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Improving the Quality of In-Kind Donations: A Field Experiment

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Abstract. *Problem definition:* Although in-kind donations contribute to charity's triple bottom line (i.e., generating additional revenue for the charity, contributing to social welfare, and reducing environmental waste through rechanneling used items), inappropriate material donations impose additional costs to sort, process, or discard them. Minimizing the amount of undesired in-kind donations, however, is a challenge given charities' sensitive relationship with their donors. This paper examines the effectiveness of behavioral interventions on improving the quality of in-kind donations gifted by individuals. *Methodology/results:* We conducted a field experiment to implement interventions motivated by two well-established behavioral mechanisms: *information disclosure* and *social norm*. We studied the reaction of 763 donors who were scheduled to make an in-kind donation at a local charity between October 31 and November 11, 2020. Our results show that using the social norm intervention effectively improved the quality of in-kind donations, whereas information disclosure, which is commonly used in practice as the industry standard intervention, was ineffective. We also conducted two postexperiment analyses. First, we collected additional data on 1,301 in-kind donations whose donors had received the social norm intervention during February 2021. Results show that the impact of the social norm intervention is stable over different time periods. Second, we studied the spillover effect of these interventions for a period of 12 months and did not find a negative long-term impact on in-kind donations. *Managerial implications:* A conservative estimation shows that implementing the social norm intervention reduced the junk donations received by 50% without having a negative spillover effect on donors' in-kind donations or imposing any direct operating cost. Consequently, this field evidence provides an effective, cost-efficient, and scalable solution for charities to address the quality problem of in-kind donations. In addition, our results challenge the industry conventional practice of incorporating information disclosure in their communications with donors.

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Keywords: in-kind donation • field experiment • behavioral interventions

1. Introduction

Individuals' in-kind donations constitute a substantial portion of supply to charities and humanitarian organizations. Estimations show that in 2017, for example, 52% of Americans gave clothing, food, or other personal items to humanitarian organizations (Non Profit Source 2018). In-kind donations contribute to charities' triple bottom line by generating additional revenue for them, contributing to social welfare, and reducing environmental waste through rechanneling of used items (Montgomery and Mitchell 2014). Food, clothing, and hygiene products donated to charities can be directly sent to beneficiaries; donated furniture and electronic equipment can support the general operations of a charity or be sold through their thrift stores to generate additional revenue. In 2020, despite the coronavirus (COVID-19) pandemic, the Salvation Army reported \$598 million in revenue from 1,116 thrift stores in the

United States, capturing 18% of the organization's total revenue (Salvation Army 2021). Further, these donations extend product usage and promote environmental sustainability. For instance, Goodwill diverted 3.3 billion pounds of usable goods from landfills in 2020 (Goodwill 2021). However, some donated goods are not useful. Low-quality items, such as stained clothes, torn blankets, or broken furniture, can be neither resold in a thrift store nor used for the beneficiaries. Instead, these inappropriate donations cost charities significant resources to discard. For example, Goodwill Northern New England spends over \$1 million annually to dispose of 13 million pounds of unsuitable items from only 30 thrift stores (Bookman 2021). To estimate the social cost of inappropriate material donations, one may consider that there are more than 3,000 Goodwill thrift stores and 25,000 nonprofit resale shops in the United States (U.S. Census Bureau 2021). In addition to

substantial trash bills, most charities incur additional logistic and operational costs (e.g., labor, fuel, and other overhead expenses) because of the free pickup service they offer to encourage the in-kind donations. As a result, donors' good deeds turn out to be detrimental, as the unwanted donations instead place considerable financial pressure on the charities they intend to support.

In practice, charities hesitate to decline inappropriate material (hereafter, *junk*) donations for fear that declining a goodwill offer might hurt the relationship with the donors and put their future support at risk (Islam 2013). Daniels and Valdés (2021) demonstrate that donors learn from their donation experience and use rejection as a self-serving excuse not to give in the future. This concern is important given that in the United States, for example, recurring donors are estimated to donate 440% more to the charity over their lifetime than one-time donors (Classy 2018). Therefore, rejecting donations may serve a charity's short-term goal of minimizing junk donations but hurt their long-term sustainability.

The goal of this paper is to find a practical solution to reduce the number of junk donations a charity receives without losing donors. We employed behavioral interventions in a field experiment. A key advantage of behavioral interventions, as opposed to the harder forms of policies (e.g., taxes and regulatory bans), is their flexibility and respect toward individuals' freedom of choice (Thaler and Sunstein 2009). Specifically, behavioral interventions steer the actions of individuals in a desired direction by relying on their voluntary participation (Croson and Treich 2014). This strategy has clear benefits in the setting of in-kind donations because it causes less tension between the charity and their donors than directly rejecting the donations. Moreover, because most behavioral interventions are cost-free and easy to implement, establishing an effective behavioral solution is a practical option for resource-limited charities. We employed two interventions—*information disclosure* and *social norm*—to nudge donors to voluntarily increase the quality of their in-kind donations. The effectiveness of both interventions is supported by a growing body of literature.

Information disclosure refers to disclosing content-related information that is assumed to significantly affect individuals' behaviors (Loewenstein et al. 2014). For example, providing calorie information encourages consumers to adopt a healthy diet, or providing supplemental fuel efficiency data motivates people to choose environmentally friendly vehicles (Thaler and Sunstein 2009). Other examples include Jones et al. (2015), which shows that informing consumers about the payment due date and penalties for late payment on credit card bills boosts consumers' debt payoff rate, and Nelson et al. (2021), which demonstrates that displaying information about how plastic bags damage the ocean environment significantly reduces consumers' plastic bag usage.

In the setting of charitable giving, the goal of information disclosure is to equip individuals with the

knowledge of how their actions might benefit or hurt others (Fisher et al. 2008). Individuals are more likely to choose actions that benefit others when the benefits become more salient (Nelson et al. 2006, Pittman 2020). Thus, this intervention is conventionally applied by charities when communicating with their donors. For example, charities' solicitation messages often include a clear reason to give, detailing the need to support and how individuals' donations will be used for that particular cause (e.g., building temporary shelters because of extreme weather, food provision to reduce food insecurity). Although this intervention is one of the most popular methods adopted among charities (Leonhardt and Peterson 2019), there is no consensus regarding its effectiveness.

The second intervention in our experiment is sharing social norm, which informs the subjects about what is commonly done by others. According to the social psychology literature, social reference exerts a normative influence on behaviors by conveying either what ought to be done (i.e., injunctive norm refers to what is approved by others) or what has been done (i.e., descriptive norm refers to what is actually done by others) (Cialdini et al. 1990). Our study utilized the descriptive social norm, which has proven effective in different fields, such as voting (Gerber and Rogers 2009), environmental conservation (Goldstein et al. 2008), and charity fundraising (Martin and Randal 2008, Croson et al. 2009, Shang and Croson 2009). For example, Martin and Randal (2008) conducted a field experiment in an art museum where visitors were exposed to different amounts of money in a transparent box (so individuals could see dollar bills and coins) as a signal of social norm and found that people demonstrate a strong desire to conform to social norms when making donation decisions. Similarly, Shang and Croson (2009) conducted a field experiment through a public radio station and found that new donors give more when informed about others' high contributions.

We conducted our field experiment in collaboration with a local charity, the Society of St. Vincent de Paul of Arizona (SVdP), between October 31 and November 11, 2020. We collected a panel data set of 763 households that made in-kind donations. The charity already had an existing system to send emails to confirm donation pickup, and so, we embedded the behavioral mechanisms into an additional email as informal interventions. We designed a between-subject field experiment with three groups. One group received an email with social norm content, the second group received an email with information disclosure messages, and the third group did not receive any further message.

