Reputational Considerations within Prosocial Behavior

Rachel Gershon
Washington University in St. Louis

Follow this and additional works at: https://openscholarship.wustl.edu/art_sci_etds

Recommended Citation
https://openscholarship.wustl.edu/art_sci_etds/1840

This Dissertation is brought to you for free and open access by the Arts & Sciences at Washington University Open Scholarship. It has been accepted for inclusion in Arts & Sciences Electronic Theses and Dissertations by an authorized administrator of Washington University Open Scholarship. For more information, please contact digital@wumail.wustl.edu.
Reputational Considerations within Prosocial Behavior
by
Rachel Gershon

A dissertation presented to
The Graduate School
of Washington University in
partial fulfillment of the
requirements for the degree
of Doctor of Philosophy

May 2019
St. Louis, Missouri
# Table of Contents

List of Figures .................................................................................................................................................. v  
List of Tables .................................................................................................................................................... vi  
Acknowledgments ................................................................................................................................................ vii  
Abstract of the Dissertation ............................................................................................................................. viii  

1.1 Introduction ............................................................................................................................................... 1  
1.2 Conceptual Background ............................................................................................................................. 3  
1.2.1 The Link between Trait Warmth and Communal Intent ........................................................................... 3  
1.2.2 Goods Signal Communal Intent ............................................................................................................... 6  
1.2.3 Present Research ...................................................................................................................................... 8  
1.2.4 Overview of Constructs and Studies ....................................................................................................... 10  
1.3 Study 1: The Impact of Donor Warmth on Charitable Credit ................................................................. 12  
1.3.1 Methods ................................................................................................................................................ 12  
1.3.2 Results ................................................................................................................................................ 15  
1.3.3 Discussion ............................................................................................................................................ 17  
1.4 Study 2A: Corporate Donations of Goods receive more Credit ............................................................. 18  
1.4.1 Methods ................................................................................................................................................ 18  
1.4.2 Results ................................................................................................................................................ 19  
1.4.3 Discussion ............................................................................................................................................ 22  
1.5 Study 2B: Communal (vs. Exchange) Intentions as Mediator ............................................................... 23  
1.5.1 Methods ................................................................................................................................................ 24  
1.5.2 Results ................................................................................................................................................ 25  
1.5.3 Discussion ............................................................................................................................................ 27  
1.6 Studies 3A and 3B: The Interaction of Donor Warmth and Donation Type .............................................. 28  
1.7 Study 3A: The Moderating Role of Warmth – Individual Donors ........................................................... 30  
1.7.1 Methods ................................................................................................................................................ 30  
1.7.2 Results ................................................................................................................................................ 31  
1.7.3 Discussion ............................................................................................................................................ 36
List of Figures

Figure 1.1: Conceptual Model Steps 1 & 2 ................................................................. 11
Figure 1.2: Study 1 Mediation Results ................................................................. 20
Figure 1.3: Study 2A Results ............................................................................. 23
Figure 1.4: Study 2B Results ............................................................................. 29
Figure 1.5: Study 3A Results ............................................................................. 35
Figure 1.6: Study 3B Results ............................................................................. 43
Figure 1.7: Study 4 Results ................................................................................. 49
Figure 2.1: Referral Process ................................................................................. 61
Figure 2.2: Study 2 Results ................................................................................. 71
Figure 2.3: Study 3 Results ................................................................................. 76
Figure 2.4: Study 4B Results ................................................................................. 85
Figure 2.5: Study 5A Results ................................................................................. 91
Figure 2.6: Study 5B Results ................................................................................. 95
List of Tables

Table 1.1: Summary of Chapter 1 Results........................................................................................................38
Table 2.1: Summary of Chapter 2 Results........................................................................................................66
Acknowledgments

I am filled with gratitude for so many of the people involved in my graduate school experience. I would like to start by thanking my wonderful and endlessly supportive advisor, Cindy Cryder. I am eternally grateful to Cindy for introducing me to this field, for her continuous encouragement, and for modeling what it means to be a good researcher and mentor. I want to thank Steve Nowlis for sitting me down 5 years ago and encouraging me to consider this career path and for his patience and support throughout the doctoral program. I would also like to thank Robyn LeBoeuf for providing valuable advice and always being generous with her time. I am also grateful to Rosanna Smith, Hannah Perfecto, and Sydney Scott for their much-appreciated feedback and the time and energy they have invested in supporting me. I would like to thank the entire Marketing department at WashU for creating a positive and constructive environment for learning and conducting research.

I would like to express my gratitude to Jasmine Huang, Brittney Stephenson, and Gabbie Tonietto for their friendship and support through every step of this process as well as Kristen Duke and Melanie Pyne-Brucks for being my makeshift cohort. I am so lucky to have all of you in my life.

Finally, I want to thank my amazing family whose support and encouragement throughout the years have made it possible for me to receive a doctorate.

Rachel Gershon

Washington University in St. Louis

May 2019
ABSTRACT OF THE DISSERTATION

Reputational Considerations within Prosocial Behavior

by

Rachel Gershon

Doctor of Philosophy in Business Administration

Washington University in St. Louis, 2019

Professor Cynthia Cryder, Chair

Consumers and companies often consider the welfare of others when making decisions. Consumers might spend their money donating to meaningful causes or choose to purchase from socially responsible companies. Companies must also choose whether and how to prioritize behaving prosocially or “giving back”. One reason that both companies and individuals behave prosocially is to be viewed positively by others, or in other words, to gain charitable credit. In my research, I explore this impression management motivation behind prosocial behavior.

In Chapter one, I show that low-warmth actors are often assumed to lack communal (or other-oriented) intentions, even when acting generously. Low-warmth donors must therefore send stronger signals of their communal intent when donating to receive the same amount of charitable credit as high-warmth donors. Because goods are linked with communal norms, we find that donating goods allows low-warmth donors to signal communal intent and increase charitable credit received. Study 1 establishes that low-warmth donors receive less credit for unspecified donations than their high-warmth counterparts. Studies 2A and 2B show that goods donations, compared to equally valued monetary or unspecified donations, increase charitable credit for low-warmth donors. Studies 3A and 3B show that donating goods boosts charitable credit for low-warmth donors in particular; high-warmth donors are assumed to have communal intentions, and receive large amounts
of credit, regardless of donation type. Finally, study 4 shows that low-warmth donors can increase charitable credit for monetary donations by describing the donation in communal terms, specifically, as a gift. This research has clear practical implications, for example, many corporations are viewed as low-warmth, and most corporate donations are monetary. Yet, companies always have the option to donate goods instead.

While Chapter One examined the reputational benefits, or “charitable credit” companies and other low-warmth donors receive for making donations, Chapter Two goes on to study the reputational benefits involved in another common consumer behavior: customer referrals. In Chapter Two, I show that while selfish incentives typically outperform prosocial incentives, in the context of customer referral rewards, prosocial incentives can be more effective. Companies frequently offer “selfish” (i.e., sender-benefiting) referral incentives, offering customers financial incentive for recruiting new customers. However, companies can alternatively offer “prosocial” (i.e., recipient-benefiting) referral incentives. In two field experiments and an incentive-compatible lab experiment, we find that recipient-benefiting referrals, relative to sender-benefiting referrals, result in more new customers. In five subsequent experiments, we explain why this effect occurs. Specifically, we provide evidence of a two-stage process account that invokes two counter-vailing forces: reputational benefits versus action costs. First, at the referral stage, senders expect reputational benefits when making a recipient-benefiting referral: senders expect the people whom they refer to view them more favorably for providing an opportunity to earn a reward. At the same time, the task of referring someone is relatively easy, often amounting to entering an email address. As a result, recipient-benefiting referral programs are just as effective as sender-benefiting programs at inducing referrals. Then, at the uptake stage, recipient-benefiting referrals are more effective than sender-benefiting referrals. This is because recipient-benefiting referrals directly incent what is typically the more effortful action in referral programs: uptake (i.e.,
signing up for a new product or service), as opposed to referral, thereby providing impetus for recipients to act. The relative prevalence of sender-benefiting referral offers in the marketplace suggests these forces play out in ways that are unanticipated by marketers who design incentive schemes.
Chapter 1: Goods Donations Increase Charitable Credit for Low-Warmth Donors

1.1 Introduction

In 2012, the devastation of Hurricane Sandy prompted over $380 million in charitable donations (Lawrence et al. 2014). All types of donors gave, often donating in different forms. American Express contributed a $1,000,000 monetary donation. Ikea donated in-kind goods, giving more than 40,000 blankets, pillows, and towels (BCLC 2015). A teacher and her 5th grade class raised funds to make a monetary donation (Graham 2012). Meanwhile, a hedge fund manager from the Upper West Side donated goods such as canned food and medical supplies (Rampell 2012). While all of these donations provided valuable resources to displaced victims, both the traits of the donors and the types of donations varied substantially. In this research, we propose that such variations in both donor traits and donation type can alter how people award charitable credit to those who give.

People who engage in prosocial behavior are often rewarded with higher status and reputation benefits (Berman et al. 2015; Flynn 2003; Flynn et al. 2006); in other words, people grant donors “charitable credit” for their generous acts (Lin-Healy and Small 2012). However, the charitable credit that a donor receives does not correspond perfectly with the donation’s impact. Instead, judgments of a donor’s intentions for donating also play a significant role (Barasch et al. 2014; Lin-Healy and Small 2012), and can be even more important than the donation’s actual impact for earning charitable credit (Newman and Cain 2014).

1 The paper based on the first chapter of my dissertation is published in the Journal of Consumer Research:

Because presumed intentions are a critical component of the credit a donor receives, this research proposes that two factors that influence intention judgments will affect charitable credit as well. First, trait warmth, a central dimension on which people assess others, is closely linked with perceptions of others’ good intentions (Fiske, Cuddy, and Glick 2007). Whereas high-warmth actors are assumed to be well-intentioned, previous research suggests that even when low-warmth actors behave prosocially, observers may assume they possess ulterior motives (Cuddy, Glick, and Beninger 2011).

Second, donation type has potential to influence intention judgments. Giving goods is often the norm within social or communal relationships (Cheal 1987; Douglas and Isherwood 1979; Heyman and Ariely 2004; Webley, Lea, and Portalska 1983). Accordingly, goods donations (compared to monetary donations) may signal that a donor has donated for communal, or other-focused, reasons.

In this research, we specifically predict that donor warmth and donation type will interact to influence the judgments about donors’ communal intentions, ultimately influencing charitable credit received. High-warmth actors are typically assumed to have communal or other-focused intentions (Fiske et al. 2007) and therefore may receive high charitable credit regardless of donation type; any prosocial act reinforces prior beliefs that high-warmth givers act with others’ welfare in mind. By contrast, low-warmth actors are typically assumed to act in accordance with their own interests, and such suspicion surrounding intent may result in lower charitable credit for donating. Therefore, low-warmth donors may need to send additional signals of communal intent to gain equal levels of charitable credit. We show that donations of goods, because of their link with communality, allow low-warmth donors to strengthen their signal of communal intent and earn more credit for their charitable acts.
1.2 Conceptual Background

1.2.1 The Link between Trait Warmth and Communal Intent

Warmth refers to the extent to which an individual (or organization; Aaker, Vohs, and Mogilner 2010) is friendly, good-natured, and trustworthy (Fiske et al. 2007), and is central to the way that people assess one another. People make warmth judgments before judgments of intelligence or competence when forming impressions, and warmth judgments receive greater attention and weight in impression formation than other interpersonal judgments (Wojciszke, Bazinska, and Jaworski 1998; Wojciszke and Abele 2008). Being judged as low-warmth can have negative repercussions, for example, low-warmth individuals are often feared or resented (Fiske et al. 2002), and tend to receive less social support (Cuddy, Fiske, and Glick 2007).

