory factor analysis (CFA) and the nonparametric bootstrapping method in the SEM estimations (Kline, 2016). In the next section, we first present our measurement model and then summarize the test results of our structural model.

4. Results

4.1 Measurement Model

We ran CFA for our measures with the MLR estimator, using the Lavaan package in R (Rosseel, 2012). The results show that our measurement model yielded an adequate global fit: Satorra-Bentler's (SB) scaled $\chi^2(137) = 295.398$ (p < .001), comparative fit index (CFI) = .938, Tucker-Lewis index (TLI) = .923, root mean square error of approximation (RMSEA) =

.076 (90% CI = [.064, .087]), and standardized root mean square residual (SRMR) = .050

(e.g., Bagozzi & Yi, 2012; Hair, Black, Babin, & Anderson, 2010).

Table 2. *Item loadings and reliability of the multi-item measures*

Variables	Factor Loadings[1]	Critical Ratio	CR[2]	AVE
Willingness to Donate (WTD)			.94	.84
WTD1	.82	25.89		
WTD2	.97	112.08		
WTD3	.94	64.46		
Willingness to Recommend (WTR)			.90	.82
WTR1	.87	28.83		
WTR2	.94	38.30		
Response Efficacy (RE)			.94	.85
RE1	.94	56.60		
RE2	.86	24.37		
RE3	.97	93.65		
Need for Uniqueness (NfU)			.83	.55
NfU1	.79	16.13		
NfU2	.68	10.86		
NfU3	.73	16.80		
NfU4	.76	17.45		
Feelings of Guilt (Guilt)			.93	.86
Guilt1	.96	13.84		
Guilt2	.90	10.20		
Political Views (Pol)			.92	.71
Pol1	.93	38.35		
Pol2	-.76	-17.78		
Pol3	.77	20.34		
Pol4	-.77	-18.78		
Pol5	.96	64.41		

Notes: [1] This table reports standardized factor loadings and their associated critical ratios (z-values); [2] CR = composite reliability; [3] AVE = average variance extracted.

As shown in Table 2, all items significantly loaded on the expected latent variables, and

all standardized factor loadings were higher than .6, suggesting strong convergent validity

(Bagozzi & Yi, 1991; Hair et al., 2010). The average variance extracted (AVE) values ranged

from .55 to .86, while the composite reliability (CR) values ranged from .83 to .94, providing

further support for high convergent validity (Fornell & Larcker, 1981). Regarding

discriminant validity, we employed the two methods that are most commonly used in SEM

studies: the average variance extracted shared variance (AVE-SV) and the overlapping

confidence intervals approach (Voorhees, Brady, Calantone, & Ramirez, 2016). With the

AVE-SV method (Fornell & Larcker, 1981), discriminant validity is achieved if the AVE estimates for any two constructs are both larger than their shared variance (i.e., squared correlation). As shown in Tables 2 and 3, we find that the AVE scores for all constructs exceeded their shared variances, supporting discriminant validity.

Table 3. *Correlation matrix of latent constructs*

	WTD	WTR	RE	NfU	Guilt	Pol
WTD	1.00					
WTR	.89 (.03)	1.00				
RE	.62 (.05)	.65 (.04)	1.00			
NfU	.23 (.09)	.30 (.09)	.17 (.09)	1.00		
Guilt	.38 (.06)	.43 (.08)	.30 (.07)	.01 (.09)	1.00	
Pol	.32 (.07)	.24 (.07)	.36 (.07)	-.09 (.08)	.12 (.07)	1.00

<u>Note</u>: Values within parentheses are standard errors.
WTD = willingness to donate; WTR = willingness to recommend; RE = response efficacy; NfU = need for uniqueness; Guilt = feelings of guilt; Pol = political views

We also used the overlapping confidence intervals approach introduced by Anderson and Gerbing (1988), in which discriminant validity is established if the 95% confidence intervals of the correlation estimates for each pair of latent constructs do not contain 1.0 (e.g., P. Sharma, 2010; Xie et al., 2015). Again, our results show that discriminant validity was achieved for all latent constructs used in this study (see Table 3).