Our results show that the social norm intervention effectively influenced individuals to improve the quality of their donations. Contrary to conventional wisdom, the information disclosure intervention did not alter donors' behavior. Moreover, we collected additional data on 1,301 in-kind donations whose donors had

received the social norm intervention during February 2021. Our results show that the effect size of the social norm intervention on the quality of in-kind donations is stable over different time periods, providing further evidence on the generalizability and reliability of this intervention. Next, we tracked the number of returned in-kind donors in all three groups in the following 12 months. We observed an initial decline of the number of returned donors in both the social norm and information disclosure groups. Yet, the disparity in donor retention converged at the 12-month mark, indicating that the detrimental effect is only temporary and would ultimately dissipate. Consequently, the social norm intervention did not harm the charity's long-term performance. This is important because despite the general advantages of behavioral interventions, the success of a particular intervention is not guaranteed in all contexts (Goswami and Urminsky 2016, Kristal and Whillans 2020, Della-Vigna and Linos 2022, Morvinski et al. 2023). Some interventions may even backfire and create a negative effect (Sunstein 2017, Damgaard and Gravert 2018, Bolton et al. 2019, Bicchieri and Dimant 2022). For an accurate assessment of the overall effects of behavioral interventions, not only should policy makers consider the direct impact on targeted choices but also, potential spillover effects of the initial behavior prompted by the intervention on subsequent related behaviors. In principle, such behavioral spillovers could amplify, eliminate, or even reverse the initially positive effects of choice defaults when judging their impact on the aggregate of relevant behaviors (Dolan and Galizzi 2015). Determining SVdP's precise savings on logistics is rather impossible. Yet, based on the charity's operations record, a conservative estimate illustrates that SVdP receives 50% fewer junk donations, while implementing this intervention did not impose any direct operating cost, as SVdP already had the required infrastructure of sending emails.

2. Contribution to the Existing Literature

This paper contributes to two strands of literature. First, it focuses on in-kind donations; this is a much less considered topic compared with individuals' cash and time donations. This nascent literature discusses in-kind donation distribution channels and the challenges that charities encounter in managing in-kind donations (Islam 2013), individuals' motivation to make in-kind donations (Mainardes et al. 2017), and using in-kind donations to serve beneficiaries (Ahire and Pekgun 2018). For example, Ahire and Pekgun (2018) estimate expected food and cash donations based on the historical data of a charity's fundraising campaigns and develop an integer programming model to maximize the total donations. The closest paper to the current study is Daniels and Valdés (2021). In a laboratory experiment, they demonstrate that individuals whose donations are rejected will be negatively

biased that their subsequent donation will be accepted and so, are less likely willing to donate in the future, particularly when the donation effort is significant. The present paper, therefore, offers a feasible solution to the critical issue raised by Daniels and Valdés (2021).

This study also contributes to a line of research concentrating on the application of behavioral interventions in nonprofit operations. There is evidence that behavioral interventions that function in one context may not work in others. For example, material rewards are effective in motivating people to donate blood (Lacetera et al. 2014, Goette and Stutzer 2020) but also discourage individuals to volunteer their time and effort (Gneezy and Rustichini 2000, Conrads et al. 2016). Although some show that social norms increase individuals' cash donations (Martin and Randal 2008, Shang and Croson 2009, Agerström et al. 2016), others show that providing social references does not encourage people's participation in volunteering (Moseley et al. 2018). Likewise, providing positive feedback on charitable giving has opposite impacts. Although learning that one's blood donation made a positive impact reduces the intention to donate again (Goette and Tripodi 2020), receiving positive feedback about one's volunteering efforts can effectively increase one's productivity (Mertins and Walter 2021).

The first intervention, information disclosure, relies on sharing content-related information to motivate individuals to take the desired actions. This intervention has been broadly advocated as an appropriate response to a wide range of social and economic problems (Loewenstein et al. 2014, Jones et al. 2015, Nelson et al. 2021). Nevertheless, recent studies unveil mixed effects of this intervention (Willis 2011, Loewenstein et al. 2014). For example, Riggs et al. (2017) show that emphasizing how forfeiting unnecessary public health service can benefit others did not reduce the overuse of the health services. Similarly, Downs et al. (2013) find the providing calorie recommendations to consumers did not reduce their calorie consumption but increased it.

In the context of charitable giving, an information disclosure message contains two parts of information: (i) the needs of others and (ii) how charitable giving will benefit them. First, awareness of the need is the prerequisite for charitable giving (Bekkers and Wiepking 2011), and learning about the needs of others will lead to an altruistic motivation, a motivational state with the ultimate goal of reducing that need (Batson et al. 2015). Hence, donors are more likely to respond to the charity's ask when they learn of the needs. Second, this intervention also conveys information on how charitable giving will benefit others. Altruism is an essential motivation for charitable giving (Bekkers and Wiepking 2011), and people donate because they want to advance the welfare of others (Bendapudi et al. 1996). In our study, people donate their goods, at least partially, because of altruism, and their goal is to contribute to social welfare through supporting a

charity's mission. Therefore, appealing to donors' altruism, through the information disclosure intervention, is likely to enhance prosocial compliance.

Our second implemented behavioral intervention uses the descriptive social norm. Studies show that individuals demonstrate a strong preference to conform to social norms because of their social image and self-image (Bénabou and Tirole 2006, Ariely et al. 2009, Gross and Vostroknutov 2022). A positive social image is beneficial for the individual as it increases the chance of being seen as trustworthy, being chosen as an interaction partner, and receiving help from others (Gross and Vostroknutov 2022). When one's actions are observed by others, they are more likely to behave prosocially as their actions can boost their social images (Ariely et al. 2009). On the other hand, self-image theories propose that people also like to see themselves as moral beings (Bodner and Prelec 2003) and act prosocially to signal themselves about their moral identities (Bénabou and Tirole 2006). Hence, conforming to the prosocial norm also primes one's moral identity and boosts self-image. However, an effort to invoke social norms might not work if people do not care about social norms or if they want to defy them.

A social norm intervention is more likely to be effective when two conditions are met: (i) ambiguity and (ii) appropriateness of the social norm (Croson et al. 2009). Research shows that people are more likely to be influenced by social norms when there is a perception of ambiguity about what is "correct" in the given context (Nook et al. 2016). If no such ambiguity exists (i.e., there is an obvious or correct thing to do), then what others do does not influence an individual's behavior (Reno et al. 1993). Second, a social norm intervention may actually increase undesirable behavior if the targeted subjects do not consider such norm to be "appropriate" and want to defy the norm (Werch et al. 2000, Perkins et al. 2005). Consequently, for this experiment, we considered a sample of donors who had not had previous experience of making in-kind donations to SVdP and hence, were less likely to have a concrete reference on which donations are acceptable and which are not. Additionally, improving in-kind donation quality is an appropriate norm as it benefits the charity's missions. In this way, social norm interventions are expected to effectively impact people's behavior, as they can merely imitate what others are doing (Cialdini et al. 1990).

Last, a behavioral intervention can be ineffective or even create negative impacts if it provokes reactance feelings or induces compensating behaviors from the individuals (Sunstein 2017). A reactance feeling can be triggered by psychological costs, such as guilt or perceived social pressure (DellaVigna et al. 2012, Andreoni et al. 2017). It also includes practical costs, such as time and attention (Knutsson et al. 2013). Therefore, some behavioral interventions might have *some* influence on the desired conduct but also, may produce compensating

behavior through spillover effects on other dimensions, nullifying the overall effect. For example, mandating customers acknowledge their donation decisions increases the average donation amount and probability but also creates a long-term detrimental effect because fewer customers return to the same purchase channel (Adena and Huck 2020). In our study, donors are asked to comply with the charity's policy, which requires them to spend effort on selecting proper in-kind donations. Taking action requires donors' attention, time, and physical effort. It may also hurt their emotions as they may need to remove some items they planned to donate. In summary, it is both necessary and essential for charities to monitor the potential spillover effect on individuals' long-term behaviors.

To the best of our knowledge, this is the first field experiment that shows the impact of these behavioral interventions in the context of individuals' in-kind donations. This paper proposes a simple, yet effective, solution to minimize the amount of junk donations sent to a charity.

3. Experimental Setting

This experiment was conducted in collaboration with SVdP, which is a large nonprofit organization located in the Phoenix metropolitan area of Arizona. It provides homeless and low-income individuals and families with services, such as free medical and dental clinics, meals, clothes, and housing. In 2021, SVdP received \$93.6 million in funds, with \$32.2 million in monetary donations and \$24.2 million in in-kind goods and services from individuals, corporations, the government, and other nonprofit organizations. Individuals contributed the most, accounting for 45% of all donations.