Warmth judgments and their consequences also extend beyond individuals, for example, low-warmth companies inspire less customer loyalty than their high-warmth counterparts (Kervyn, Fiske, and Malone 2012). Due to the fundamental importance of warmth in social judgments, warmth has been studied in a wide range of contexts including romantic partner decisions (Sinclair and Fehr 2005), hiring decisions (Casciaro and Lobo 2008), purchase decisions (Aaker et al. 2010), and customer satisfaction (Andrzejewski and Mooney 2016).

Warmth may be particularly relevant to the prosocial domain because people rely on warmth judgments to predict whether or not someone is well-intentioned (Fiske et al. 2002). Indeed, judgments of low-warmth are linked with competitive and exploitative intentions rather than cooperative and well-meaning intentions (Fiske et al. 2007; Fournier and Alvarez 2012; Kervyn et al. 2012). This association extends to the realm of corporate social responsibility; consumers typically perceive for-profit companies as low in warmth (Aaker et al. 2010) and they tend to be suspicious of companies’ motives for engaging in prosocial behavior (Vlachos et al.
2009). Multiple studies find that the reputational benefits of donating are attenuated, or even reversed, when consumers believe that charitable giving was motivated by profit or was inauthentic in any way (Koschate-Fischer, Stefan, and Hoyer 2012; Wagner, Lutz, and Weitz 2009; Yoon, Gürhan-Canli, and Schwarz 2006).

In this research, we hypothesize that low-warmth donors’ intentions are viewed specifically as less “communal” than high-warmth donors’ intentions. Research in social psychology distinguishes between two categories of social relationships: communal and exchange-based relationships. In communal relationships, benefits are given to others non-contingently and with the recipient’s welfare in mind. Relationships between parents and children or romantic partners typically follow communal norms (Clark and Mills 1979; 2011), such as when parents provide food and shelter for their children without the expectation of being paid back. By contrast, business transactions and most interactions with strangers and acquaintances typically follow exchange norms common in exchange-based relationships; benefits are given to others with the expectation that the giver will receive comparable benefits in return (Clark and Mills 1979; 2011). For example, when selling a car, both the salesperson and the customer give something and expect to receive something of comparable value in return. Although the communal versus exchange distinction was originally conceptualized to describe human relationships (Clark and Mills 1979), consumers also interpret their interactions with companies through the lens of communal or exchange norms, judging some companies to behave more consistently with communal norms and others to behave more consistently with exchange norms (Aggarwal 2004; Aggarwal and Law 2005).

We conducted a correlational study as an initial investigation into the relationship between donor warmth and judgments of communal intentions. We asked 96 Mechanical Turk
participants about each company on Interbrand’s list of the 10 most valuable global brands from 2016 (Apple, Google, Coca-Cola, Microsoft, Toyota, IBM, Samsung, Amazon, Mercedes-Benz, or General Electric; Interbrand 2017). Participants rated each company on trait warmth (that is, to what extent do the following traits describe the company in general: ”friendly, well-intentioned, trustworthy, warm, good-natured, sincere; Fiske et al. 2002; (α = .96)). Next, participants imagined that the company had behaved prosocially in a generalized context (“Imagine that some people needed help and Coca-Cola helped them. How would you interpret this action by Coca-Cola?”). They then rated the company's intentions on a five item measure of communal intentions: 1) The company did not expect to receive any benefits from helping, 2) The company helped to respond to others' needs, 3) The company has a genuine desire to help others, 4) The company helped with hopes of benefiting themselves (reverse-coded), and 5) The company helped in order to get ahead (reverse coded; α = .80). Results showed that, as expected, trait warmth and communal intentions were significantly positively correlated ($r = 0.35, p < .001$; full details in appendix A).

We propose that such connections between trait warmth and communal, or other-oriented, intentions have the potential to influence the amount of charitable credit that donors receive. Donations that are perceived as communal in nature, that is, motivated by recipients’ needs, tend to be evaluated positively whereas similar donations that are viewed as self-serving or exchange-based are typically evaluated more negatively (Lin-Healy and Small 2013; Newman and Cain 2014). When judging charitable behavior, people balance the information that the donor has done something good with signals about whether or not the donor truly cared about the recipient’s welfare to arrive at a final judgment of how favorably the good deed should be
perceived (Berman et al. 2015); in short, judgments of donors’ communal intentions can be a key factor in determining charitable credit received.

Although people may assume that low-warmth donors have self-interested motives, links between goods and communality may allow low-warmth donors who donate goods (compared to money or an unspecified donation) to more effectively signal communal intent, and ultimately, improve charitable credit.

### 1.2.2 Goods Signal Communal Intent

While the prosocial consumer behavior literature has distinguished between donations of money and time (Liu and Aaker 2008; Macdonnell and White 2015; Reed, Aquino, and Levy 2007), there is minimal work investigating goods donations. This gap is notable because donors frequently give in-kind donations of tangible goods such as medical supplies, food, water, and clothing (Charity Navigator 2017). Because of links between giving goods and communality, we propose that donating goods can increase the extent to which low-warmth donors’ contributions are viewed as communally motivated.

Giving goods is often the norm within social or communal interactions (Heyman and Ariely 2004), such as in the realm of gift giving (Cheal 1987; Douglas and Isherwood 1979). Exchanges of goods are considered appropriate within close social relationships whereas comparable exchanges of money are viewed as taboo within these relationships (Belk and Coon 1993; Webley et al. 1983). Although charities themselves tend to prefer monetary donations over other contributions because money is fully fungible and offers flexibility to cover a charity’s most pressing needs (Conan 2011), goods may be more consistent with psychological representations of communality and prosociality. The connection between goods and communality is further supported by research about incentives. In some cases, people are less
generous when a monetary incentive is offered for generous behavior compared to no incentive at all (Ariely, Bracha, and Meier 2007; Frey and Goette 1999), however, goods incentives such as T-shirts and lottery tickets, can have neutral or even positive effects on giving (Goette, Stutzer, and Frey 2010; Lacetera, Macis, and Slonim 2013).

Research in a similar vein suggests that goods effectively signal communal norms (Gasiorowska et al. 2016; Jiang, Chen, and Wyer 2014; McGraw and Tetlock 2005). When offered a monetary reward, participants report a lower likelihood of helping a friend when the reward is small than when it is large, a pattern consistent with exchange norms whereby effort corresponds with incentive size. When offered a reward of goods, however, participants report an equal (and high) likelihood of helping a friend regardless of reward size, a pattern of non-contingent helping that is consistent with communal norms (Clark and Mills 1979; 2011; Heyman and Ariely 2004). A related experiment by Kube and colleagues (2012) found that workers were more productive when given a small goods (vs. monetary) bonus by their employer. The authors concluded that employees responded favorably to the gift of goods because goods sent more credible signals of the employer’s caring and altruistic intent. Additional work on gift giving shows that although cash is often more valuable to recipients, gifts of goods can more effectively signal altruistic intent and yield higher esteem for the giver (Ellingsen and Johanneson 2011).

Due to differing inferences that arise from goods versus monetary transactions, low-warmth donors may boost signals of communal intent when they donate goods. Further, because goods donations signal positive regard for a recipient (Ellingsen and Johanneson 2011), goods donations may promote communal inferences above and beyond not only monetary donations, but unspecified donations as well.
1.2.3 Present Research

We predict that low-warmth donors, but not high-warmth donors, will receive greater credit for donating goods compared to money due to differing inferences about communal intent. Because of links between trait warmth and communal intentions (Fiske et al. 2007), and because perceptions of good intentions are critical for gaining credit from charitable giving (Barasch et al. 2014; Newman and Cain 2014), we first hypothesize that trait warmth will play an important role in how much credit a donor receives for giving. Further, we predict that high-warmth donors may receive high credit for generous acts regardless of the substance of that act; any prosocial act reinforces a prior belief that the high-warmth giver was acting with others’ welfare in mind, making donation type less influential. Low-warmth donors, by contrast, may comparatively struggle to receive credit because people doubt the benevolence of their intent (Figure 1.1, Conceptual Model Step 1: Charitable Credit for an Unspecified Donation).

Therefore, low-warmth donors may need to send stronger signals of their communal intent compared to their high-warmth counterparts in order to receive similar levels of charitable credit. Due to links between goods and communal norms, we predict that donations of goods (vs. money or unspecified donations) may allow low-warmth donors to strengthen the signal of their communal intent, and increase the amount of credit that they receive (Figure 1.1, Conceptual Model Step 2: Charitable Credit with Donation Type Specified).

**FIGURE 1.1**
CONCEPTUAL MODEL STEP 1: CHARITABLE CREDIT FOR AN UNSPECIFIED DONATION
Step 1: Conceptual model outlining the relationship between Donor Image, Judged Intent, and Charitable Credit based on generalized prosocial acts.

**CONCEPTUAL MODEL STEP 2: CHARITABLE CREDIT WITH DONATION TYPE SPECIFIED**

Step 2: Conceptual model outlining the relationship between the variables in Step 1 when Donation Type is specified.
1.2.4 Overview of Constructs and Studies

Throughout our research, we focus on three primary psychological constructs: trait warmth, communal intent, and charitable credit. First, the construct of warmth refers to a character trait regarding how friendly, trustworthy, and good-natured someone is (Fiske 1999). We propose that trait warmth is a key predictor of the influence of donation type on charitable credit. Second, communal (vs. exchange-based) intentions serve as our mediating variable. Judgments of communal, or other-regarding, intentions have been identified as feeding into judgments about generosity (Barasch et al. 2014). Finally, “charitable credit,” or image-related benefits that accrue due to a prosocial act (Lin-Healy and Small 2012; Newman and Cain 2014) serves as our primary dependent variable of interest. Charitable credit is conceptualized as the credit received when someone acts benevolently (Lin-Healy and Small 2012).

While all of these constructs are related, they also are clearly distinct from one another. Warmth refers to a broad and relatively stable trait-level evaluation of a person or organization. Communal intent, the proposed mediating construct, refers to perceptions of the donor’s motives behind the prosocial act, specifically the extent to which the generous act was done with the recipient’s welfare in mind. Although at times previous work uses warmth and communion interchangeably (e.g., Fiske et al. 2002), we distinguish here between a broad-level trait (warmth) and a judgment about the intentions that drive a particular act (communal intent). These two do not always match, as with our previous example of a parent providing for a child; a parent may be generally low-warmth, but provide for their child with only the child’s interests in mind, expecting nothing in return. Finally, charitable credit refers to the amount of credit or esteem a donor receives based on a particular prosocial act (though we note this does not necessarily change global trait perceptions of the donor; Lin-Healy and Small 2012). In the studies where these constructs are measured, we aim to specify in our measurement whether we
are asking participants to judge a stable trait (warmth), the motives behind the act (communal intent), or the generosity of the act (charitable credit). We also empirically distinguish these constructs in all studies in which they are measured via confirmatory factor analyses (all reported in appendix A).

Six studies in the main text, as well as eight additional studies reported in the appendix, test key pieces of our conceptual model. Study 1 establishes the relationship between warmth, communal intent, and the amount of credit a donor receives, showing that consumers grant more charitable credit to high-warmth donors compared to low-warmth donors for unspecified donations, even when they perceive the donations to have equal value. Studies 2A and 2B then demonstrate that low-warmth donors receive more credit for donating goods than equivalent monetary amounts or unspecified donations, and that this is due to differing perceptions of communal intent. Studies 3A and 3B, test the full conceptual model from Step 2 (Figure 1.1), finding that donor warmth moderates the increased credit for goods donations compared to monetary donations. When low-warmth donors give, they receive more credit for goods donations; when high-warmth donors give, they receive high charitable credit for all donation types. Finally, in Study 4, we show one way in which low-warmth donors can increase the charitable credit they receive for monetary donations (which charities typically prefer): low-warmth donors can frame their monetary donations communally, specifically, as a gift. Eight studies in the Appendix replicate these patterns and rule out alternative explanations.