4.2 The Structural Model: Test of the Hypotheses

We ran the structural model using the Lavaan package in R (Rosseel, 2012), and we used the bootstrapping method with 10,000 bootstrap samples to compute the standard errors of our estimates, especially the conditional indirect effects (Hayes, 2013). The results show that our structural model yielded an adequate global fit: $\chi^2(253) = 539.756$ (p < .001), CFI = .925, TLI = .907, RMSEA = .075 (90% CI = [.066, .084]), and SRMR = .063.

4.2.1 Effects of social information on donation behaviors (H1)

As shown in Table 4, the direct effects of social information on WTD (b = -.013, p > .10),

WTR (b = -.035, p > .10), and the donation amount (b = .012, p > .10) were not significant.

As expected, when the money picture was not provided, we observed significant, positive

direct effects of social information on response efficacy (b = .328, p < .001) and the attitude

toward the charity (b = .326, p < .001).

Table 4. *Estimated path coefficients*

Variables	Standardized Coefficient (Standard Error[a])				
	WTD	**WTR**	**Amount**	**RE**	**Att.**
Many	-.013 (.050)	-.035 (.056)	.012 (.059)	.328 (.082)**	.326 (.089)**
Money	-.026 (.051)	.012 (.055)	-.031 (.056)	.217 (.093)*	.213 (.083)*
Many x Money				-.226 (.106)*	-.203 (.097)*
RE	.268 (.078)**	.382 (.128)**	.228 (0.071)**		
Att.	.542 (.075)**	.403 (.110)**	.474 (.072)**		
NfU	.138 (.062)*	.199 (.086)*	.080 (.059)	.216 (.078)**	.141 (.072)*
Guilt	.135 (.435)	.236 (.727)	.154 (.494)		.137 (.457)
Pol	-.030 (.059)	-.083 (.067)	-.031 (.064)	.390 (.068)**	.487 (.062)**
MScar	-.009 (.037)		-.117 (.054)*		
TScar	.018 (.038)		.074 (.051)		
R^2	**.604**	**.614**	**.475**	**.250**	**.348**

Notes: * p < .05, ** p < .01.

WTD = willingness to donate; WTR = willingness to recommend; Amount = log-transformed donation amount; RE = response efficacy; Att. = the attitude toward the charity; many = dummy for social information (1: many have donated, 0: few have donated); money = dummy for money picture (1: present, 0: otherwise); NfU = need for uniqueness; Guilt = feelings of guilt; Pol = political views; MScar = scarcity of money; TScar = scarcity of time

We computed the total effects (including both direct and indirect effects) of social

information on donation behaviors conditional on the absence of the money reminder. The

results show that when people were not reminded of money, the information that many have

donated exerted significant and positive total effects on WTD (M_{many} = 4.982, M_{few} = 4.160,

ΔM = .822, p = .002 < .01), WTR (M_{many} = 4.282, M_{few} = 3.611, ΔM = .671, p = .006 < .01),

and the donation amount (M_{many} = 3.476, M_{few} = 2.787, ΔM = .689, p = .002 < .01).[1] These results provide strong evidence supporting H1 (see Figure 2).

4.2.2 Mediating effects of response efficacy and the attitude toward the charity (H2a and H2b)

To test H2a and H2b on the mediating effects of response efficacy and the attitude toward the charity, we computed the indirect effects of social information through these two variables when the money reminder was absent. The results show that the indirect effects of the information that many (vs. few) have donated on donation behaviors through response efficacy were all positive and significant (indirect effect on WTD: b = .088, p = .007 < .01, 95% CI = [.024, .152]; on WTR: b = .125, p = .019 < .05, 95% CI = [.020, .231]; on the donation amount: b = .075, p = .012 < .05, 95% CI = [.016, .134]). Similarly, the indirect effects of the information that many (vs. few) have donated on donation behaviors through the attitude toward the charity were also positive and significant (indirect effect on WTD: b = .177, p = .002 < .01, 95% CI = [.067, .286]; on WTR: b = .131, p = .017 < .05, 95% CI = [.023, .239]; on the donation amount: b = .155, p = .003 < .01, 95% CI = [.054, .255]). Thus, we conclude that response efficacy and the attitude toward the charity significantly mediate the effect of social information on donation behaviors, supporting H2a and H2b.