Since the "stay-at-home" orders were issued because of the COVID-19 pandemic, individuals' in-kind donations have become more prevalent as people had more time to organize their homes and donate household items to help local charities. For example, during the summer of 2020, SVdP received, on average, 400 in-kind donations every week. Although a negligible percentage of donors bring donations to SVdP's donation center, most rely on SVdP's free pickup service. Collected goods are then sorted, sanitized, and distributed among SVdP's thrift stores. Thrift stores attract about 14,000 customers who generate over 70,000 sales transactions every month, improving environmental and economic sustainability for the community. Moreover, SVdP also provides direct support for the beneficiaries with their "Bringing Hope Home" program, through which, every month, 70 newly housed families and individuals receive shopping vouchers that can be redeemed in any of SVdP's thrift stores. In 2021, SVdP's six thrift stores located in the Phoenix metropolitan area together contributed more than \$6.2 million in revenue. Figure 1

Figure 1. (Color online) SVdP's Thrift Store and Donation Pickup Service



shows an example of SVdP pickup service and one of their thrift stores in Phoenix. However, unusable, broken, or unsellable donated items consume significant resources. By July 2020, SVdP received so many junk donations that their docks were always stacked with items waiting for the disposal service to pick up. The volume of junk donations received was raised to a level that the original junk removal service was not able to handle; thereby, the charity was forced to pay for and rely on additional trash removal services.

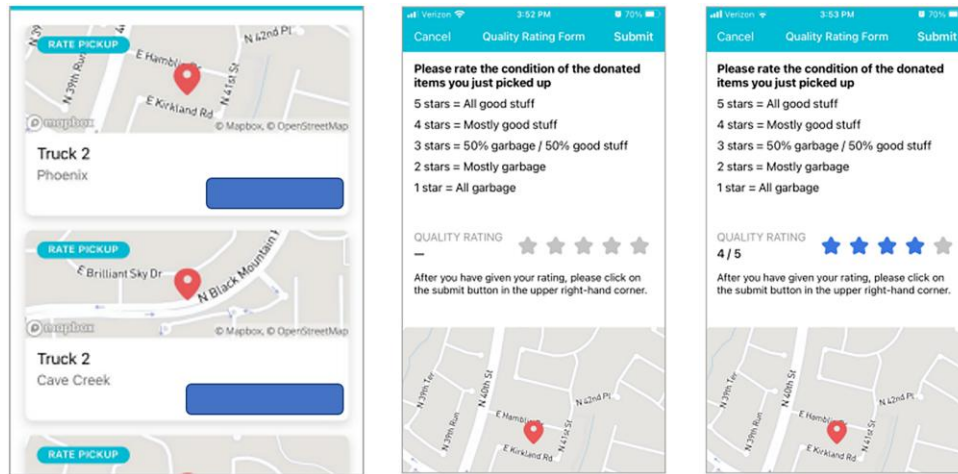
3.1. Experiment Procedure

The donation process for SVdP is standard among charities. To initiate donation pickups, donors can submit their requests online or by phone. During the sign-up process, SVdP reviews the donation policy and procedure with the donor and ensures the products are suitable for thrift stores. For example, it is indicated that oversized furniture and appliances as well as damaged, broken, or stained household items are unacceptable. Once donors acknowledge that they have read the list and understood what donations are acceptable, they are prompted to the scheduling stage to select a pickup date and submit the information for the donation (e.g., name, address, amount, and type of donated goods). Shortly after receiving the pickup request, SVdP sends an automatic email through their Sendgrid system to the donors confirming the pickup address and date for the donation. The email reinforces the criteria on what items are acceptable and details the instructions for handling and preparing the donated goods. For example, donors are asked to leave their donations at the curbside or in a parking lot accessible to the pickup truck. Prior to this experiment, SVdP did not send any additional emails besides this confirmation email. This was because the donors confirmed their understanding of the donation policy once while registering and then again were reminded by the confirmation email. As a result, SVdP opted not to send more identical emails emphasizing the donation policy

lest that additional nudging be perceived as excessive communication and disliked by donors.

Requests for pickup are received on a rolling basis, and prospective donors may select a pickup date up to 7–28 days in advance. SVdP closes the pickup requests and finalizes its pickup list within a week. On the day of the pickup request, SVdP informs the donors of the driver's arrival 30 minutes before the scheduled pickup. Upon picking up the donated goods, SVdP's truck driver leaves a donation receipt that the donors can use on their tax returns. All donated goods are delivered to a centralized location and sorted for resale in thrift stores. Products in acceptable conditions are cleaned and sanitized, and products categorized as "junk donations" are thrown away.

In order to measure the quality of each donation, we developed a rating system for the drivers to inspect and evaluate each donation during pickup. We also designed a mobile application that is customized within the routing software Geopointe, as shown in Figure 2. (The routing optimization software Geopointe determines the pickup routes by optimizing transit time, considering location, traffic, and pickup loads in each request. The routing software predicts the number of pickups per truckload, and the truck utilization rate is stable between 95% and 100% per trip before the experiment.) SVdP provided phones with this application installed to all eight drivers. The application provides directions with Google Maps, requires the drivers to check in for each location when they arrive, and automatically asks the drivers to rate the donation once the pickup is finished. Utilizing a mobile application as opposed to the conventional method of collecting ratings through paper survey offers several important advantages. First, using the application ensures drivers' full compliance with rating each donation they pickup. Drivers had to rate each donation before they could proceed to the next address. Second, because drivers were required to complete the rating after each pickup, the data would provide the

Figure 2. (Color online) Example of Routing and Rating in the Application (Address is Blocked)

most accurate assessment on the donation quality. Third, because the application is linked to SVdP's Salesforce system, the ratings are automatically uploaded into the system, reducing the possibility of manual data entry errors and ensuring data quality.

The quality rating system uses a Likert-type scale from one to five (with five showing the highest quality): "all garbage," "mostly garbage," "50% garbage and 50% good stuff," "mostly good stuff," and "all good stuff," respectively. One month before the experiment, the drivers received several training sessions to use this application and the rating system. In each training session, drivers rated 20 items based on the product images (see Figure 3 as an example). To ensure the independence of the observation, we asked the drivers to complete the ratings independently without communication. We measured the degree of consensus among drivers with Fleiss'

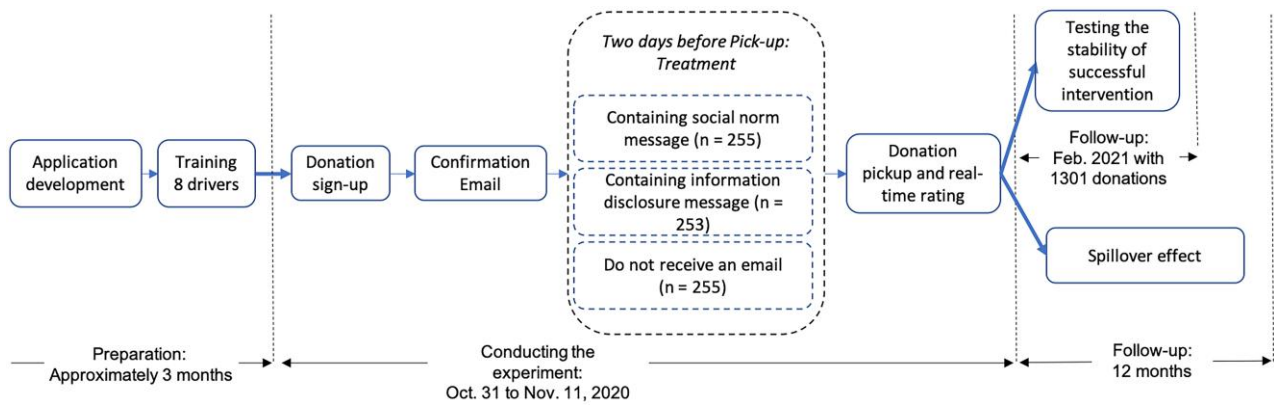
κ score, a generalized measurement of interrater agreement used to determine the level of agreement among several raters (more than two) (Fleiss 1971). Because our focus is to understand if SVdP needs to dispose of the item or not, our goal is to reach a "moderate" strength of agreement with $\kappa \in [0.41, 0.6]$ (Altman 1990). Nevertheless, in the last training session, Fleiss' κ showed that the drivers reached a "good" agreement among them, $\kappa = 0.73$ (Altman 1990). Therefore, we concluded the training and launched the experiment.

Furthermore, to ensure the internal validity of the study, we performed additional procedures. First, the intervention condition was blind to the drivers. They were unaware of the treatment conditions for the donations they picked up. This ensures no observer expectancy effect. Second, we included each driver as a fixed-effect control variable in our regression

Figure 3. (Color online) Examples of Items in the Training Session

Notes. Quality ratings are indicated on each picture. For instance, the chairs (rated 3) are good but not clean, and the donor attached some dirty lamp shades to the gifted chairs. The armoire (rated 4) is mostly good, but drawers do not slide well.