Throughout these studies, we test multiple types of goods donations in addition to varying donation sizes. We also show this pattern when describing both corporate and individual donors. Further, the studies use multiple different manipulations of warmth —by considering
both characteristics of firms (caring vs. indifferent) and characteristics of individual donors (high vs. low-warmth professions).

1.3 Study 1: The Impact of Donor Warmth on Charitable Credit

Study 1 tests the relationship predicted by Step 1 of our conceptual model (Figure 1.1). We predict that low-warmth donors will be judged to have lower communal intent than high-warmth donors, and that this will result in less charitable credit for low-warmth (vs. high-warmth) donors. Previous research finds that for-profit companies tend to be viewed as low-warmth (Aaker et al. 2010), and, in this study the low-warmth donor is a for-profit company. Nevertheless, within companies judged warmth can still vary substantially, with some companies viewed as high-warmth (Kervyn et al. 2012). In the high-warmth condition, we describe the same company from the low-warmth condition, but portray the company as particularly high in warmth. Because in this study we are most interested in the general relationship between warmth, communal intent, and charitable credit, we do not specify donation type, however, donation type is a key element that we test in our remaining studies.

1.3.1 Methods

Pre-test Methods

For all studies in this article, sample size and exclusion criteria were determined ex ante. Based on the exclusion criteria, we analyzed data only from those participants who completed the study and passed an instructional attention check designed to identify inattentive participants (Goodman, Cryder, and Cheema 2013; Oppenheimer, Meyvis, and Davidenko 2009; appendix B for specific checks used in all studies). Following recommendations from Simmons, Nelson, and
Simonsohn (2012), we report all data exclusions, all manipulations, and all measures for all studies.

We first conducted a pre-test in which we recruited 109 Mechanical Turk participants, 91 of whom met our inclusion criteria ($M_{Age} = 34.89$, 52.75% female); nine participants were removed for failing to complete the study and nine for failing the attention check. In this pre-test, we manipulated donor warmth. In the low-warmth condition, participants read “Spades Hardware is a company that sells home improvement goods.” In the high-warmth condition, participants read, “Spades Hardware is a friendly company that sells home improvement goods. Spades Hardware is always warm and welcoming toward visitors.” Participants then rated the company on the six item perceived warmth scale (see correlational study in the introduction) with items presented in a randomized order.

Pre-test Results

The descriptions used in the pre-test successfully manipulated donor warmth. In the high-warmth condition Spades Hardware was rated as warmer ($M_{High-Warmth} = 5.98$, SD = 0.81) than in the low-warmth condition ($M_{Low-Warmth} = 4.53$, SD = 1.36, $t(89) = 6.14$, $p < .001$, $d = 1.30$).

Main Study Methods

We recruited 320 Mechanical Turk participants, 274 of whom met our inclusion criteria ($M_{Age} = 33.53$, 52.31% female); 28 participants were removed for failing to complete the study and 18 for failing the attention check. Using the same descriptions of the low- and high-warmth companies from our pre-test, participants in both conditions, then read about an unspecified donation, specifically that, “This past weekend Spades Hardware made a donation.”
In all conditions, participants indicated the charitable credit that they would award to the donating company. Specifically, participants were asked, “How favorably do you view Spades Hardware on the characteristics below as a result of their donation?” Participants rated to what extent they viewed the company as generous, helpful, and charitable as a result of their donation; participants also rated how beneficial they believed the company is and to what extent the company makes the world a better place as a result of their donation (1 = Not at all, 7 = Very much so; all items adapted from Lin-Healy and Small 2012; Newman and Cain 2014; appendix B for all measures). Although we originally anticipated that the measures of charitable descriptors (generous, helpful, and charitable; Lin-Healy and Small 2012) and charitable benefit (how beneficial they believed the donation was and to what extent the donor made the world a better place; Newman and Cain 2014) would assess distinct constructs, responses to all items loaded onto a single factor that was highly reliable (α = .86). Therefore, we combined all five items to create a single and comprehensive “charitable credit” measure, which we use throughout the paper.

To assess mediation of communal intent, we asked participants to rate the donor on the extent to which they signaled communal versus exchange-based intentions using the five item scale of communal intent described in the correlational study from this article’s introduction (see also appendix B). As a manipulation check, participants also rated the donor on trait warmth using the six item scale of warmth described in the introduction’s correlational study. Importantly, warmth judgments are often at odds with competence judgments; for example, while elderly individuals are viewed as high-warmth, they are also seen as low in competence; analogously, professionals are stereotyped to be low-warmth, but high in competence (Fiske et al. 2002). Additionally, perceived economic wealth correlates negatively with perceived warmth.
(Cuddy et al. 2008), which may affect judgments of the two donors. We therefore measured both competence and perceived wealth in this study to ensure that they did not account for any findings. Competence judgments were measured using the competence scale from Fiske et al. (2002), which included the following items: competent, confident, capable, efficient, intelligent, and skillful ($\alpha = .93$). We measured perceived wealth by asking, “How wealthy do you think Spades Hardware is?” (1=Not at all wealthy, 7=Extremely Wealthy).

Because the donor was a company, we measured purchase likelihood to gauge correspondence between charitable credit and consumer choices. Participants read: “Please rate how likely you would be to go to Spades Hardware next time you need home improvement goods” (1 = Not at all likely, 7 = Very likely). The order of all dependent measures was counterbalanced.

Finally, as a follow-up measure, we asked participants “How much would you estimate Spades Hardware's donation was worth?” to ensure that differences in donation value estimation did not account for any findings. Participants could enter any value that they wished.

Please see appendix A for factor analysis results for measures in all studies.

1.3.2 Results

Main Study Results

**Warmth Manipulation Check.** The manipulation check indicated that our manipulation was successful; the high-warmth company was rated as warmer ($M_{\text{High-Warmth}} = 5.79$, $SD = 0.87$) than the low-warmth company ($M_{\text{Low-warmth}} = 4.99$, $SD = 1.19$; $t(272) = 6.01$, $p < .001$, $d = .73$).
Charitable Credit. Participants awarded the high-warmth company more charitable credit ($M_{\text{High-warmth}} = 5.54, \ SD = 0.84$) than the low-warmth company ($M_{\text{Low-warmth}} = 5.21, \ SD = 1.07$; $t(272) = 2.80, \ p = .005, \ d = .32$).

Communal Intent. Participants also perceived the company which was explicitly described as warm to have higher communal intent ($M_{\text{High-warmth}} = 4.71, \ SD = 1.02$) than the low-warmth company ($M_{\text{Low-warmth}} = 4.24, \ SD = 1.09$; $t(272) = 3.66, \ p < .001, \ d = .44$).

Purchase Likelihood. Participants reported greater purchase likelihood for the high-warmth company ($M_{\text{High-warmth}} = 5.72, \ SD = 1.04$) than for the low-warmth company ($M_{\text{Low-warmth}} = 5.10, \ SD = 1.35$; $t(268) = 4.21, \ p < .001, \ d = .51$).

Competence. Participants perceived the high-warmth company as more competent ($M_{\text{High-warmth}} = 5.37, \ SD = 1.00$) than the low-warmth company ($M_{\text{Low-warmth}} = 4.94, \ SD = 1.19$; $t(272) = 3.24, \ p = .001, \ d = .39$).

Perceived Wealth. We found no difference in wealth perceptions between conditions ($M_{\text{High-warmth}} = 5.12, \ SD = 0.90$ vs. $M_{\text{Low-warmth}} = 5.04, \ SD = 1.10$; $t(269) = .65, \ p = .51$).

Estimated Donation Value. Using free response, participants estimated that the donation was worth a median value of $2,000 in both conditions (A Mann-Whitney test indicated that there was a non-significant difference between the two conditions; $U = 9288.50, \ Z = -.04, \ p = .97$). This implies that the donor warmth manipulation did not influence the perceived value of the donation.

Mediation. The mediation analysis showed that perceptions of communal intent mediated the effect of manipulated donor warmth on charitable credit. Using methods prescribed by Hayes (2013 – Model 4) we tested the significance of communal (vs. exchange) intent as the mediator by calculating standardized indirect effects for 5,000 bootstrapped samples and found that
communal intent mediates the effect of donor warmth on charitable credit (Indirect effect = 0.25; 95% CI [0.11, 0.39]; direct effect = 0.08; 95% CI [-0.11, 0.27]). This pattern remains significant when we control for competence and perceived wealth (indirect effect = 0.12; 95% CI [0.02, 0.23]; direct effect = 0.02; 95% CI [-0.15, 0.19]; figure 1.2). We also find that communal intent partially mediated the effect of donor warmth on purchase likelihood (appendix A).

**FIGURE 1.2**

Communal Intent

Donor Warmth → 0.47**

Charitable Credit ← 0.53***

Donor Warmth → 0.33** (0.08)

*Figure 1.2: The relationship between donor warmth and charitable credit for an unspecified donation, as mediated by communal intent.*

### 1.3.3 Discussion

Consistent with Step 1 of our conceptual model, this study finds that people ascribe charitable credit differently based on who a donor is. In our findings, a high-warmth company received greater charitable credit for a donation than a low-warmth company because donations from high-warmth donors are viewed as more communal.
These results set up our following studies, which test Step 2 of our conceptual model (Figure 1.1). Specifically, we first test whether goods donations increase the amount of credit that a low-warmth donor receives and second, we test how donor warmth interacts with donation type to influence the charitable credit a donor receives.

1.4 Study 2A: Corporate Donations of Goods receive more Credit

Study 2A begins to test Step 2 of our conceptual model (Figure 1.1) by testing whether consumers judge a low-warmth donor more favorably for a goods donation than for a monetary donation. We also include a control condition where the donation type is not specified. We use the same description of a for-profit company from the “low-warmth” condition in Study 1 to operationalize a low-warmth donor in this study.

1.4.1 Methods

We recruited 450 Mechanical Turk participants, 406 of whom met our inclusion criteria ($M_{Age} = 34.51, 40.25\%$ female); 30 participants were removed for failing to complete the study and 14 for failing the attention check. Participants read the same description of the donor from the “low-warmth” condition in Study 1: “Spades Hardware is a large corporation that sells home improvement goods.” Participants were assigned to one of three conditions: 1) Control condition – “This past weekend Spades Hardware donated to a food bank”, 2) Monetary donation condition – “This past weekend Spades Hardware donated $2,000 to a food bank”, or 3) Goods donation condition – “This past weekend Spades Hardware donated boxes of canned food to a food bank. (The donation cost the company $2,000 and it would have cost the food bank the
same amount to obtain those goods).” We did not include a donation value for the control condition, due to a concern that mentioning the value would lead participants to assume the company made a monetary donation. However, we described the donations in the other conditions to be worth $2,000 because that was the median estimated value of the unspecified donations in Study 1; we intended this value to approximate estimates of donation value for the control condition as well.

We included information about the cost for the company and value of the donation for the food bank in the goods condition to ensure that participants would not assume the actual value for the charity was greater than $2,000 when the company donated goods.

In all conditions, participants rated the company on the five item charitable credit scale. As in Study 1, we also measured purchase likelihood and asked participants in the control condition, “How much would you estimate Spades Hardware's donation was worth?” Participants could enter any value that they wished. Finally, we asked all participants “Who would get more canned food for $2,000?” 1) Spades Hardware, 2) The Food Bank, 3) They can get the same amount. This question was intended to confirm that participants did not assume that the donor could provide greater value by donating goods rather than money. (We note that in this initial test of the preference for goods donations from low-warmth donors, we did not measure communal intent, but do so in Studies 2B-4).