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[1] The means of the dependent variables across different groups (e.g., in Figures 2 and 3) were computed as the average values of all other variables. Because the means of latent variables are often constrained to be zero for purposes of identification, this makes the group means of dependent variables less interpretable. Therefore, we rerun the model and use the effects coding method to scale the latent factors, such that their means are computed as the weighted averages of their manifest indicators (see Appendix 4 for more details).

4.2.3 Moderating effects of the money reminder (H3)

As expected, when people were reminded of money, they became less sensitive to social information (see Figure 2). This decreased sensitivity led to lower and nonsignificant total effects of the information that many (vs. few) have donated on WTD (M_{many} = 4.805, M_{few} = 4.643, ΔM = .163, p > .10), WTR (M_{many} = 4.226, M_{few} = 4.156, ΔM = .070, p > .10), and the donation amount (M_{many} = 3.317, M_{few} = 3.126, ΔM = .191, p > .10). Our results show that the total effects of the information that many (vs. few) have donated on donation behaviors were significantly lower when the money reminder was present than when it was absent (WTD: Δb = .171, p = .020 < .05, 95% CI = [.027, .315]; WTR: Δb = .168, p = .042 < .05, 95% CI = [.006, .330]; the donation amount: Δb = .148, p = .026 < .05, 95% CI = [.018, .278]). This finding is in line with our expectation that social influence is reduced when people are reminded of money.

**Figure 2.** *Total effects of social information on donation behaviors*
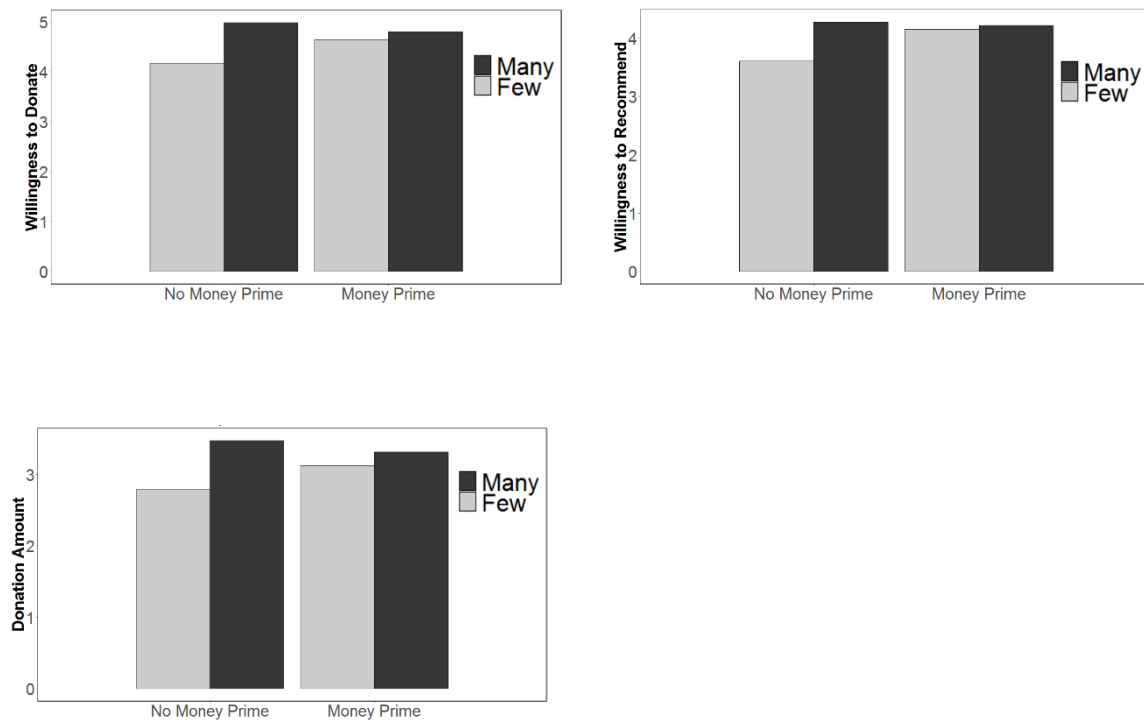
Furthermore, when people were reminded of money, the indirect effects of social information on donation behaviors through response efficacy and the attitude toward the