Figure 4. (Color online) Phases of the Research Study



analysis and did not find significant effects on any of the drivers. Figure 4 summarizes the process of the pickup service and our intervention.

SVdP executed this experiment for 12 days between October 31 and November 11, 2020, as part of their regular pickup practices. Our intervention was scheduled to be sent by SVdP email two days before the donation pickup date. All registered donors were randomized into one of the three groups. Because our experiment was scheduled in 10 waves, we chose a complete randomization in batches (Imbens and Rubin 2015). Therefore, one third of registered donors were assigned to each group every day; There was an average of 75 donation pickups every day, with 25 observations per group. The first treatment group received an email with the standard information disclosure content, the second treatment group received an email that contained the social norm content, and the third group did not receive any email. (Figure 5 demonstrates the template for the two treatment texts.)

1. *Information disclosure.* “Please know that we only accept items that are gently used. Items that we would have high difficulty selling at our stores—such as items that are damaged, stained, have pet hair, have missing pieces, or are otherwise unsellable—end up costing us tens of thousands of dollars every month to dispose of them, which diverts money away from our mission.”

2. *Social norm.* “The majority of donors give us items that are in very good condition, and have a high likelihood of being sold at our thrift stores around the Valley. Items donated that are damaged, stained, have pet hair, have missing pieces, or are otherwise unsellable, end up costing us money to dispose of them.”

We designed the social norm message similar to Goldstein et al. (2008), emphasizing that the norm of in-kind donations is that the majority of the donors donate items in good shape. A text reflecting the information disclosure intervention should fit in specific settings, and so, there is no standard form of the message in the literature for this intervention (Loewenstein et al.

2014). Therefore, we constructed the information disclosure message based on the need of SVdP and the benefits of taking the right action. In particular, the message highlights that SVdP accepts only gently used items and includes more detailed information (e.g., the cost and consequences of junk donations). Furthermore, while the social norm intervention establishes a psychological anchor based on social-proof behavior (i.e., the majority of the donors donate goods in good condition), the information disclosure intervention relies on sharing the logical reasoning for improving donation quality (i.e., junk donations cost SVdP additional resources that can be used for other prosocial activities).

A subtle thinker may question that, in the setting of our experiment, the information disclosure message signals that beneficiaries are not the *immediate* recipients of quality donations but SVdP. Put differently, junk donations only *indirectly* affect the final beneficiaries through driving money away from SVdP’s mission. Yet, it is worth indicating that donors are sensitive to charities’ overhead costs (Parsa et al. 2022). For example, Gneezy et al. (2014) show that the likelihood and amount of donations will increase if donors are informed that the charity’s overhead costs will be covered by resources other than their donations and so, their donations will entirely be channeled to beneficiaries. The existing economic theories attribute donors’ overhead aversion to the “impact philanthropy model” proposed by Duncan (1999), who argues that donors’ utility increases by the increased service to the target beneficiary (i.e., lower overhead costs). The same holds true here. In order to show respect to beneficiaries, many charities (including SVdP) provide brand new items or items in flawless condition to their beneficiaries. Accordingly, they collect in-kind donations to sell and transfer the income to serve beneficiaries. Through this intervention, we inform donors that inappropriate donations will cause the charity a higher overhead (e.g., logistics cost), driving their budget away from

Figure 5. Template of the Email Interventions



Hello: {{first_name}},

Thank you for making an RSVP for St. Vincent de Paul to pick up your donated items on {{pickupDate}}. Your donated items will be sold at our thrift stores to generate funding that feeds, clothes, houses, and heals Arizona families in need.

The majority of donors give us items that are in very good condition, and have a high likelihood of being sold at our thrift stores around the Valley. Items donated that are damaged, stained, have pet hair, have missing pieces, or are otherwise unsellable, end up costing us money to dispose of them. We understand it's not always easy to figure out what is appropriate to donate to us, so we ask that you (A) thoughtfully consider which items are being given to us, and (B) click the button below to review the list of items that we don't currently pick up.

Unacceptable Items

Your reservation includes the following items. Please make sure to bring your items to the curb as we are unable to enter homes and buildings at this time due to COVID-19 guidelines. We are humbled and grateful for your donation, and we look forward to picking up your donation on {{pickupDate}}.

Items listed on your reservation:
{{items}}

If you need to make any changes to your reservation, please call us at (602) 254-3338, option 2 during normal business hours Monday through Friday.

Thank you,
St. Vincent de Paul of Arizona



Hello: {{first_name}},

Thank you for making an RSVP for St. Vincent de Paul to pick up your donated items on {{pickupDate}}. Your donated items will be sold at our thrift stores to generate funding that feeds, clothes, houses, and heals Arizona families in need.

Please know that we only accept items that are gently used. Items that we would have high difficulty selling at our stores such-as items that are damaged, stained, have pet hair, have missing pieces, or are otherwise unsellable-end up costing us tens of thousands of dollars every month to dispose of them, which diverts money away from our mission. We understand it's not always easy to figure out what is appropriate to donate to us, so we ask that you (A) thoughtfully consider which items are being given to us, and (B) click the button below to review the list of items that we don't currently pick up.

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{{items}}

If you need to make any changes to your reservation, please call us at (602) 254-3338, option 2 during normal business hours Monday through Friday.

Thank you,
St. Vincent de Paul of Arizona

their core mission. The key to an effective information disclosure intervention is to increase the salience of certain information, which in turn, can steer subjects' behavior toward a desired direction (Loewenstein et al. 2014). Our constructed message provides this relevant information regarding the need for quality donation and how improving donation quality would benefit the charity, aligned with donors' altruistic motivation. A similar setting has been exercised in other contexts. For example, Nelson et al. (2021) show that sharing information related to environmentally damaging behavior resulted in pro-environmental behavior exhibited by tourists who were not the immediate beneficiaries of reducing harmful environmental behavior.

The third group that did not receive any email represented the status quo of SVdP's operations and offered a baseline for measuring the effectiveness as well as potential spillover effects of the interventions. It is worth indicating that the treatment email, in our setting, is different than the role of the typical reminder emails. A reminder email is commonly used to curb forgetfulness by bringing a particular decision or task to recipients' attention, such as making a donation (Damgaard and Gravert 2018). However, in our study, subjects had already decided to make a donation and self-selected into the group whose donations met the quality policy. Hence, the goal of treatment emails is not to remind subjects for an action that has not been taken.

3.2. Dependent and Control Variables

Our dependent variable is the quality of each donation that is observable through the rating system. For data analysis, we included two sets of control variables. The first set of control variables was related to experiment implementation. Specifically, we employed nine dummy variables $Wave_i$ to represent the pickup date fixed effect and seven dummy variables $Driver_j$ to capture the driver's fixed effect. These control variables allow us to identify the treatment's true effect without potential bias on the selected pickup date or a particular rater (driver). We also included another set of control variables associated with the donors' characteristics. According to SVdP's historical data, none of the subjects in the experiment had previously given an in-kind donation. However, a few donors had made cash donations before the experiment started. Therefore, for each donor k , a binary variable $ExistingDonor_k$ was included to indicate whether this donor had made cash donations before. Because donors are not required to provide social demographic information (e.g., age, gender, race), we are unable to control for these variables, although these variables are not crucial because our analysis was conducted at the household level, not the individual level. Yet, we approximated the donors' annual income level by combining the pickup address zip code with the household median income from the 2020 American Community Survey. Last, one may also suggest using the monetary value of an in-kind

donation as either a control or another dependent variable. However, SVdP does not collect information on the resale value of the in-kind donations because the pickup policy is designed to ensure fairness in all donations. Putting a price tag on people’s donations may alienate some donors. Therefore, our objective is to improve donation quality regardless of the donation value.