1.4.2 Results

Charitable Credit. Planned comparisons showed that participants awarded the company more charitable credit for donating goods ($M_{\text{Goods}} = 5.84, \text{SD} = .80$) than money ($M_{\text{Money}} = 5.48, \text{SD} = .92; t(270) = 3.48, p = .001, d = .42$), or for making an unspecified donation (control
condition); $M_{\text{control}} = 5.52$, $SD = .92$; $t(273) = 3.12$, $p = .002$, $d = .38$). There was no difference in charitable credit between the monetary and unspecified (control) donation condition ($t(263) = .31$, $p = .75$; Figure 1.3).

**FIGURE 1.3**
**STUDY 2A: CHARITABLE CREDIT AS A FUNCTION OF DONATION TYPE**

NOTE: Error bars represent standard errors of the mean

*Estimated Donation Value.* Using free response, participants in the control condition estimated that the donation was worth a median value of $1,000. This is lower than the value we used for the other two conditions, so as an additional test, we looked at only participants who gave estimates in the top 50% (Median = $5,000) and found that this group still rated the donating company as marginally significantly less charitable ($M_{\text{control}} = 5.62$, $SD = .86$) than those in the goods donation condition ($M_{\text{goods}} = 5.84$, $SD = .80$; $t(206) = 1.86$, $p = .065$),
suggesting that lower assumed donation values in the control (unspecified donation) condition do not account for the low levels of charitable credit in that condition.

**Purchase Likelihood.** Using planned comparisons, we found that participants indicated a non-significant, but directionally higher likelihood of purchasing from Spades Hardware when they donated goods ($M_{\text{Goods}} = 5.58, \ SD = .99$) compared to when they donated money ($M_{\text{Money}} = 5.37, \ SD = .95; t(268) = 1.76, p = .079$). There was a non-significant difference in purchase likelihood between the goods donation and the control (unspecified) donation conditions ($M_{\text{Control}} = 5.46, \ SD = .93; t(271) = .90, p = .37$) and between the monetary and control donation conditions ($t(263) = .77, p = .44$).

**Donation Value Inferences.** As a follow-up measure, participants in all conditions responded to the question “Who would be able to get the most canned food for $2,000”\textsuperscript{1}. 45.81\% of participants responded that the food bank would be able to buy more canned food with $2,000 and 48.28\% believed that the food bank and hardware store could acquire the same amount of canned food for that amount of cash. Only 5.91\% of participants believed that Spades Hardware would get the most bang for their buck. These patterns indicate that participants did not rate charitable credit higher for goods donations because they thought that the donor was able to acquire, and thus donate, more canned food than the charity could buy for the same amount. In fact, participants most frequently indicated that the charity could buy as much or more canned food as the donor, a pattern that is commonly true in the real world because nonprofits often receive discounts on the goods that assist their mission (Conan 2011; White 2015).
1.4.3 Discussion

Consistent with our conceptual model, we observe a significant increase in the charitable credit that a low-warmth donor receives when donating goods versus money. Further, we observe that the boost in charitable credit for goods donations not only occurs in comparison to a monetary donation, but also in comparison to an unspecified donation. An additional study (appendix C – Study 1) found that while a goods donation from a low-warmth donor garnered more charitable credit than a monetary donation, both donations received more credit than a control condition in which the company made no donation. These results suggest that, for low-warmth donors, donating goods results in a unique boost in charitable credit compared to other donation types, but that giving money also increases charitable credit compared to making no donation at all. In Study 2B, we test whether judgments about the communal nature of a goods donation is responsible for greater charitable credit received by low-warmth donors who give goods.

One challenge in designing this study was holding the perceived value of the donations equivalent across conditions. Although food banks tend to receive discounts on food products (Conan 2011), we were concerned that participants may believe the company could buy these goods more cheaply than the food bank, and would therefore think that the value of $2,000 worth of goods would be more than $2,000 cash for the food bank. However, the vast majority of participants believed the food bank could get the same amount if not more food than the hardware store for the amount of money given, yet, we still find the company receives greater credit for giving goods rather than their equivalent cash value. As an especially conservative test of the image benefits of goods donations (Appendix C, Study 2) we compared three donations in a three-cell between-subjects experiment: 1) a monetary donation of $1,000, 2) an equivalent
goods donation - $1,000 worth of canned food, and 3) a smaller goods donation - $900 worth of canned food. We found that both goods donations received higher charitable credit (and purchase likelihood) than the monetary donation, and the two goods donations were perceived as equally charitable. These results showed that the charitable credit benefits of goods donations still emerge even when the goods donation has a substantially lower value than the monetary donation. We conclude that the benefits of goods donations for low-warmth donors cannot be explained by higher interpreted financial value of goods donations.

Moving forward, in all studies, we continue to explicitly state a donation value in the goods condition that matches the donation amount in the monetary donation condition. Even though mentioning a monetary value has potential to dampen communality effects for goods transactions (Heyman and Ariely 2004), it is essential for us to hold donation value constant across conditions to ensure greater donation value is not inferred when donors give goods. Please also see appendix C, Study 3 for a description of an additional study that replicates these findings and compares a monetary donation to two goods donations, one with and one without a monetary value. While both goods donations were given more charitable credit than the monetary donation, this study finds that the effect is indeed stronger when the monetary value of a goods donation is absent.

1.5 Study 2B: Communal (vs. Exchange) Intentions as Mediator

Study 2B further explores consumer preferences for goods donations by low-warmth donors by testing mediating factors. We test whether goods versus monetary donations trigger inferences of communal versus exchange-based intentions, resulting in different levels of charitable credit.
We additionally test two other potential mediators behind the preference for corporate goods donations: perceptions of effort and sacrifice. Consumers may reasonably infer that companies exert more effort, more sacrifice, or both when donating tangible goods compared to simply writing a check to a charity (goods need to be chosen, procured, delivered, etc.). We therefore also measure and test perceived effort and sacrifice as potential contributors to the greater credit for goods donations by low-warmth donors.

1.5.1 Methods

For Study 2B, we recruited 240 Mechanical Turk participants, 212 of whom met our inclusion criteria ($M_{Age} = 32.93$, 53.7% female); 17 participants were removed for failing to complete the study and 11 for failing the attention check. Participants were randomly assigned to either a monetary donation or goods donation condition and read the following scenario: “Spades Hardware is a large corporation that sells home improvement goods. This past weekend, Spades Hardware made a donation of $1,000,000 ($1,000,000 worth of medical supplies) to humanitarian aid efforts.”

Participants next rated Spades Hardware on the charitable credit items from Study 1 (see also appendix B). To measure mediating factors, participants also rated Spades Hardware on the five item scale of communal intent described in the correlational study in this article’s introduction and Study 1 (see also appendix B).

We additionally measured perceived effort and sacrifice related to the donation. Participants were asked to what extent they agree with the following statements: “Spades Hardware put a lot of effort into this donation”, “Spades Hardware worked hard on this donation”, and “Spades Hardware put thought into this donation” (Bechwati and Xia 2003). We
evaluated perceived sacrifice by asking the extent to which participants agreed that “Spades Hardware sacrificed when making this donation” as well as asking “How big was Spades Hardware’s sacrifice when making this donation?” While we planned to test effort and sacrifice as separate constructs, these two potential mediators loaded onto a single factor that was highly reliable (α = .92), and therefore items were combined to create a single effort/sacrifice measure.

Finally, we measured purchase likelihood by asking participants, “How likely would you be to go to Spades Hardware next time you need home improvement goods?” (1 = not at all likely, 7 = very likely).

The order of all dependent measures was counterbalanced.

1.5.2 Results

Charitable Credit. In line with Study 2A, participants awarded the company more charitable credit when the company donated goods rather than money (M_{Goods} = 5.95, SD = .84 vs. M_{Money} = 5.65, SD = .90; t(210) = 2.55, p = .01, d = .35).

Purchase Likelihood. Participants reported a marginally higher likelihood of purchasing from the company following a goods donation (M_{Goods} = 5.49, SD = 1.13) rather than a monetary donation (M_{Money} = 5.23, SD = 1.12; t(208) = 1.70, p = .09, d = .24).

Communal Intent. Participants believed the company signaled communal (vs. exchange) intentions to a greater extent when they donated goods (in this case, medical supplies; M_{Goods} = 4.66, SD = 1.03) rather than money (M_{Money} = 4.34, SD = 1.23; t(210) = 2.07, p = .04, d = .29).

Effort/Sacrifice. There was a non-significant difference in perceived effort and sacrifice for donations of goods versus money (M_{Goods} = 5.04, SD = 1.36 vs. M_{Money} = 4.92, SD = 1.43; t(210) = .64, p = .52).
Mediation. The mediation analysis showed that perceptions of communal intent mediated the effect of donation type on charitable credit. Using methods prescribed by Hayes (2013 – model 4) we simultaneously tested the significance of both mediators by calculating standardized indirect effects for 5,000 bootstrapped samples and found that communal intent mediates the effect of donation type on charitable credit (Total indirect effect = 0.19; 95% CI [0.02, 0.36]; direct effect = 0.14; 95% CI [-0.04, 0.34]). We found a statistically significant indirect effect of perceived communal intent (0.15; 95% CI [0.01, 0.30]). The indirect effect of effort and sacrifice was not significant (0.04; 95% CI [-0.09, 0.17]; Figure 1.4).

**FIGURE 1.4**

![Diagram](image)

Figure 1.4: The relationship between donation type and charitable credit for a low-warmth donor as mediated by communal intent.
1.5.3 Discussion

Results from Study 2B show that differences in perceptions of communal intent based on goods versus monetary donations explain the effect of donation type on charitable credit for low-warmth donors. These results suggest that consumers judge that low-warmth donors who donate goods have communal intentions for doing so whereas low-warmth donors who donate money have relatively exchange-based intentions for doing so; this communal versus exchange signaling in turn influences on the charitable credit received. Perceived effort and sacrifice, although almost certainly important in assessments of many donations, did not significantly differ due to donation type in this scenario.

As a robustness check, we replicated these findings in an additional study (appendix C – Study 4). Participants imagined that a natural disaster impacted a neighboring town and Spades Hardware donated to the relief efforts. Participants read that the store donated either 1) $1,000, 2) $1,000 worth of food, or 3) $1,000 worth of lumber to the cause; the latter two conditions were both included to test whether the “fit” between the donation and the company matters. (For Spades Hardware, lumber was pre-tested as a substantially “higher fit” donation than food ($p < .001)). Once again in this study, companies that donated either type of goods received greater charitable credit ($M_{Food} = 5.76; M_{Lumber} = 5.54$) than the company that donated money ($M_{Money} = 5.19; t(177) = 3.34, p = .001; t(175) = 1.96, p = .05, respectively). There was no significant difference between the “high fit” and “low fit” goods conditions for charitable credit received ($t(178) = 1.46, p = .15$). In this study, both perceived communal intent and sacrifice/effort had significant and separate mediating effects; when simultaneously tested in the same mediation model, the two mediators fully accounted for the effect of donation type on charitable credit (Total indirect effect = 0.16; 95% CI [0.07, 0.26]; direct effect = 0.06; 95% CI [-0.05, 0.17]).
We also note that in this follow-up study, we tested a donation that was both relevant to the company, and thus potentially higher value to the charity when considering cost of goods (lumber from Spades Hardware) and, a donation that was somewhat irrelevant to the company and thus little benefit in terms of cost of goods (food from Spades Hardware). The finding that consumers considered both types of goods donations to be equally charitable when compared to each other, and both more charitable than the monetary donation, lead us to believe that consumers are not incorporating potential increases in financial benefit to the charitable cause when companies donate wholesale goods.