charity were reduced and less significant. In particular, the indirect effects of the information that many (vs. few) have donated on WTD, WTR, and the donation amount via response efficacy were all nonsignificant (indirect effect on WTD: $b = .027$, $p => .10$, 95% CI = [-.018, .073]; on WTR: $b = .039$, $p > .10$, 95% CI = [-.027, .105]; on the donation amount: $b = .023$, $p > .10$, 95% CI = [-.015, .062]). Similarly, the indirect effect of the information that many (vs. few) have donated on WTR via the attitude toward the charity was nonsignificant ($b = .049$, $p > .10$, 95% CI = [-.010, .108]); however, it was marginally significant for WTD ($b = .066$, $p = .073 < .10$, 95% CI = [-.006, .139]) and the donation amount ($b = .058$, $p = .079 < .10$, 95% CI = [-.007, .123]).

Figure 3. *Interaction effects between social information and money reminders*
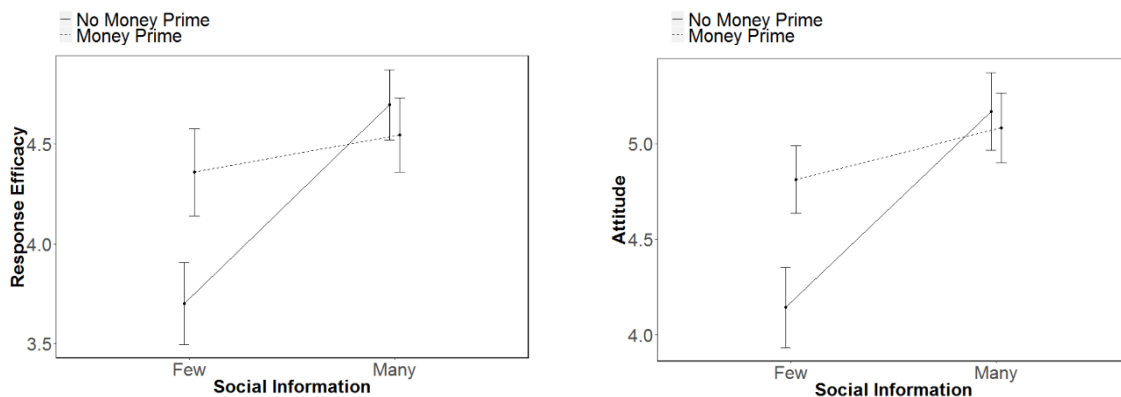
Following Hayes (2015), we computed the moderated mediation index, which quantifies the moderating effect of a moderator on the indirect effect of interest. Regarding response efficacy, the unstandardized index was significant for WTD (estimate = -.213, 95% CI = [-.457, -.018]), WTR (estimate = -.310, 95% CI = [-.665, -.025]), and the donation amount (index = -.173, 95% CI = [-.387, -.012]). Similarly, regarding the attitude toward the charity, the unstandardized index was also significant for WTD (estimate = -.388, 95% CI = [-.782, -.021]), WTR (estimate = -.294, 95% CI = [-.628, -.016]), and the donation amount (index = -.324, 95% CI = [-.660, -.018]). Taken together, the findings suggest that the money reminder

reduces the indirect effects of social information on donation behaviors through response efficacy and the attitude toward the charity (see

), supporting H3.