4. Results

First, we examine the exogeneity of covariates by randomization. Table 1 includes the summary statistics among the three groups. During the experiment, about 2.88% of donors canceled their donation pickup, which included 12 donors from the social norm group, 5 donors from the information disclosure group, and 5 donors from the control group. One concern is that donors canceled because they felt their donation was inadequate, which could have reduced the total donations SVdP received. However, note that the number of cancellations is small, and there was no significant difference in the attrition rate across the three groups. Also, even if the donors canceled their donations because of the intervention, these donations would likely be categorized as “junk donations” and would not provide value to SVdP. Therefore, we do not further interpret the cancellation cases and removed these observations from our analysis. Next, we also examined the donation history among the three groups. Although none of the subjects had made an in-kind donation before, 4.19% of them had made cash donations at least once. We also did not observe a statistically significant difference between the social norm and information disclosure groups in terms of the proportion of donors who opened the emails. Finally, using the pickup address zip code, we measured each donor’s household median income and found no significant difference among them.

4.1. Treatment Effect on Donation Quality Ratings

We compared the intent-to-treat effect of donation quality ratings under each treatment condition. Figure 6 reveals that the donation of donors who had received

the social norm message rated higher (i.e., better quality) than the other two groups. The social norm group had an average rating of 3.22 (standard error (SE) = 0.08), whereas the information disclosure and baseline groups had average ratings of 2.68 (SE = 0.08) and 2.83 (SE = 0.08), respectively. The difference in ratings between the social norm and information disclosure (baseline) groups is statistically significant at the $p < 0.001$ ($p < 0.001$) level. These p -values were obtained from a two-sample Wilcoxon rank-sum (Mann–Whitney) test, with our unit of analysis being the *completed* in-kind donation (i.e., without cancellation) made by each household. Furthermore, we found that there is no significant difference between the information disclosure and baseline groups, ($p = 0.246$). To ensure the validity of this finding, we compared the means using a t test. Results of our t test confirm these significant differences between the social norm and information disclosure groups as well as between the social norm and baseline groups, all at $p < 0.001$. Similarly, the t -test comparison between the information disclosure and baseline groups shows insignificant difference, with $p = 0.186$. Our sample to compare donation quality between the social norm and baseline groups contains 491 observations, and our sample to compare the information disclosure and baseline groups contains 498 observations.

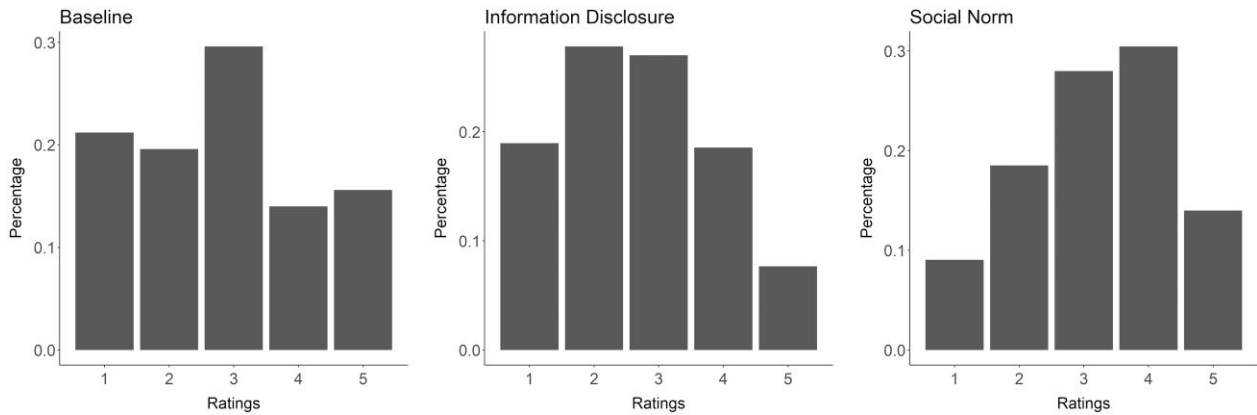
In addition to these tests, we ran regression analyses controlling for the time and driver fixed effects, donors’ household median income, and whether they had previously donated to SVdP. In Table 2, column (1) shows the results without any control variable, and column (2) includes the additional fixed-effect variables, in which $Wave_i$ represents the date of donation pickup and $Driver_i$ refers to each specific driver. Column (3) in Table 2 includes additional demographic data, such as donors’ household median income and if they had donated—*Existing Donor*. Note that column (3) had fewer observations because some records did not find a match in the households’ median income. Across three models, our finding is consistent. Donations received by those who had received the social norm message had significantly better quality ratings than the other two groups.

To further confirm the internal validity of the intervention, we investigated the treatment effects on donors who opened the intervention email and those who did not. If the lift in the quality rating was indeed because of the intervention, we expect to observe a significant effect among the donors who opened the email (i.e., compliers) and an insignificant effect among the donors who did not open the email (i.e., noncompliers). Conditioning upon opening the email, we found that the social norm group had an average rating of 3.33 (SE = 0.08) and that the information disclosure group had an average rating of 2.69 (SE = 0.09). Therefore, the compliers in the social norm group had a better rating when we only focused on those who opened the email. In contrast, the

Table 1. Summary Statistics by Treatment

	Social norm <i>N</i> = 255	Information disclosure <i>N</i> = 253	Baseline <i>N</i> = 255
Cancellation	12	5	5
Cash donor in the past	14	9	9
Email opened	196	189	—
Household median income in \$1,000	86.63 (28.38)	84.98 (29.83)	83.69 (28.71)

Notes. The values in parentheses represent standard deviations. None of the pairwise comparisons—proportion test and t test—are statistically significant at the $p = 0.1$ level.

Figure 6. Frequency Plot Comparison

ratings of the information disclosure had no significant difference. Similarly, we also compared the ratings for the noncompliers. The social norm group had an average rating of 2.86 (SE = 0.16), and the information disclosure group had an average rating of 2.67 (SE = 0.14). We compared the compliers and noncompliers adopting both a two-sample Wilcoxon rank-sum test and a t test. Comparing the compliers and noncompliers in the social norm group, we found statistically significant differences at $p = 0.005$ from the Wilcoxon rank-sum test and at $p = 0.008$ from a t test. However, we did not find a statistically significant difference between the compliers and noncompliers in the information disclosure group (i.e., $p = 0.998$ was obtained from a Wilcoxon rank-sum test, and $p = 0.910$ was from a t test). There is also no statistically significant difference in the quality of donations between the noncompliers and the control group (i.e.,

$p = 0.643$ was obtained from a Wilcoxon rank-sum test, and $p = 0.594$ was from a two-sample t test). Additional regression analyses, including all the control variables, also confirm consistent results (see Table 3). Moreover, as results in Table 3 show, there is no difference in quality ratings between the social norm and information disclosure groups for noncompliers, indicating the impact of the intervention and reducing the possibility of a false-positive conclusion.

4.2. Implementation and Long-Term Effect

Given the statistically and economically significant results, SVdP decided to implement the social norm intervention for all in-kind donors. A concern was that we conducted the experiment around the holiday season, and so, results could have been biased because of time-dependent confounding factors. Stated differently, the

Table 2. Intent-to-Treat Effect of All Groups (OLS Regression)

	Dependent variable: <i>Ratings</i>		
	(1)	(2)	(3)
<i>Social Norm</i>	0.386*** (0.111)	0.430*** (0.112)	0.404*** (0.112)
<i>Information Disclosure</i>	-0.151 (0.111)	-0.119 (0.112)	-0.151 (0.112)
<i>Households Median Income</i>			0.006*** (0.002)
<i>Existing Donor</i>			-0.078 (0.222)
<i>Time and Rater Fixed Effect</i>	No	Yes	Yes
Constant	2.832*** (0.078)	2.628*** (0.378)	2.172*** (0.396)
Observations	741	741	731
R^2	0.032	0.068	0.091
Adjusted R^2	0.030	0.045	0.065
Residual standard error	1.238 (df = 738)	1.228 (df = 722)	1.214 (df = 710)
F statistic	12.257*** (df = 2; 738)	2.944*** (df = 18; 722)	3.547*** (df = 20; 710)

Note. OLS, ordinary least squares; df, degree of freedom.