Results from Study 2B demonstrate support for the mediating role of communal intent for this pattern; in the follow-up study, effort and sacrifice simultaneously mediated the effect of donation type on charitable credit alongside communal intent. Taken together, we interpret these mediation results to mean that increased perceptions of effort and sacrifice can contribute to increased charitable credit for goods donations, however, even when goods donations do not increase perceptions of effort and sacrifice (as in the main Study 2B), judgments of communal intent can drive the overall effect.

In addition to providing insight about process, these studies also provide evidence about the robustness of the preference for goods donations by low-warmth donors by testing two new contexts (humanitarian aid efforts and a sudden disaster) and two new donations (medical supplies and lumber). We conclude that the increased credit given to low-warmth donors for donations of goods is not limited to a particular type of cause or specific type of goods donation.

1.6 Studies 3A and 3B: The Interaction of Donor Warmth and Donation Type
Studies 3A and 3B were designed to test the full conceptual model (Figure 1.1; step 2), incorporating the moderating role of warmth in the preference for goods donations. In an early study for this project (appendix C – Study 5), we measured perceptions of charitable credit for a donation of either money or goods by two types of donors: a low-warmth for-profit company (Spades Hardware) and a high-warmth family (the Jones Family). We observed a significant interaction between donor warmth and donation type; the (low-warmth) company received more credit for a donation of goods than the monetary donation, while the (high-warmth) family received more credit for a donation of money. Although these results are consistent with the conceptual model, there are many differences between companies and families besides perceived warmth. In studies 3A and 3B, we attempt to build on this initial result and more precisely manipulate warmth.

Thus far we have relied on for-profit companies as the operationalization of a low-warmth donor. In Study 3A, we describe individual donors, and manipulate whether they are high- versus low-warmth. Past research shows that certain groups of individuals who tend to be viewed as subordinate and noncompetitive, for example elderly individuals and homemakers, tend to be viewed as high-warmth (Cuddy et al. 2004). In contrast, those who are high in status and/or competitive, for example, educated individuals, tend to be viewed as low-warmth (Fiske et al. 2002). Previous research examines warmth and competence perceptions of individuals in a variety of professions and found that people’s perceived warmth varies significantly based on their profession (Imhoff et al. 2013). Based on this literature we operationalized a high-warmth donor as a nursery school teacher and a low-warmth donor as a corporate manager in Study 3A. We hypothesized that, consistent with our conceptual model, low-warmth donors will receive more charitable credit for goods donations due to increased perceptions of communal intent.
whereas high-warmth donors will receive high charitable credit regardless of donation type (because of high communal intent inferred across donation type). Because, as in Study 1, the high-warmth and low-warmth donors may vary in perceived competence and wealth, we measure those factors as well to ensure that they do not account for any findings.

1.7 Study 3A: The Moderating Role of Warmth – Individual Donors

1.7.1 Methods

Pre-test Methods

We recruited 110 Mechanical Turk participants, 105 of whom met our inclusion criteria ($M_{Age} = 35.63$, 50% female); three participants were removed for failing to complete the study and two for failing the attention check. In this pre-test, we manipulated donor warmth. In a high-warmth condition, participants read “Heather is a 41-year-old nursery school teacher.” In the low-warmth condition, participants read, “Heather is a 41-year-old corporate manager.” Participants were then asked to rate the target on the six item perceived warmth scale (correlational study in the introduction) with items presented in a randomized order.

Pre-test Results

The descriptions in the pre-test successfully manipulated donor warmth. Heather the nursery school teacher was rated as significantly warmer ($M_{High-Warmth} = 5.70$, $SD = .90$) than Heather the corporate manager ($M_{Low-Warmth} = 4.30$, $SD = 1.09$, $t(103) = 7.15$, $p < .001$, $d = 1.40$).

Main Study Methods
We recruited 675 Mechanical Turk participants, 599 of whom met our inclusion criteria ($M_{age}=35.75$, 60.77% female); 39 participants were removed for failing to complete the study and 37 for failing the attention check.

As in the pre-test, participants in the high-warmth [low-warmth] condition, read the following donor descriptions “Heather is a 41-year-old nursery school teacher [corporate manager]. Participants were then informed that this past weekend, Heather contributed either 1) a monetary donation – “$100” or 2) a goods donation – “$100 worth of canned food” to her local food bank.

We measured charitable credit, communal intent, perceived effort/sacrifice, and trait warmth (as a manipulation check). In addition, due to potential differences in perceived competence and wealth for high-warmth and low-warmth donors, we also measured these factors to ensure that they did not account for any findings. The order of all dependent measures was counterbalanced (appendix B).

### 1.7.2 Results

Main Study Results

**Warmth Manipulation Check.** The high-warmth individual was perceived as significantly warmer ($M_{High-Warmth} = 6.01$, SD = .88) than the low-warmth individual, ($M_{Low-Warmth} = 5.58$, SD = .93; $t(596) = 5.78$, $p < .001$, $d = .23$). Based on a 2 x 2 ANOVA, we found a main effect of the warmth manipulation on perceived warmth ($F(1, 598) = 33.63$, $p < .001$); donation type did not exert a significant main effect on warmth ($F(1, 598) = .11$, $p = .74$). We observed a marginally significant interaction between donation type and manipulated donor warmth on measured warmth ($F(1, 598) = 3.67$, $p = .06$; please also see a similar analysis in Study 3B).
Charitable Credit. We observed a significant main effect of donor type on charitable credit; the high-warmth individual received more charitable credit for her donation than the low-warmth individual ($F(1, 599) = 41.70, p < .001, \eta^2_p = .07$). Donation type also had a significant main effect; donations of goods received more credit than donations of money ($F(1, 599) = 5.78, p = .017, \eta^2_p = .01$). Most importantly, the 2 x 2 ANOVA revealed a significant interaction between donation type (goods/money) and donor warmth (low-warmth/high-warmth; ($F(1, 599) = 5.29, p = .022, \eta^2_p = .01$). Specifically, the low-warmth donor received more charitable credit for a goods donation than a monetary donation ($M_{Goods} = 5.75, SD = 1.00$ vs. $M_{Money} = 5.37, SD = 1.24; t(304) = -2.96, p = .003, d = .17$). The high-warmth donor, however, received equal (and high) credit for both goods and monetary donations ($M_{Goods} = 6.09, SD = .98$ vs. $M_{Money} = 6.08, SD = .85; t(291) = -0.09, p = .93$; Figure 1.5).

**FIGURE 1.5**
STUDY 3A: CHARITABLE CREDIT FOR INDIVIDUAL DONORS AS A FUNCTION OF DONOR WARMTH AND DONATION TYPE
NOTE: Error bars represent standard errors of the mean

*Communal Intent.* The donor warmth manipulation had a significant main effect on communal intent; overall the high-warmth donor’s intent was perceived to be more communal than the low-warmth donor’s intent ($F(1, 599) = 32.35, p < .001, \eta^2_p = .05$). Donation type had a non-significant main effect; ($F(1, 599) = 2.50, p = .11$). Further, the 2 x 2 ANOVA revealed a marginally significant interaction between donation type (goods/money) and donor warmth (low-warmth/high-warmth; $F(1, 599) = 3.39, p = .066, \eta^2_p = .01$) on communal intent. For the low-warmth donor, a goods donation produced significantly higher perceptions of communal intent than a monetary donation ($M_{\text{Goods}} = 5.70, \text{SD} = .98$ vs. $M_{\text{Money}} = 5.42, \text{SD} = 1.25$; $t(304) = -2.20$, $p = .027$, $d = .12$). There was no difference in perceptions of communal intent by donation type for the high-warmth donor ($M_{\text{Goods}} = 6.05, \text{SD} = .90$ vs. $M_{\text{Money}} = 6.02, \text{SD} = .90$; $t(291) = .21, p = .84$).

*Effort/Sacrifice.* The donor warmth manipulation had a significant main effect on perceived effort and sacrifice; overall the high-warmth individual was seen as putting in more effort than the low-warmth individual ($F(1, 599) = 77.09, p < .001, \eta^2_p = .12$). Donation type, however, did not show a significant main effect; donations of goods and money were viewed as equally effortful ($F(1, 599) = .26, p = .61$). There was a non-significant interaction between donation type and donor warmth on effort/sacrifice, ($F(1, 599) = 1.97, p = .16$). There was no significant difference in perceptions of effort and sacrifice by donation type for the low-warmth individual ($M_{\text{Goods}} = 4.43, \text{SD} = 1.29$ vs. $M_{\text{Money}} = 4.25, \text{SD} = 1.23$; $t(304) = -1.26, p = .21$), nor was there a significant difference in effort perceptions for the high-warmth individual ($M_{\text{Goods}} =5.13, \text{SD} = 1.10$ vs. $M_{\text{Money}} = 5.22, \text{SD} = 1.00$; $t(291) = .70, p = .49$).
Competence. There was a non-significant main effect of manipulated donor warmth on perceived competence ($F(1, 596) = 2.61, p = .11$) and a non-significant main effect of donation type on perceived competence ($F(1, 596) = 0.23, p = .63$). The interaction between donor warmth and donation type on competence was also not significant, ($F(1, 596) = .07, p = .79$).

Perceived Wealth. The donor warmth manipulation had a significant main effect on perceived wealth; the high-warmth individual was assumed to be less wealthy than the low-warmth individual ($F(1, 579) = 197.60, p < .001, \eta^2_p = .26$). Donation type also had a significant main effect on perceived wealth ($F(1, 579) = 6.49, p = .011, \eta^2_p = .01$). There was a non-significant interaction between donor warmth and donation type on perceived wealth, ($F(1, 579) = 1.47, p = .23$).

Moderated Mediation. We conducted a moderated mediation analysis (Hayes 2013-model 8) to test the predicted relationship of donation type by low or high-warmth donors on charitable credit, simultaneously testing both communal intent and effort/sacrifice as mediators. We tested the significance of both mediators by calculating standardized indirect effects for 5,000 bootstrapped samples and found that the model mediates the effect of donation type on charitable credit (direct effect = 0.07; 95% CI [-0.01, 0.26]). More specifically, we found that donation type produced an indirect effect of communal intent on charitable credit that was conditional on individual warmth, but found no indirect effect of effort/sacrifice. As hypothesized, inferences about communal intent mediated the effect of donation type on charitable credit for the low-warmth individual (indirect effect = 0.12 (95% CI [0.02, 0.26])), but not for the high-warmth individual (indirect effect = -0.01 (95% CI [-0.10, 0.08])). Effort and sacrifice did not mediate the effect for the low-warmth individual (indirect effect = 0.05, 95% CI [-0.03, 0.14]), nor for the high-warmth individual (indirect effect = 0.02, 95% CI [-0.09, 0.04]).
The index of moderated mediation was not significant at the 95% level of confidence. However, at the 90% level of confidence, the index of moderated mediation was significant for communal intent (Index = -.13 (90% CI [-0.27, -0.02]) but not for effort/sacrifice (Index = -.07 (90% CI [-0.16, 0.01]). We find a similar and significant pattern of results when controlling for both competence and perceived wealth (appendix A). Please see table 1 for descriptive results for all dependent variables measured in studies 3A and 3B.