Interestingly, we found significant positive effects of the money reminder on response efficacy (b = .217, p = .019 < .05, 95% CI = [.035, .399]) and the attitude toward the charity (b = .213, p = .010 < .05, 95% CI = [.050, .375]) for participants receiving the information that few others had donated. We address this unexpected finding in the Discussion section below.

4.3 Test of Alternative Explanations

Previous research suggests that moral emotions are important drivers of individuals' donation behaviors (e.g., Xie & Bagozzi, 2014). When a person learns that only a few people have donated to the charity, this information may trigger feelings of guilt, leading to a higher willingness to support. In contrast, the information that many have donated to the charity could make people feel less guilty for not making a donation (Bennett et al., 2013). We tested this proposition by including feelings of guilt as a mediator in our model, in addition to response efficacy and the attitude toward the charity. The results show that feelings of guilt were not influenced by social information (many vs. few) (b = .191, p > .10), the money reminder (b = -.035, p > .10), or their interaction (b = -.117, p > .10). Interestingly, feelings of guilt did not have any significant effects on WTD (b = .118, p > .10), WTR (b = .175, p > .10), or the donation amount (b = .107, p > .10). The indirect effects of social information on donation behaviors through feelings of guilt were all nonsignificant, and we suggest two main explanations for the nonsignificant effects of guilt in this study. First, the type of social information tested here is less obtrusive than explicit requests to donate. Requests to donate likely trigger more guilt than a media report revealing the information that many (few) have

donated. Second, the focal charity (fictitious) is new to the participants. The thought of not supporting a well-known charity held in high regard would likely evoke more guilt than similar thoughts regarding a new charity.

We also checked whether the money reminder could moderate the direct effects of social information on donation behaviors. The results show that when we accounted for these effects, the model fit worsened: the Akaike information criterion (AIC) increased from 13,165 to 13,167, while the Bayesian information criterion (BIC) increased from 13,439 to 13,451. Importantly, the interaction between the money reminder and social information had no significant effects on any of our measures of donation behaviors (on WTD: $b = .088$, $p > .10$; on WTR: $b = -.040$, $p > .10$; on the donation amount: $b = .067$, $p > .10$). Thus, we conclude that the money reminder does not moderate the direct effect of social information on donation behavior; it moderates only the indirect effects via response efficacy and the attitude toward the charity.

5. Discussion

Social information about donation campaigns in the media is often nonspecific. We tested the effects of this type of information (few vs. many have donated) on donation behavior and found that providing the information that many have donated increased WTD, WTR, and the donation amount. We also found that response efficacy and the attitude toward the charity mediated the effects of social information. Additionally, our study is the first to demonstrate that the influence of social information on individuals' donation behaviors is removed when people are reminded of money. These findings have important theoretical and managerial implications.

5.1 Theoretical Contribution

We contribute to the current literature in three ways. First, we extend extant research on the effect of social information on donation behaviors by testing the effects of nonspecific social information (i.e., many vs. few have donated) on donation behaviors. Previous research has demonstrated that specific positive information, such as the percentage of people who have donated, can influence people's WTD (Frey & Meier, 2004). However, according to the literature on consumer decision making, nonspecific information is less credible and, therefore, less useful as social proof of appropriate behavior (Cialdini, 2007). Based on social loafing theory, we might even expect that people decide not to donate when they learn that many others have contributed (Latané, Williams, & Harkins, 1979). Rather than being inspired by the donations of the majority, people may conclude that the need to contribute is less acute or that the support of others is sufficient (Bennett et al., 2013; Karau & Williams, 1993). However, our results are not in line with social loafing theory. The nonspecific information that many have donated made people more willing to donate, more willing to recommend the charity and more willing to donate higher amounts of money. Thus, our findings suggest that prospective donors may use nonspecific social information as social proof when considering donations to a new charity.