*** $p < 0.01$.

Table 3. Comparison Between the Social Norm and Information Disclosure Groups (OLS Regression)

	Dependent variable: <i>Ratings</i>		
	Full sample	Opened email	Did not open email
<i>Social Norm</i>	0.574*** (0.107)	0.667*** (0.124)	0.356 (0.233)
<i>Household Median Income</i>	0.005** (0.002)	0.005** (0.002)	0.004 (0.004)
<i>Existing Donor</i>	-0.306 (0.253)	-0.105 (0.296)	-0.785 (0.517)
<i>Time and Rater Fixed Effect</i>	Yes	Yes	Yes
Constant	2.610*** (0.459)	3.551*** (0.634)	1.769** (0.705)
Observations	482	364	118
R ²	0.114	0.154	0.189
Adjusted R ²	0.078	0.107	0.032
Residual standard error	1.165 (df = 462)	1.155 (df = 344)	1.153 (df = 98)
F statistic	3.139*** (df = 19; 462)	3.289*** (df = 19; 344)	1.204 (df = 19; 98)

Note. OLS, ordinary least squares; df, degree of freedom.
 ** $p < 0.05$; *** $p < 0.01$.

treatment effect size may differ in other periods because people may respond differently to the intervention at different times of the year. Therefore, SVdP collected additional ratings on 1,301 in-kind donations during February 2021. The aggregated observations by week are displayed in Table 4, and the corresponding bar chart with 95% confidence intervals is presented in Figure 7. Overall, the average rating was slightly lower than during the experiment. Nevertheless, the difference was statistically insignificant ($p = 0.308$), providing additional evidence of the generalizability of the social norm intervention.

Our goal was to encourage donors to reduce their unacceptable donations without deterring them from making future donations. Therefore, in addition to measuring the immediate effect on donation quality, we were also interested in the postexperiment spillover effects on future donations. We tracked the cumulative number of in-kind donors who made another donation three months, six months, nine months, and one year after the experiment. Figure 8 presents the cumulative numbers of returned in-kind donors from each group. In the first three months, 42 donors from the baseline group made at least one in-kind donation, whereas only 25 and 22 donors in the social norm and information disclosure groups made a donation. The difference in donation probability is statistically significant between the control group (16.73%) and the social norm group

(9.05%), with $p = 0.016$. The donation probability does not differ significantly between the social norm and information disclosure groups (10.08%), with $p = 0.815$. In the short term, it is likely that the additional email with behavioral interventions may temporarily reduce the additional in-kind donations. However, the number of cumulative returned in-kind donors among the three groups converges over time, and there is no significant difference among the three groups at the 12-month mark. Therefore, the intervention emails did not have a negative long-term impact on in-kind donor retention. It is worth mentioning that we checked whether the in-kind donors volunteered. However, among all subjects, we only found that six individuals also had

Figure 7. (Color online) Average Ratings with 95% Confidence Interval During February 2021

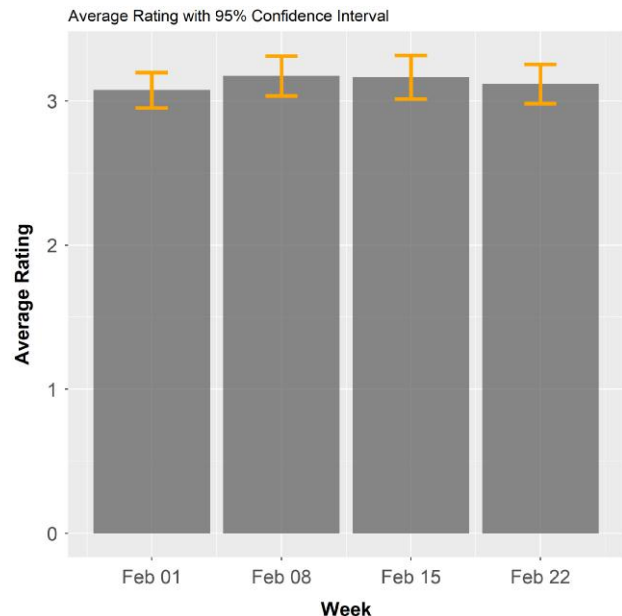
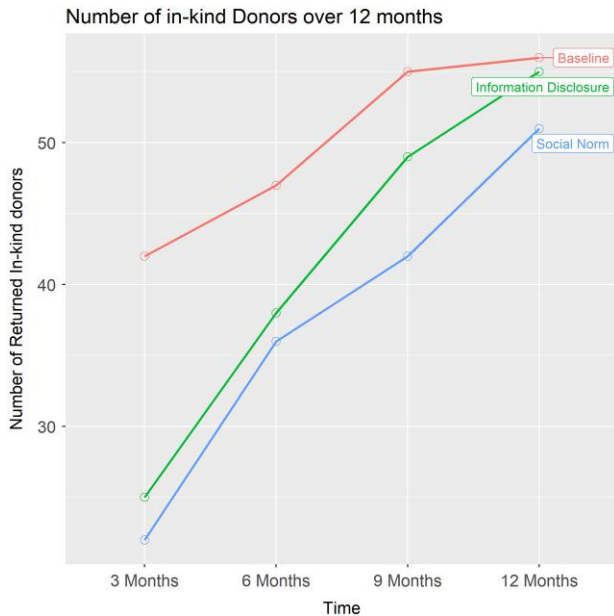


Table 4. Ratings for Each Week in February 2021

Week	Observations	Average rating	Standard error of ratings
February 1	307	3.07	0.06
February 8	356	3.17	0.07
February 15	308	3.17	0.08
February 22	330	3.12	0.07

Figure 8. (Color online) In-Kind Donor Retention over 12 Months

volunteer experience. Therefore, we do not further explore the spillover effect on volunteering.

5. Discussion and Conclusion

As shown in Table 1, both the social norm and information disclosure groups have a similar open rate. Yet, the information disclosure group did not take action to improve the quality of their in-kind donation, meaning that only the social norm intervention seems to be effective. Although informing donors about the need of the charity and highlighting the reasoning to support it may be effective at encouraging charitable giving behaviors (e.g., soliciting donations), the information disclosure intervention did not motivate donors to comply with the charity's donation policy. Indeed, some interventions may be effective at inducing behavior but not at inducing compliance, which requires effort from individuals to deviate from their status quo (Miesler et al. 2017). In our setting, several reasons might contribute to this difference. First, these two interventions leverage different information processing systems. In particular, people have two types of thinking processes: (1) an automatic system, which is intuitive, unconscious, and effortless, and (2) a reflective system, which is self-aware, is effortful, and requires deductive thinking (Thaler and Sunstein 2009). In particular, the information disclosure intervention relies on people's reflective systems because one must first understand the altruistic needs in this particular setting and then, make deductive connections between the ask (improving in-kind donation quality) and the other-benefit outcome. In

contrast, the social norm intervention only depends on people's automatic systems because one can simply follow what others are doing, without analyzing the situation. Another difference between these two interventions is that they induce different utilities. More specifically, the social norm intervention directs people's attention to the social identity utility, and conforming to the social norm will enhance one's social image. On the other hand, information disclosure intervention primes one's altruism, which has a lower chance of success because making the in-kind donation already fulfills this purpose, and effort in this category will only generate a diminishing return of utility. Last, the third possible explanation that information disclosure does not work is that people were avoiding the information. When information is unpleasant to deal with, people often fail to pay attention to it because attention imposes a welfare loss (Loewenstein et al. 2014). Hence, donors may ignore the messages if they consider that the information disclosure message imposes a potential welfare loss on their intended donations.

Charitable organizations are often hesitant to send too many emails to donors. In our context, additional email may irritate donors, hence increasing the likelihood of donor attrition. Therefore, we also considered the spillover effect on donor retention. At the three-month mark, we observed a temporary drop in the number of returned in-kind donors. At the outset, this short-term decline is aligned with the findings in the previous literature, suggesting that additional emails may discourage donors from making subsequent donations (Damgaard and Gravert 2018). Nevertheless, the intervention did not dissuade repeat donors over time because the level of donors converged to a similar level at the 12-month point. Several reasons could explain the phenomena. For example, the intervention emails may have altered donors' belief of the acceptability and utility of the donation quality criterion for SVdP. As a result, donors were more cautious with their donations, reconsidering whether their donations could benefit SVdP. Donors in the baseline group, on the other hand, did not raise the bar for the quality of their donation and continued to donate in the following months. Ultimately, donors in the social norm and information disclosure groups would likely have accumulated enough eligible items to make a second contribution as time passes. Therefore, there is no long-term difference of the repeat donors among the three groups.