## TABLE 1.1
STUDY 3A AND 3B RESULTS

<table>
<thead>
<tr>
<th>Study 3A Donor Warmth Condition</th>
<th>Donor Warmth</th>
<th>Donation Type</th>
<th>Charitable Credit</th>
<th>Communal Intent</th>
<th>Effort/Sacrifice</th>
<th>Warmth</th>
<th>Purchase Likelihood</th>
<th>Competence</th>
<th>Perceived Wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Warmth</td>
<td>Money</td>
<td>5.37 (1.24)</td>
<td>5.42 (1.25)</td>
<td>4.25 (1.23)</td>
<td>5.52 (.95)</td>
<td>5.32 (.95)</td>
<td>4.83 (.85)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goods</td>
<td>5.75** (.00)</td>
<td>5.70* (.98)</td>
<td>4.43 (1.29)</td>
<td>5.64 (.91)</td>
<td>5.26 (1.12)</td>
<td>4.94 (.92)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Warmth</td>
<td>Money</td>
<td>6.08 (.85)</td>
<td>6.05 (.90)</td>
<td>5.22 (1.00)</td>
<td>6.09 (.83)</td>
<td>5.16 (1.06)</td>
<td>3.52 (1.22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goods</td>
<td>6.09 (.80)</td>
<td>6.02 (.90)</td>
<td>5.13 (1.10)</td>
<td>5.92 (.92)</td>
<td>5.14 (1.16)</td>
<td>3.84* (1.11)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study 3B Donor Warmth Condition</th>
<th>Donor Warmth</th>
<th>Donation Type</th>
<th>Charitable Credit</th>
<th>Communal Intent</th>
<th>Effort/Sacrifice</th>
<th>Warmth</th>
<th>Purchase Likelihood</th>
<th>Competence</th>
<th>Perceived Wealth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Warmth</td>
<td>Money</td>
<td>4.77 (1.21)</td>
<td>4.02 (1.31)</td>
<td>3.48 (1.44)</td>
<td>3.92 (1.41)</td>
<td>4.23 (1.59)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goods</td>
<td>5.05† (1.23)</td>
<td>4.37* (1.33)</td>
<td>3.94** (1.40)</td>
<td>4.07 (1.36)</td>
<td>4.54† (1.49)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Warmth</td>
<td>Money</td>
<td>5.77 (1.00)</td>
<td>5.15 (0.86)</td>
<td>4.81 (1.17)</td>
<td>5.97 (1.09)</td>
<td>5.81 (1.11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goods</td>
<td>5.89 (0.86)</td>
<td>5.25 (1.19)</td>
<td>4.89 (1.21)</td>
<td>6.08 (0.87)</td>
<td>5.82 (1.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

† p<.10, *p < .05, **p < .01; these significance notations refer to differences in mean evaluations for monetary donations compared to goods donations with standard deviations in
parentheses. A ° symbol next to the variable name indicates that there is a significant interaction between donor warmth and donation type on this variable at a p < .05 level.

1.7.3 Discussion
Results from Study 3A replicate the pattern of preferences from Studies 2A and 2B for donations of goods, but only when the donor is perceived as low-warmth. In contrast to low-warmth donors who receive more credit for goods donations, high-warmth donors receive the same amount of (high) charitable credit regardless of donation type. This pattern provides insight into the role of warmth in the preference for donations of goods (vs. money); when perceived warmth is high, communal intentions are assumed and are less likely to fluctuate based on the donation’s substance. When perceived warmth is low, however, judgments of communal intent are more sensitive to donation type; specifically, low-warmth donors receive a boost in charitable credit for goods donations.

1.8 Study 3A: The Moderating Role of Warmth – Corporate Donors

In Study 3B, we aim to replicate the patterns from Study 3A when studying corporate donors and using a new, and more direct, manipulation of warmth.

1.8.1 Methods

Pre-test Methods

We first conducted a pre-test in which we recruited 120 Mechanical Turk participants, 102 of whom met our inclusion criteria (M Age = 34.96, 56% female); 13 participants were removed for failing to complete the study and five for failing the attention check. In this pre-test,
we manipulated company warmth using a manipulation similar to the one used in Study 1. In a high-warmth condition, participants read “Spades Hardware is a small, friendly hardware store that is always competent and also warm and welcoming toward visitors.” In the low-warmth condition, participants read, “Spades Hardware is a small, corporate hardware store that is always competent though also cold and indifferent toward visitors.” Participants then rated the company on the six items from the perceived warmth scale used in Study 3A, presented in a randomized order.

Pre-test Results

The descriptions used in the pre-test successfully manipulated donor warmth. The high-warmth donor was rated as warmer ($M_{\text{High-Warmth}} = 6.07, \text{SD} = .94$) than the low-warmth donor ($M_{\text{Low-Warmth}} = 3.42, \text{SD} = 1.46, t(99) = 10.69, p < .001, d = 2.15$).

Main Study Methods

For Study 3B, we recruited 615 Mechanical Turk participants, 565 of whom met our inclusion criteria ($M_{\text{Age}} = 35.14, 58\%$ female); 34 participants were removed for failing to complete the study and 16 for failing the attention check. The study used a 2 (donor warmth: high, low) x 2 (donation type: $\$1000$, canned food worth $\$1000$) between-subjects experimental design. For the low-warmth and high-warmth conditions, Spades Hardware was described in the same way as in the pre-test. Then, participants were told that the company donated either “$1,000” or “canned food worth $1,000” to their local food bank. Participants also rated the company on the five item scale of charitable credit to measure how favorably they viewed the company after the donation. In addition, participants rated the company on the five item scale of
communal intent and the effort/sacrifice scale from Study 2; patterns from these measures are reported in Table 1.1. As a manipulation check, trait warmth assessments were again collected. Participants also reported purchase likelihood for Spades Hardware. The order of all dependent measures was counterbalanced.

1.8.2 Results

Main Study Results

Warmth Manipulation Check. The high-warmth company was perceived as warmer ($M_{\text{High-Warmth}} = 6.02, SD = .99$) than the low-warmth company ($M_{\text{Low-Warmth}} = 3.99, SD = 1.39$; $t(563) = 20.06, p < .001, d = 1.69$). When testing a 2 X 2 ANOVA, we observed a main effect of the warmth manipulation on perceived warmth ($F(1, 561) = 402.33, p < .001, \eta^2_p = .42$). Looking at additional patterns, we observe that donation type did not have a main effect on measured warmth ($F(1, 561) = 1.82, p = .18$) nor did we observe an interaction between donation type and manipulated donor warmth on measured warmth ($F(1, 561) = 0.06, p = .80$). Similar to Study 3A, these patterns suggest that the warmth construct is a relatively stable trait that is minimally influenced by donation type from any one donation, exhibiting distinct patterns compared to the other constructs under study such as communal intent and charitable credit.

Charitable Credit. The warmth manipulation had a significant main effect; overall the high-warmth company received more charitable credit for their donation than the low-warmth company ($F(1, 563) = 102.2, p < .001, \eta^2_p = .15$). Donation type did not show a significant main effect ($F(1, 561) = 0.66, p = .42$). Most importantly, the 2 x 2 ANOVA revealed a significant interaction between donation type (money/goods) and donor image (low-warmth/high-warmth), ($F(1, 561) = 4.65, p = .03, \eta^2_p = .01$). In line with the previous findings, when the company was
described as low-warmth, they received a marginally significant increase in charitable credit for a goods donation ($M_{\text{Goods}} = 5.05, \ SD = 1.23$) compared to an equivalent monetary donation ($M_{\text{Money}} = 4.77, \ SD = 1.21; t(274) = 1.92, \ p = .056, \ d = .23$). However, when the company was described as having a high-warmth image, there was a non-significant difference in charitable credit between donation types ($M_{\text{Goods}} = 5.77, \ SD = 1.00 \ vs. \ M_{\text{Money}} = 5.89, \ SD = .86; t(287) = -1.08, \ p = .28$; Figure 1.6).

**FIGURE 1.6**

EXPERIMENT 3B: CHARITABLE CREDIT AS A FUNCTION OF DONOR WARMTH AND DONATION TYPE

![Graph showing charitable credit as a function of donor warmth and donation type](image)

**NOTE:** Error bars represent standard errors of the mean

*Communal Intent.* The donor manipulation had a significant main effect on communal intent; the high-warmth company’s donation was perceived as more communal than the low-warmth company’s donation ($F(1, 561) = 93.86, \ p < .001, \ \eta^2_p = .14$). Donation type also had a significant main effect; goods donations were seen as more communal than donations of money.
However, in this study we did not find a significant interaction between donation type (money/goods) and donor warmth (low-warmth/high-warmth; $F(1, 561) = 1.66, p = .198$. For the low-warmth company, a donation of goods produced significantly higher perceptions of communal intent ($M_{Goods} = 4.37, SD = 1.33$ vs. $M_{Money} = 4.02, SD = 1.31$; $t(274) = 2.21, p = .028, d = .27$). There was no difference in perceptions of communal intent by donation type for the high-warmth company ($M_{Goods} = 5.25, SD = 1.19$ vs. $M_{Money} = 5.15, SD = 1.12$; $t(287) = .75, p = .45$).

**Effort/Sacrifice.** The donor warmth manipulation had a significant main effect on perceived effort and sacrifice; the high-warmth company was seen as putting in more effort than the low-warmth company ($F(1, 561) = 108.70, p < .001, \eta^2_p = .16$). Furthermore, there was a marginally significant main effect of donation type; the donation of goods was viewed as marginally more effortful than the donation of money ($F(1, 561) = 2.80, p = .095$). We also observed a significant interaction between donation type and donor warmth ($F(1, 561) = 5.90, p < .02, \eta^2_p = .01$). There was a significant difference in perceptions of effort and sacrifice by donation type for the low-warmth company ($M_{Goods} = 3.94, SD = 1.44$ vs. $M_{Money} = 3.48, SD = 1.39$; $t(274) = 2.71, p = .007, d = .33$), and we did not observe a difference in effort perceptions for the high-warmth company ($M_{Goods} = 4.81, SD = 1.17$ vs. $M_{Money} = 4.89, SD = 1.21$; $t(287) = .55, p = .58$).

**Moderated Mediation.** We conducted a moderated mediation analysis (Hayes 2013-model 8) to test the predicted relationship of donation type by low or high-warmth companies on charitable credit received, with communal intent and effort/sacrifice simultaneously tested as mediators. By calculating standardized indirect effects for 5,000 bootstrapped samples, we found an indirect effect of both communal intent and effort/sacrifice conditional on company warmth
when tested simultaneously. As hypothesized, inferences about communal intent mediated the effect of donation type on charitable credit for the low warmth company (indirect effect = 0.12 (95% CI [0.02, 0.22])), but not the high-warmth company (indirect effect = 0.03 (95% CI [-0.05, 0.12])). Likewise, effort and sacrifice mediated the effect for the low-warmth company (indirect effect = 0.16 (95% CI [0.05, 0.29])), but not for the high-warmth company (indirect effect = -0.03 (95% CI [-0.13, 0.07])). The index of moderated mediation was not significant at the 95% level of confidence. However, at the 90% level of confidence, the index of moderated mediation was significant for both communal intent (Index = -.08 (90% CI [-0.19, -.02]) and for effort/sacrifice (Index = -.19 (90% CI [-0.32, -0.06]).

*Purchase Likelihood.* A similar, although non-significant pattern emerged for purchase likelihood. For the low-warmth company, participants reported a marginally significantly higher likelihood of purchasing when they read about a goods donation ($M_{Goods} = 4.54$, SD = 1.49) than a monetary donation ($M_{Money} = 4.23$, SD = 1.59; $t(274) = 1.66, p = .097$), whereas donation type had no effect on purchase likelihood for the high-warmth company ($M_{Goods} = 5.82$, SD = 1.08 vs. $M_{Money} = 5.81$, SD = 1.11; $t(287) = .04, p = .97$). While the pattern was consistent with the charitable credit dependent variable, the interaction between donation type (goods/money) and company image (low-warmth/high-warmth) was not significant ($F(1, 561) = 1.80, p = .18$).