Second, we show that response efficacy and the attitude toward the charity are positive mediators of the effect of social information. These findings suggest that nonspecific information of the kind investigated here directs the attention of people toward the charity and the ability of the charity to succeed with donation campaigns. Alternatively, information about the behavior of others may influence moral emotions, such as guilt. We tested this alternative explanation and found that guilt was not a significant mediator of the effect of social information on donation behavior. This result is plausible. In our study, social information was embedded in a news article, and there was no explicit request to donate

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money. This kind of exposure probably evoked less self-focus and less self-related emotions than ads designed to trigger contributions.

Third, we contribute to the literature on money priming by showing that social influence on donation behavior is reduced when people are reminded of money. According to previous research, money primers make people more aware of their self-interests, more focused more on their own goals, more self-sufficient, and more independent (e.g., Vohs, 2015; Vohs et al., 2006). Consequently, people should be less sensitive to social information about the behavior of others when primed with money. Our results show that the money reminder in our study did indeed reduce the influence of social information on people's donation behaviors. As expected, we also observed a moderated mediation effect. The money reminder moderated the indirect effects of social information on donation behaviors through response efficacy and the attitude toward the charity. Interestingly, we found that the money reminder had a *positive effect* for participants in the group who received the information that few had donated. In this group, the money reminder increased people's donation behaviors through response efficacy and the attitude toward the charity.

This positive effect of the money reminder on donation behavior in the "few-have-donated condition" contradicts the findings of previous research, which suggests that money reminders have a negative impact on prosocial behavior (e.g., Gasiorowska et al., 2012; Pfeffer & DeVoe, 2009; Vohs, 2015). In particular, existing evidence shows that people may decrease their charitable giving after being reminded of money (e.g., Roberts & Roberts, 2012; Vohs et al., 2006; Wierzbicki & Zawadzka, 2014). We find the opposite, that is, a positive effect of the money reminder for people exposed to the information that few have donated. However, this finding is actually quite plausible. The information that few others have donated may increase the perceived impact of individual donations. Compared to a situation where many others have contributed, each additional donation has more impact

when few have donated. The money reminder reinforces this effect by adding a sense of independence and power.

5.2 Managerial Implications

Our results have important managerial implications. News articles with the social information that many have donated to a new or less known charity may increase donations. Thus, the communication managers of such charities should actively communicate the information that "many have donated" to prospective donors, preferably through the media. Our findings suggest that the positive effect of social information on donation behavior is due to favorable thoughts about the capabilities of the charity. Thus, managers may strengthen the effect of social information by hinting at the efficacy and credibility of the charity.

However, money reminders can destroy the positive effect of social information. Prospective donors are likely to encounter money reminders when exposed to social information about charities in the news media (X. Zhou et al., 2018). Some types of money exposure are outside managers' control, such as adjacent articles or news reports referring to money in their headings or images. Managers may voice this concern to journalists and editors and ask them to avoid money reminders in the surrounding ads and articles, but the control remains with the news media. However, other types of reminders are under the control of managers. For instance, managers often ask news media to add information about account numbers at the end of news articles about charity campaigns. Alternatively, they pay to place explicit donation appeals close to news articles about the charity. Our findings suggest that doing so is not a good idea if the news article about the charity contains positive social information. When money reminders are present in a context where positive social information is processed, the effect of this information is mitigated. Thus, managers should decouple the exposure to positive social information and requests to donate. This decoupling

would allow the social information to "sink in" and influence response efficacy and the attitudes toward the charity before prospective donors are exposed to messages about money.

5.3 Limitations and Future Research

Several limitations of our study represent opportunities for future research. First, we tested only one common type of nonspecific social information about the behavior of others: that many vs. few had contributed. We find several other types of social information with different levels and kinds of specificity in the news media, such as "a majority has responded positively", "the campaign has been well received", "the response with the donors is far better than for the last campaign", and "donors are enthusiastic". In addition, donors sometimes search for social information on their own, for example, in terms of likes on the Facebook page for a charity campaign. Future research should develop a typology of social information and systematically test the effects of different types of social information.