It is also plausible that the treatments caused some annoyance costs, causing donors to avoid SVdP. For example, the social norm intervention is naturally related to a perceived social pressure to engage or not engage in specific behaviors (Ajzen 1991). In our context, donors may feel pressured to follow the group norm and comply with the group behavior, even if it requires extra effort. Hence, donors may churn from

making additional donations in order to avoid potential social pressure. The information disclosure group may also experience some degree of discouragement. Despite the fact that the information disclosure intervention did not improve the quality of donations, around 76% of donors in this group opened the email and received the treatment. Hence, it is likely that the information disclosure message caused donors to question whether they should donate to SVdP. In particular, the donors may consider that their donations to SVdP would not be properly used, knowing that SVdP “only accepts items that are gently used” and that unqualified donations instead cost SVdP “tens of thousands of dollars every month” and divert money away from their mission. Hence, the sense of failing to make a proper charitable gift provides them an excuse not to give in the future (Daniels and Valdés 2021). In contrast, donors in the baseline group did not have any of these concerns and made a second gift in the subsequent months. Nevertheless, the negative spillover effects of the intervention may diminish over time, and donors may return to SVdP in the long term.

Results of this study have contributions to both practice and theory. First, with the full implementation of the social norm intervention, SVdP observed a significant reduction in junk donations and found that trucks carry smaller loads per trip. This reduction in junk donations has been beneficial for SVdP. Before implementing the intervention, SVdP received roughly 90 truckloads of junk donations per month. With the social norm intervention, SVdP received about 45 truckloads of junk donations per month. This 50% reduction in junk donation translates to substantial savings in transportation, operations, and labor. However, Shang and Croson (2009) demonstrate that new donors to a radio campaign were influenced by a social norm intervention but that renewing donors were not. Therefore, they argue that the social norm intervention is more effective in conditions of ambiguity, and so, the effect size of this intervention is likely to be smaller for recurring donors compared with new donors. A plausible explanation could be that new donors are unaware of a reference point and so, seek a social signal regarding the “appropriate” donation. Consequently, we expect that the impact of the social norm intervention on recurring donors’ behavior is likely to be weaker, although we are unable to systematically examine this effect and make a concrete conclusion.

Second, our field data challenge the common notion of the effectiveness of information disclosure. Furthermore, the social norm intervention is found to have promising outcomes. Not only does our analysis confirm the effectiveness of this intervention by analyzing the treatment effect within compliers and noncompliers, it also offers additional evidence of generalizability of this effect, such that it is stable and valid across multiple time periods. In conjunction with the substantial logistical savings, the

confirmatory evidence strongly supports our statistically and economically significant interventions.

Third, the postexperiment analysis of the donor retention rate serves as an alarm for future research. Although the intervention may have successfully reduced the number of junk donations, it may have also discouraged some donors from giving. Therefore, charities should be cognizant of the potential negative spillover effects of interventions, and researchers need to include a baseline group to capture any potential negative effects because of behavioral interventions.

Finally, the problem of junk donations is even more severe in the aftermath of a sudden-onset disaster. Unwanted in-kind donations consume precious storage and transportation capacity and engage scarce human resources to sort and discard in disaster zones. This delays the delivery of essential supplies and drains the time and energy of rescue workers (Thomas and Fritz 2006). Holguín-Veras et al. (2016) found that 60% of the in-kind donations are “completely useless” in the aftermath of a disaster, and Holguín-Veras et al. (2012) identify the issue of junk donations as one of the most crucial, yet understudied, challenges in the context of disaster relief operations. Despite the fact that our experiment is undertaken in the context of a development program, the findings may also provide a viable path for nonprofit organizations operating in emergency contexts. In fact, evaluating behavioral interventions in an emergency context could be extremely challenging and costly because of the difficulty of identifying those who would respond to disaster relief or humanitarian crises with in-kind donations. For example, nonprofit organizations could implement the social norm intervention using mass media engagement to improve the quality of in-kind donations.

In order to provide more insight into how different treatments affect donors’ decisions, future research may consider additional measures, such as the rate of junk donation decrease and the overall number of gifts. Although charitable giving triggers the emotional mindset of a donor, priming monetary value in an intervention may backfire donors’ altruistic motives (Liu and Aaker 2008, Costello and Malkoc 2022) or impose a *targeting effect* on donors (Martin and Randal 2008). Therefore, examining how the resale value of donated goods influences donors’ decision would be an appealing research question.

Another intriguing topic is to investigate the root cause of the temporary decline in the number of return donors. If the temporary drop was indeed because of donors’ awareness of in-kind donation quality requirements, the social norm and information disclosure groups are assumed to donate fewer items on average than the control group. Alternatively, if the temporary drop was caused by annoyance costs, charities can monitor donor retention metrics, for example, by using the net promoter score or other survey questions.

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References

- Adena M, Huck S (2020) Online fundraising, self-image, and the long-term impact of ask avoidance. *Management Sci.* 66(2):722–743.
- Agerström J, Carlsson R, Nicklasson L, Guntell L (2016) Using descriptive social norms to increase charitable giving: The power of local norms. *J. Econom. Psych.* 52(February):147–153.
- Ahire S, Pekgun P (2018) Harvest hope food bank optimizes its promotional strategy to raise donations using integer programming. *Interfaces* 48(4):291–306.
- Ajzen I (1991) The theory of planned behavior. *Organ. Behav. Human Decision Processes* 50(2):179–211.
- Altman D (1990) *Practical Statistics for Medical Research* (CRC Press, Boca Raton, FL).
- Andreoni J, Rao J, Trachtman H (2017) Avoiding the ask: A field experiment on altruism, empathy, and charitable giving. *J. Political Econom.* 125(3):625–653.
- Ariely D, Bracha A, Meier S (2009) Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *Amer. Econom. Rev.* 99(1):544–555.
- Batson D, Lishner D, Stocks E (2015) The empathy-altruism hypothesis. Schroeder DA, Graziano EG, eds. *The Oxford Handbook of Prosocial Behavior* (Oxford University Press, Oxford, UK), 259–281.
- Bekkers R, Wiepking P (2011) A literature review of empirical studies of philanthropy: Eight mechanisms that drive charitable giving. *Nonprofit Voluntary Sector Quart.* 40(5):924–973.
- Bénabou R, Tirole J (2006) Incentives and prosocial behavior. *Amer. Econom. Rev.* 96(5):1652–1678.
- Bendapudi N, Singh S, Bendapudi V (1996) Enhancing helping behavior: An integrative framework for promotion planning. *J. Marketing* 60(3):33–49.
- Bicchieri C, Dimant E (2022) Nudging with care: The risks and benefits of social information. *Public Choice* 191(1–2):443–464.
- Bodner R, Prelec D (2003) Self-signaling and diagnostic utility in everyday decision making. *Psych. Econom. Decisions* 1(105):26–47.
- Bolton GE, Dimant E, Schmidt U (2019) When a nudge backfires: Using observation with social and economic incentives to promote pro-social behavior 2019–03. CeDEX discussion paper, The University of Nottingham, Nottingham, UK.
- Bookman T (2021) Goodwill doesn't want your broken toaster. Accessed August 25, 2022, <https://www.npr.org/2021/05/06/993821945/goodwill-doesnt-want-your-broken-toaster>.
- Cialdini R, Reno R, Kallgren C (1990) A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *J. Personality Soc. Psych.* 58(6):1015–1026.
- Classy (2018) The state of modern philanthropy: Examining online fundraising trends. Accessed August 25, 2022, <https://learn.classy.org/state-of-modern-philanthropy-2018>.
- Conrads J, Irlenbusch B, Reggiani T, Rilke R, Sliwka D (2016) How to hire helpers? Evidence from a field experiment. *Experiment. Econom.* 19(3):577–594.
- Costello JP, Malkoc SA (2022) Why are donors more generous with time than money? The role of perceived control over donations on charitable giving. *J. Consumer Res.* 49(4):678–696.
- Croson R, Treich N (2014) Behavioral environmental economics: Promises and challenges. *Environ. Resource Econom.* 58(3):335–351.
- Croson R, Handy F, Shang J (2009) Keeping up with the Joneses: The relationship of perceived descriptive social norms, social information, and charitable giving. *Nonprofit Management Leadership* 19(4):467–489.
- Damgaard M, Gravert C (2018) The hidden costs of nudging: Experimental evidence from reminders in fundraising. *J. Public Econom.* 157(January):15–26.
- Daniels K, Valdés L (2021) Trying and failing: Biases in donor aversion to rejection. *Production Oper. Management* 30(12):4356–4373.
- DellaVigna S, Linos E (2022) RCTs to scale: Comprehensive evidence from two nudge units. *Econometrica* 90(1):81–116.
- DellaVigna S, List J, Malmendier U (2012) Testing for altruism and social pressure in charitable giving. *Quart. J. Econom.* 127(1):1–56.
- Dolan P, Galizzi MM (2015) Like ripples on a pond: Behavioral spillovers and their implications for research and policy. *J. Econom. Psych.* 47(April):1–16.
- Downs JS, Wisdom J, Wansink B, Loewenstein G (2013) Supplementing menu labeling with calorie recommendations to test for facilitation effects. *Amer. J. Public Health* 103(9):1604–1609.
- Duncan B (1999) Modeling charitable contributions of time and money. *J. Public Econom.* 72(2):213–242.
- Fisher R, Vandenbosch M, Antia K (2008) An empathy-helping perspective on consumers' responses to fund-raising appeals. *J. Consumer Res.* 35(3):519–531.
- Fleiss J (1971) Measuring nominal scale agreement among many raters. *Psych. Bull.* 76(5):378–382.
- Gerber A, Rogers T (2009) Descriptive social norms and motivation to vote: Everybody's voting and so should you. *J. Politics* 71(1):178–191.
- Gneezy U, Rustichini A (2000) Pay enough or don't pay at all. *Quart. J. Econom.* 115(3):791–810.
- Gneezy U, Keenan EA, Gneezy A (2014) Avoiding overhead aversion in charity. *Science* 346(6209):632–635.
- Goette L, Stutzer A (2020) Blood donations and incentives: Evidence from a field experiment. *J. Econom. Behav. Organ.* 170(February):52–74.
- Goette L, Tripodi E (2020) Does positive feedback of social impact motivate prosocial behavior? A field experiment with blood donors. *J. Econom. Behav. Organ.* 175(July):1–8.
- Goldstein N, Cialdini R, Griskevicius V (2008) A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *J. Consumer Res.* 35(3):472–482.
- Goodwill (2021) 2020 annual report goodwill industries international. Accessed August 25, 2022, <https://www.goodwill.org/annual-report/>.
- Goswami I, Urminsky O (2016) When should the ask be a nudge? the effect of default amounts on charitable donations. *J. Marketing Res.* 53(5):829–846.
- Gross J, Vostroknutov A (2022) Why do people follow social norms? *Current Opinion Psych.* 44(April):1–6.
- Holguín-Veras J, Jaller M, Van Wassenhove LN, Pérez N, Wachtendorf T (2012) Material convergence: An important and understudied disaster phenomenon. *Natl. Hazards Rev.* 15(1):1–12.
- Holguín-Veras J, Jaller M, Aros-Vera F, Amaya J, Encarnación T, Wachtendorf T (2016) Disaster response logistics: Chief findings of fieldwork research. Zobel CW, Altay N, Haselkorn MP, eds. *Advances in Managing Humanitarian Operations* (Springer, Cham, Switzerland), 33–57.
- Imbens GW, Rubin DB (2015) *Causal Inference in Statistics, Social, and Biomedical Sciences* (Cambridge University Press, Cambridge, UK).
- Islam MM (2013) In-kind donation practices, challenges and strategies for NGOs and donors. PhD thesis, School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta.
- Jones LE, Loibl C, Tennyson S (2015) Effects of informational nudges on consumer debt repayment behaviors. *J. Econom. Psych.* 51(December):16–33.
- Knutsson M, Martinsson P, Wollbrant C (2013) Do people avoid opportunities to donate?: A natural field experiment on recycling and charitable giving. *J. Econom. Behav. Organ.* 93(September):71–77.