**1.8.3 Discussion**

Results from Study 3B replicate the pattern observed in Study 3A; people prefer donations of goods from low-warmth donors, but do not show this preference for high-warmth donors. Judgments of communal intentions mediate this pattern, and in this study, effort and sacrifice also simultaneously mediated this effect.
In two additional studies (for full results see appendix C – Studies 6 and 7), we replicate these patterns. In appendix study 6, we manipulate perceived warmth by using two real-world companies: a company that is perceived as relatively low in warmth, Pepsi Co., and a company selling similar products that is perceived as relatively high-warmth, Bolthouse Farms. In this study, there was a significant interaction between donor warmth and donation type on charitable credit \((F(1, 471) = 6.50, p = .01, \eta^2_p = .02)\). Pepsi (low-warmth) received more charitable credit (measured on a 1-5 scale in this study) when donating goods compared to money \((M_{\text{Goods}} = 3.41, SD = 0.87, M_{\text{Money}} = 3.05, SD = .95; t(226) = 2.98, p =.002, d = .40)\), whereas Bolthouse Farms (high-warmth) received equal (high) amounts of charitable credit for both donation types \((M_{\text{Goods}} = 3.97, SD = 0.74 \text{ vs. } M_{\text{Money}} = 3.98, SD = .67; t(246) = .20, p =.84)\). We found the same pattern for purchase likelihood.

Due to the many potential differences besides perceived warmth between the individuals in Study 3A (nursery school teacher and corporate manager), in appendix study 7, we also tested an additional manipulation of warmth that described an individual donor as warm versus cold (in a manipulation similar to Study 3B). We found the same pattern of results using this manipulation. There was a significant interaction between donor warmth and donation type on charitable credit \((F(1, 718) = 4.95, p < .03, \eta^2_p = .01)\). The low-warmth individual received more charitable credit when donating goods compared to money \((M_{\text{Goods}} = 5.28, SD = .97 \text{ vs. } M_{\text{Money}} = 4.91, SD = 1.09; t(351) = 3.32, p < .001, d = .35)\). The high-warmth individual donor, however, received equal (high) credit for donations of money and goods \((M_{\text{Goods}} = 6.10, SD = .72 \text{ vs. } M_{\text{Money}} = 6.02, SD = 0.72; t(367) = .94, p = .35)\).

Studies 3A and 3B and their replication studies show that when a donor is viewed as low-warmth, they receive more charitable credit for a goods donation than for equivalent monetary
donations. However, donors who are seen as high in warmth do not show this effect; they receive equal (and high) charitable credit for donations of money or goods. This pattern fits with the notion that judgments of warmth are used to predict intentions, with greater warmth indicating that an actor has better, or more communal, intentions (Fiske et al. 2002). When warmth is low, goods donations can send an additional signal of communal intent, boosting charitable credit received.

1.9 Study 4: Monetary Donations can be Communal

The preference for goods donations from low-warmth donors documented in Studies 1-3B is somewhat unfortunate because for many charities, monetary donations are superior to equivalent in-kind or goods donations. Monetary contributions are typically preferred because cash donations provide charities with the flexibility to purchase exactly what they need when they need it, reducing waste from unneeded or untimely goods donations (Charity Navigator 2017; Conan 2011; USAID 2017).

In Study 4, we test whether framing a monetary donation as communal increases charitable credit for low-warmth donors in an analogous way to goods donations. We specifically test whether framing a monetary donation as a gift increases perceptions of communal intent, and subsequently, charitable credit. As opposed to other commodity exchanges, gifting is valued as a symbolic gesture of caring and commitment (Belk and Coon 1993). If money can be described as a gift in a compelling way, it has the potential to be seen as more communal and creditworthy.
1.9.1 Methods

We recruited 650 Mechanical Turk participants, 567 of whom met our inclusion criteria ($M_{age} = 34.24$, 61.85% female); 56 participants were removed for failing to complete the study and 27 for failing the attention check. The study included a 2(Donation type: Goods vs. Money) x 2(Communal frame: Control vs. Communal (Gift)) between-subjects experimental design. In all conditions, participants read about the low-warmth donor Spades Hardware. They read that “Spades Hardware is a large corporation that sells home improvement goods.” They then read either 1) Money condition – “This past weekend, Spades Hardware donated $10,000 to a humanitarian aid charity. (The charity purchased medical supplies with the $10,000)” or 2) Goods condition – “This past weekend, Spades Hardware donated **medical supplies** (worth a total of $10,000) to a humanitarian aid charity.” In the communal frame conditions, participants also read that “The company carefully packaged the gift of $10,000 [medical supplies] and hand-delivered it.” (We note that in this study, even in the monetary donation conditions we explained that the donation was ultimately used for medical supplies to hold information about donation use constant across conditions).

We measured charitable credit, purchase likelihood, warmth, communal intent, and effort/sacrifice. The order of all measures was counterbalanced.

1.9.2 Results

*Charitable Credit.* The framing manipulation had a significant main effect; the company whose donation was framed as a gift received more charitable credit than did the company whose donation was not framed as a gift ($F(1, 562) = 7.65$, $p < .01$, $\eta^2_p = .01$). There was also a
significant main effect for donation type; goods donations increased charitable credit ($F(1, 562) = 6.81, p < .01, \eta^2_p = .01$). Most importantly, the 2 x 2 analysis of variance revealed a significant interaction between donation type (goods/money) and the communal frame, ($F(1, 562) = 18.01, p < .001, \eta^2_p = .03$). In the control condition, the low-warmth donor received more charitable credit for a goods donation ($M_{\text{Goods}} = 5.85, \text{SD} = .65$) than an equivalent monetary donation ($M_{\text{Money}} = 4.36, \text{SD} = .85; t(277) = 5.33, p < .001, d = .64$). However, when the donation was framed communally, the low-warmth donor received equal credit for both donation types ($M_{\text{Goods}} = 5.73, \text{SD} = .95$ vs. $M_{\text{Money}} = 5.86, \text{SD} = .84; t(285) = 1.20, p = .23$; Figure 1.7).

**FIGURE 1.7**

**EXPERIMENT 4: CHARITABLE CREDIT AS A FUNCTION OF COMMUNAL FRAMING AND DONATION TYPE**

NOTE: Error bars represent standard errors of the mean

*Communal Intent.* The communal frame had a significant main effect on communal intent; overall the donation described as a gift was viewed as more communal than the Control
condition counterpart ($F(1, 561) = 23.36, p < .001, \eta^2_p = .04$). Donation type had a marginally significant effect; goods donations were seen as marginally more communal than donations of money ($F(1, 561) = 2.91, p = .09, \eta^2_p = .01$). There was also a significant interaction between donation type (goods/money) and the communal frame ($F(1, 561) = 4.05, p < .05, \eta^2_p = .01$). In the control frame, a donation of goods versus money produced significantly higher perceptions of communal intent ($M_{\text{Goods}} = 4.72, \text{SD} = .88$ vs. $M_{\text{Money}} = 4.39, \text{SD} = 1.02; t(275) = 2.94, p < .01, d = .35$). There was no difference in perceptions of communal intent in the communal frame condition ($M_{\text{Goods}} = 4.97, \text{SD} = 1.19$ vs. $M_{\text{Money}} = 4.99, \text{SD} = 1.13; t(286) = -.18, p = .86$).

**Effort/Sacrifice.** The gift-giving manipulation had a significant main effect on perceived effort and sacrifice; the communal frame increased perceptions of effort and sacrifice compared to the control frame ($F(1, 560) = 18.78, p < .001, \eta^2_p = .03$). Donation type also showed a significant main effect; donations of goods were viewed as more effortful ($F(1, 560) = 5.28, p = .022, \eta^2_p = .01$). However, we did not observe a significant interaction between donation type and the communal frame ($F(1, 560) = .13, p = .72$). There was no difference in perceptions of effort and sacrifice by donation type for the control condition ($M_{\text{Goods}} = 4.67, \text{SD} = .99$ vs. $M_{\text{Money}} = 4.49, \text{SD} = 1.11; t(275) = 1.44, p = .15$), and there was a marginally significant difference in effort perceptions for the communal-frame (gift) condition ($M_{\text{Goods}} = 5.10, \text{SD} = 1.16$ vs. $M_{\text{Money}} = 4.86, \text{SD} = 1.21; t(285) = 1.71, p = .09$).

**Purchase Likelihood.** There was a significant main effect of the donor manipulation on purchase likelihood; overall participants were more likely to purchase from the company whose donation was framed communally ($F(1, 555) = 4.60, p = .03, \eta^2_p = .01$). Donation type also had a significant main effect; donations of goods led to higher purchase likelihood ($F(1, 555) = 7.24, p < .01, \eta^2_p = .01$). There was a marginally significant interaction between donation type and the
gift-giving manipulation on purchase likelihood \((F(1, 555) = 3.53, p = .06, \eta^2_p = .01)\). In the control frame condition, participants were more likely to purchase from Spades Hardware after a donation of goods \((M_{\text{Goods}} = 5.60, \text{SD} = .91)\) versus money \((M_{\text{Money}} = 5.20, \text{SD} = 1.05); t(271) = 3.40, p < .001, d = .41\). By contrast, in the communal frame condition, we found no difference in purchase intentions based on donation type \((M_{\text{Goods}} = 5.60, \text{SD} = 1.06 \text{ vs. } M_{\text{Money}} = 5.56, \text{SD} = 1.11; t(284) = .30, p = .76)\).

**Measured Warmth.** We found a main effect of the communal frame on perceived warmth \((F(1, 566) = 15.02, p < .001, \eta^2_p = .03)\), but a non-significant main effect of donation type on warmth \((F(1, 566) = .167, p = .68)\). There was no significant interaction between communal framing and donation type on measured warmth \((F(1, 566) = 1.96, p = .16)\).

**Moderated Mediation.** We conducted a moderated mediation analysis (Hayes 2013-model 8) to test the predicted relationship of donation type by companies who do or do not hand-deliver their gifts on charitable credit received, with communal intent and effort/sacrifice as mediators. We simultaneously tested the significance of both mediators by calculating standardized indirect effects for 5,000 bootstrapped samples and found that the model mediates the effect of donation type on charitable credit (Direct effect = 0.08; 95% CI [-0.04, 0.20]). We found that donation type produced an indirect effect of communal intent conditional on communal frame. As hypothesized, inferences about communal intent mediated the effect of donation type on charitable credit for the control condition (indirect effect = 0.09 (95% CI [0.03, 0.16])), but not for the communal-frame (gift) condition (indirect effect = -0.01 (95% CI [-0.09, 0.06])). Effort and sacrifice did not mediate the effect for the control condition (indirect effect = 0.05 (95% CI [-0.02, 0.12])), nor for the gift condition (indirect effect = 0.07 (95% CI [-0.004, 0.11])).
0.14]). The index of moderated mediation was significant for communal intent (Index = -0.10 (95% CI [-0.21, -0.01]), but not significant for effort/sacrifice (Index = .02 (95% CI [-0.09, 0.11]).

1.9.3 Discussion

In Study 4, we found once again that a low-warmth donor (Spades Hardware) received more credit for a donation of goods than a donation of money. However, when the donations were framed as communal (i.e., a gift), both donations were perceived to be motivated by communal intentions and therefore creditworthy. By increasing the perceived communality of the monetary donation, the low-warmth donor was able to receive high levels of charitable credit for making a cash donation.

1.10 General Discussion

This research finds that donors receive charitable credit based on who they are and what they give. High-warmth donors often receive more credit for being generous than low-warmth donors. However, low-warmth donors can boost the charitable credit they receive by donating goods. This article documents a novel interaction between donor traits (high- vs. low-warmth) and donation types (goods vs. money) and is among the first to study goods donations.