Second, we tested only one type of money reminder in this study. Research on other common ways in which people are reminded of money in a charity context, such as bank account information or explicit references to money in donation requests, is necessary. Will such references to money moderate the effect of social information in the same way as that observed in our study? We need more research to answer this question.

Third, nonspecific social information is communicated in different media channels. In this study, we used a news article to expose our participants to the information that many (few) had donated. Social information may also appear in other channels, such as social media, SMS, charity web pages, TV commercials, YouTube videos, print ads and boards. The characteristics of the media may influence the persuasiveness of social information.

Finally, we used a fictitious name for the charity in this study and informed our participants that the news article was about a newly established nonprofit organization. The

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positive effects of social information could be less significant for well-known charities. Social information is more useful when people have little knowledge and the level of uncertainty is substantial (e.g., Croson et al., 2009).

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Appendices
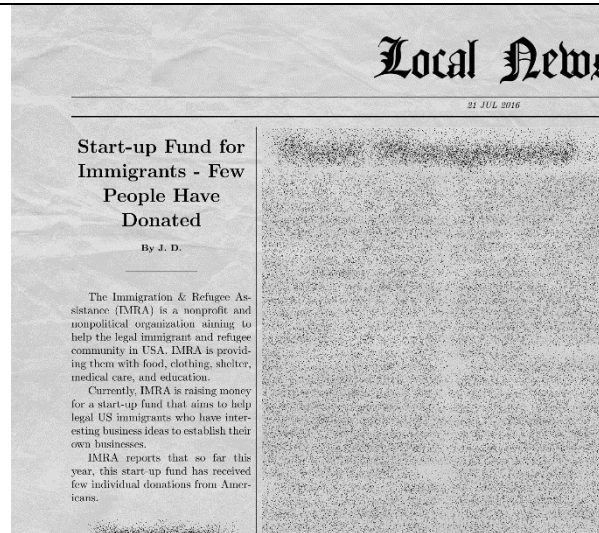
Appendix 1. Stimuli Materials

a) Without money reminder
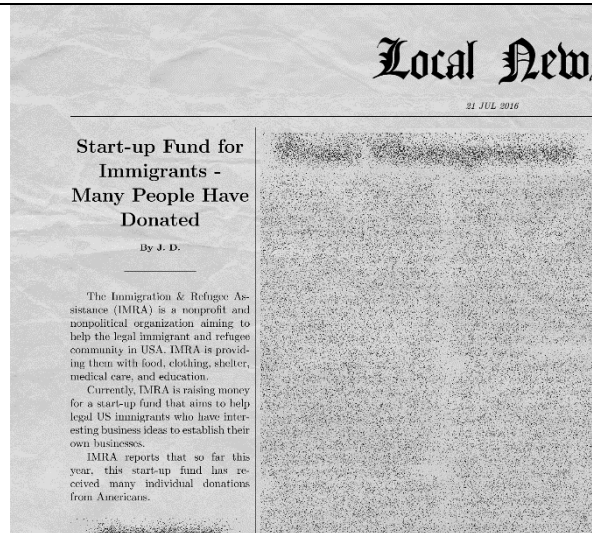
Many-have-donated condition **Few-have-donated condition**

b) With money reminder

Many-have-donated condition **Few-have-donated condition**

Variable
Willingness to Donate (WTD) (1 = *very unwilling*, 7 = *very willing*)
WTD1 To what extent would you be willing to donate money to the start-up fund of IMRA?
WTD2 To what extent would you be willing to give your time to support IMRA's programs?
WTD3 To what extent would you be willing to volunteer for IMRA?
Willingness to Recommend (WTR) (1 = *very unwilling*, 7 = *very willing*)
WTR1 To what extent would you be willing to solicit your friends and family members to donate money to the start-up fund of IMRA?
WTR2 To what extent would you be willing to ask your friends and family members to volunteer for IMRA?
Donation Amount (DoA) (*natural logarithm* of amount in *dollars*)
How much money would you be willing to donate to this charity for a one-time donation (in USD)?
Attitude toward the Charity (Attitude) (1 = *very negative*, 7 = *very positive*)
What is your general attitude towards the charity Immigration & Refugee Assistance (IMRA)?
Response Efficacy (RE) (1 = *strongly disagree*, 7 = *strongly agree*)
RE1 My individual contribution would be important to the charity.
RE2 My individual contribution would help immigrants and refugees in USA
RE3 My individual contribution would really matter.