- Kristal A, Whillans A (2020) What we can learn from five naturalistic field experiments that failed to shift commuter behaviour. *Nature Hum. Behav.* 4(2):169–176.
- Lacetera N, Macis M, Slonim R (2014) Rewarding volunteers: A field experiment. *Management Sci.* 60(5):1107–1129.
- Leonhardt JM, Peterson RT (2019) Should charity promotions appeal to altruism? *Internat. J. Nonprofit Voluntary Sector Marketing* 24(1):e1629.
- Liu W, Aaker J (2008) The happiness of giving: The time-ask effect. *J. Consumer Res.* 35(3):543–557.
- Loewenstein G, Sunstein CR, Golman R (2014) Disclosure: Psychology changes everything. *Annual Rev. Econom.* 6(1):391–419.
- Mainardes EW, Laurett R, Degasperis N, Lasso SV (2017) External motivators for donation of money and/or goods. *Internat. J. Nonprofit Voluntary Sector Marketing* 22(2):e1568.
- Martin R, Randal J (2008) How is donation behaviour affected by the donations of others? *J. Econom. Behav. Organ.* 67(1): 228–238.
- Mertins V, Walter C (2021) In absence of money: A field experiment on volunteer work motivation. *Experiment. Econom.* 24(3):952–984.
- Miesler L, Scherrer C, Seiler R, Bearth A (2017) Informational nudges as an effective approach in raising awareness among young adults about the risk of future disability. *J. Consumer Behav.* 16(1):15–22.
- Montgomery RD, Mitchell M (2014) Examining the demographic profiles of thrift store donors and thrift store shoppers. *Atlantic Marketing J.* 3(1):1–13.
- Morvinski C, Saccardo S, Amir O (2023) Mis-nudging morality. *Management Sci.* 69(1):464–474.
- Moseley A, James O, John P, Richardson L, Ryan M, Stoker G (2018) The effects of social information on volunteering: A field experiment. *Nonprofit Voluntary Sector Quart.* 47(3): 583–603.
- Nelson KM, Bauer MK, Partelow S (2021) Informational nudges to encourage pro-environmental behavior: Examining differences in message framing and human interaction. *Frontiers Comm.* 5:610186.
- Nelson M, Brunel F, Supphellen M, Manchanda R (2006) Effects of culture, gender, and moral obligations on responses to charity advertising across masculine and feminine cultures. *J. Consumer Psych.* 16(1):45–56.
- Non Profit Source (2018) The ultimate list of charitable giving statistics for 2018. Accessed August 25, 2022, <https://nonprofitssource.com/online-giving-statistics/>.
- Nook E, Ong D, Morelli S, Mitchell J, Zaki J (2016) Prosocial conformity: Prosocial norms generalize across behavior and empathy. *Personality Soc. Psych. Bull.* 42(8):1045–1062.
- Parsa I, Eftekhar M, Corbett JC (2022) Does better governance relax the efficiency squeeze experienced by non-profit organizations? *Production Oper. Management* 31(8):3288–3303.
- Perkins HW, Haines MP, Rice R (2005) Misperceiving the college drinking norm and related problems: A nationwide study of exposure to prevention information, perceived norms and student alcohol misuse. *J. Stud. Alcohol* 66(4):470–478.
- Pittman M (2020) Accountability moderates the effects of egoistic and altruistic appeals in prosocial messages. *J. Consumer Marketing* 37(7):807–820.
- Reno R, Cialdini R, Kallgren C (1993) The transsituational influence of social norms. *J. Personality Soc. Psych.* 64(1):104–112.
- Riggs KR, Ubel PA, Saloner B (2017) Can appealing to patient altruism reduce overuse of healthcare services? An experimental survey. *J. General Internal Medicine* 32(7):732–738.
- Salvation Army (2021) The Salvation Army 2020 annual report. Accessed August 25, 2022, <https://www.salvationarmyusa.org/usn/newsroom/>.
- Shang J, Croson R (2009) A field experiment in charitable contribution: The impact of social information on the voluntary provision of public goods. *Econom. J.* 119(540):1422–1439.
- Sunstein C (2017) Nudges that fail. *Behav. Public Policy* 1(1):4–25.
- Thaler R, Sunstein C (2009) *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Penguin, New York).
- Thomas A, Fritz L (2006) Disaster relief, Inc. *Harvard Bus. Rev.* 84(11):114–122.
- U.S. Census Bureau (2021) National thrift store day: August 17, 2021. Accessed August 25, 2022, <https://www.census.gov/newsroom/stories/thrift-store-day.html>.
- Werch CE, Pappas DM, Carlson JM, DiClemente CC, Chally PS, Sinder JA (2000) Results of a social norm intervention to prevent binge drinking among first-year residential college students. *J. Amer. College Health* 49(2):85–92.
- Willis L (2011) The financial education fallacy. *Amer. Econom. Rev.* 101(3):429–434.