Control Variables

Need for Uniqueness (NfU) (1 = *strongly disagree*, 7 = *strongly agree*)
NfU1 I am very attracted to rare objects.
NfU2 I enjoy having things that others do not.
NfU3 I like to try new things before others do.
NfU4 I would prefer to have things custom-made than to have them ready-made.
Feelings of Guilt (Guilt) (1 = *strongly disagree*, 7 = *strongly agree*)
Guilt1 I would feel guilty if I did not donate money or time to this organization.
Guilt2 I would feel uncomfortable if I did not donate money or time to this organization.
Political Views (Pol) (1 = *strongly disagree*, 7 = *strongly agree*)
Pol1 I am politically more liberal than conservative.
Pol2 In any election, given a choice between a Republican and a Democratic candidate, I will select the Republican over the Democrat.
Pol3 I cannot see myself ever voting to elect conservative candidates.
Pol4 The major national media are too left-wing for my taste.
Pol5 On balance, I lean politically more to the left than to the right.
Money Scarcity (MS) (1 = *not at all scarce*, 7 = *very much scarce*)
How scarce is money to you at this moment?
Time Scarcity (TS) (1 = *not at all scarce*, 7 = *very much scarce*)
How scarce is time to you at this moment?

Appendix 3. Assessment of Multivariate Normality

Variable	Mean	SD	Range	Skewness	Kurtosis
WTD1	3.57	1.81	1 - 7	0.02	-1.30
WTD2	3.42	1.79	1 - 7	0.13	-1.27
WTD3	3.33	1.84	1 - 7	0.25	-1.26
WTR1	2.90	1.75	1 - 7	0.56	-0.81
WTR2	2.77	1.68	1 - 7	0.68	-0.65
RE1	4.37	1.67	1 - 7	-0.52	-0.76
RE2	4.42	1.57	1 - 7	-0.65	-0.39
RE3	4.10	1.67	1 - 7	-0.35	-0.95
NfU1	3.91	1.69	1 - 7	-0.02	-0.96
NfU2	3.94	1.58	1 - 7	-0.08	-0.78
NfU3	4.10	1.53	1 - 7	-0.06	-0.63
NfU4	3.99	1.61	1 - 7	-0.08	-0.79
Guilt1	2.27	1.47	1 - 7	1.04	-0.02
Guilt2	2.28	1.55	1 - 7	1.11	0.09
Pol1	4.76	2.02	1 - 7	-0.59	-0.96
Pol2	2.77	1.88	1 - 7	0.77	-0.54
Pol3	3.88	2.11	1 - 7	0.07	-1.38
Pol4	3.61	2.00	1 - 7	0.25	-1.14
Pol5	4.55	2.02	1 - 7	-0.51	-0.99

Appendix 4. Adding Means to Latent Constructs Using the Effects Coding Method

By default, the Lavaan package in R uses the marker variable method to estimate measurement models (and SEMs), such that the first indicator of a latent construct is constrained to have a factor loading of 1, while the mean of the latent construct is assumed to be 0, so that the model can be identified. To facilitate the interpretability of the findings, we added means to the latent constructs by using the effects coding method proposed by Little (2013). In this method, the factor loadings of the first indicators and the means of the latent constructs are freely estimated. In addition, for each latent construct, the sum of the item intercepts is constrained to be 0, while the sum of all factor loadings is constrained to be equal to the number of items (i.e., the average of all factor loadings is equal to 1). This scaling method enables us to estimate the means of the latent constructs as weighted averages of their items' original scores, and it does not change the model fit. Note that all standardized parameter estimates are also unaffected.