Across our studies, when low-warmth donors give goods, their intentions are presumed to be more communal, or other-oriented, than when they donate equivalent monetary amounts (or make an unspecified donation, e.g., Study 2A). This inference about increased communal intent boosts charitable credit, and for corporate donors, can have a positive impact on purchase intentions as well. High-warmth donors, on the other hand, receive equal and high credit for
either type of donation. Because high-warmth donors are presumed to have good intentions, any act of giving is consistent with those prior assumptions.

Throughout, we additionally tested a potential role of effort and sacrifice in driving the preference for goods donations from low-warmth donors with the rationale that consumers may infer that donors spend more energy procuring and donating tangible goods than simply writing a check. But, while perceptions of effort and sacrifice are sometimes important for influencing charitable credit, in this context, they do not appear necessary for the preference for goods donations to occur (e.g., studies 2B, 3A, and 4).

The conceptualization that trait warmth triggers strong assumptions about the nature of a donor’s intent generates numerous predictions about the level of credit donors will receive. For example, although we did not find a consistent effect of donation type on effort perceptions, donation effort likely has independent effects on charitable credit when varied through other means. If people assume that high-warmth donors have good intentions, then, similar to donation type, donation effort may minimally impact charitable credit for high-warmth donors; high-warmth donors are likely to receive high levels of charitable credit for any magnitude of donation effort. In contrast, low-warmth donors, whose intentions are more subject to skepticism, may receive minimal credit for a low-effort donation, but receive more credit for sending a stronger signal of good intentions via a high-effort donation.

These predictions are analogous to other findings in the literature in which individuals with different traits are judged differently for the same act. For example, prior research finds that donors with good reputations (i.e., social workers) are viewed as equally altruistic whether they brag about their good deed or not, whereas donors with less altruistic reputations (i.e., investment bankers) are viewed as even less altruistic when they brag about a good deed (Berman et al.)
2015, study 2). Future research should further examine these and related patterns regarding donor warmth and assumptions about communal intent.

Throughout our studies, we find that when low-warmth donors donate goods, they are viewed as having greater communal intent and receive greater charitable credit, however, goods donations do not similarly improve judgments of warmth. This pattern fits with the notion that warmth is a stable construct that varies minimally due to subtle changes or contextual factors (Kenworthy and Tausch 2008). We do predict, however, that consistently donating goods and/or sending other sustained signals of communal intent may improve perceptions of a donor’s trait warmth over time.

One interesting, and perplexing, implication of the current findings is that for image reasons, low-warmth donors may benefit from donating goods rather than money, even though charities can often do more good with monetary donations (Conan 2011; USAID 2017). In fact, in appendix C – study 8, we find that participants appear aware that nonprofits generally prefer monetary donations, and yet we still frequently find more favorable evaluations of donors who make goods donations. For low-warmth donors, such as most for-profit companies, who wish to maximize both their impact and credit received, we propose two potential solutions. First, as in Study 4, low-warmth donors can describe a monetary donation as a gift, and thus frame it more communally. Alternatively, low-warmth donors can coordinate closely with charities to identify their most pressing tangible needs, and fund those needs quickly and directly via goods donations. Indeed, working closely with nonprofits to identify and meet their greatest needs may serve as an additional signal to consumers of a donor’s communal intentions.

In summary, despite the fact that monetary donations are the most frequent donation type (usa.gov 2012), and the type that charities often prefer, we find that low-warmth donors who
donate goods receive more credit for their generosity than those who make equivalent monetary donations. We conclude that low-warmth donors aiming to maximize both charitable credit and actual impact may benefit from spending their philanthropic funds on donations of goods that are coordinated with a charity’s needs, or alternatively, describing a monetary donation communally. Future research should continue to explore our differing judgments of low-warmth versus high-warmth donors and the implications for charitable credit and sustained giving.

2.1 Introduction

From evolutionary biology to neoclassical economics, many theories of human behavior posit that humans are driven primarily by self-interest. The most effective incentives should therefore be those that maximize material payoff to the decision maker. Indeed, self-benefiting incentives outperform prosocial (or “other-benefiting”) incentives in many contexts: for most reward magnitudes people exert more effort when offered selfish incentives compared to prosocial incentives that go to charity (DellaVigna and Pope 2016; Imas 2014; Schwartz, Keenan, Imas, and Gneezy, 2018).

However, people also frequently display significant other-regarding behavior. In dictator games, even when there is no consequence for selfish behavior, people share on average about 25% of a given endowment (Forsythe et al. 1994). Consumers often pay more for charity-linked products (Elfenbein and McManus 2010; Jung et al. 2017), or choose brands that make a donation over those that provide equivalent discounts (Strahilevitz 1999).

A desire to appear generous to others is one important driver of such prosocial acts. When generous behavior is public, people are more likely to give than when it is private (Andreoni and Petrie 2004; Bereczkei, Birkas, and Kerekes 2007) and anonymous donations are rare (Glazer and Konrad 1996). Reputational benefits for generous behavior have the potential to loom largest within one’s social network. People are more generous in contexts involving their close social
connections (Moore 2009; Small and Simonsohn 2007) potentially in part because reputation matters most to those who know you well.

In this project, we examine how reputational concerns alter the dynamics of incentivized behavior. For important theoretical reasons, academic research typically examines prosocial incentives by offering rewards that aid anonymous individuals or charities (DellaVigna and Pope 2016; Eckel and Grossman 1996; Imas 2014; Yang, Hsee, and Urminsky 2014). However, when people consider prosocial acts in the real world, the benefits often go to people whom they know. In this research, we propose that incorporating reputational concerns into the context of incentive design substantially alters behavior, and does so in ways that are not obvious to incentive architects. Specifically, we examine the context of customer referral programs where companies incentivize customers to refer others to become new customers.

2.2 Conceptual Background

2.2.1 Customer Referral Incentives

We study the role of reputational concerns in incentivized behavior within the context of customer referrals. In referral programs, companies typically offer incentives to existing customers for recruiting new customers. For example, Google Apps currently offers $15 to customers for each new user they recruit, and the videogame World of Warcraft offers current users a free month of gaming if they successfully refer their friends to buy a subscription (Gains 2017). Referral programs can be a cost-efficient method for gaining new customers (Ryu and Feik 2007; Schmitt, Skiera, and Van den Bulte 2011); referral programs not only recruit new customers, but referred customers tend to be of value because they feel greater trust and a
stronger bond with firms when a friend or acquaintance is already a customer (Castilla 2005; Fernandez, Castilla, and Moore 2000; Schmitt et al. 2011).

A critical feature to consider when creating referral incentive programs is that a new customer conversion involves two separate decisions: the referral decision and the uptake decision. Sender-benefiting incentives may appear superior because they directly incentivize the first decision-maker, and the process has no chance to begin if there is no referral (Bapna et al. 2014). Indeed, many firms focus on this feature. We asked a hypothesis-blind research assistant to first, find 300 current referral incentive programs online and then, to categorize them based on how the incentive was designed (who received the reward). This research assistant documented 351 existing referral incentive programs with the following breakdown: 40.5% offered sender-benefiting referrals while only 2.6% offered recipient-benefiting referrals (55% offered rewards that were shared between the referrer and recipient). Note: while we are primarily interested in comparing the recipient-benefiting and sender-benefiting incentives, because they offer a clean conceptual separation, we also test the effectiveness of the shared incentive in two of our studies due to the popularity of this incentive in the marketplace. Past work on referral incentives provides further evidence that marketers tend to predict that fully recipient-benefiting referral incentives will be ineffective. For example, Hong et al. (2017) compared fair incentives ($5 for both referrer and recipient) to unfair incentives ($7/$3) or ($3/$7) in a field experiment with a corporate partner. They explained this choice, stating, “We used (7, 3), (3, 7) split because we wanted to test a bonus split that is practically relevant and is likely to be used by firms in practice. The corporate sponsor stated that the (0, 10), (10, 0) split would be extremely harsh on both sides and will be unlikely to be accepted by the responder and even to be spent by the proposer” (Hong et al, 2017, p. 797).
The current popularity of sender-benefiting referral programs indicates that incentive architects tend to focus heavily on encouraging current customers to refer. However, we posit that this strategy ignores two critical facets of the psychology of incentive design and prosocial behavior. First, people care about their reputation (Fehr 2004); thus, recipient-benefiting referrals, in providing the recipient an opportunity to earn something of value, may confer reputational benefits to the referrer – a benefit that sender-benefiting referrals do not confer upon the referrer. Second, action costs matter; all else equal, relative to un-incentivized behavior change, incentives are particularly effective at prompting action when behavior change is difficult (i.e., by increasing the impetus to shift behavior). We show that recipient-benefiting referral programs, because they address these two important aspects of the psychology of incentives and prosocial behavior, can outperform sender-benefiting referral programs. In the following sections, we develop our theory through a review of prior research. We then outline our predictions and provide an overview of our empirical work.

2.2.2 Prosocial Incentives Offer Reputational Benefits

There are numerous examples of self-benefiting financial incentives that effectively motivate behavior. Self-benefiting financial incentives increase gym attendance (Acland and Levy 2015), improve immunization coverage (Banerjee et al. 2010), and motivate weight loss (John et al. 2011). In direct comparisons, selfish incentives (particularly those above $2) more effectively motivate effort than equivalent prosocial incentives that benefit charity (Imas 2014; Schwartz et al. 2018). Similarly, people report greater happiness when they receive a selfish incentive compared to when an equivalent donation is made in their name (i.e., when they receive a prosocial incentive; Berman and Small 2012).
However, as Miller (1999) states, “Homo economicus, it should not be forgotten, inhabits a social world.” When people behave generously, they may sacrifice at a material level, but they often receive social rewards in return such as higher status or respect (Berman et al. 2015; Flynn 2003; Flynn et al. 2006; Price 2006). Reputational rewards motivate people to behave generously due to a strong desire for social approval (Ariely, Bracha, and Meier 2009; Grant and Gino 2010) and a fundamental human need to belong and maintain close personal relationships (Baumeister and Leary 1995). Considerable experimental evidence suggests that prosocial behavior is frequently driven by such reputational concerns (Fehr and Fichbacher 2002). For example, generosity increases when donors are promised recognition for their contributions (Alpizar, Carlsson, and Johansson-Stenman 2008; Andreoni and Petrie 2004; Fisher and Ackerman 1997; Lacetera and Macis 2010), potentially explaining why anonymous donations are rare (Glazer and Konrad 1996). Church donations increase when anonymity is reduced (and reputational benefits are enhanced), such as when closed donation bags are replaced with open baskets (Soetevent 2005). In a related vein, charitable appeals that emphasize benefits to others are more effective when concerns about one’s reputation are high (White and Peloza 2009).

Reputational benefits for prosociality are likely to be especially strong motivators in contexts where people interact with members of their social network. Indeed, people tend to be more motivated to help friends than strangers (Moore 2009; Schlenker and Britt 1999). For example, on online dictator games involving participants’ social networks, adult participants sent significantly more money to their close friends than to strangers (Leider et al. 2009). Individuals are also more likely to be generous (e.g., volunteer) for a cause when they have a close personal relationship with someone affected by that cause (Small and Simonsohn 2008). Even young children are willing to sacrifice (receive one sticker instead of two) to benefit a friend, but will
not similarly sacrifice to benefit a stranger (Moore 2009; see also Fehr, Bernhard, and Rockenbach 2008). While their motives may not be purely altruistic – people expect a benefit, though it is reputational rather than material – the outcome is other-benefiting behavior nonetheless. Because people care deeply about the judgments of those with whom they have personal relationships, prosocial incentives have the potential to perform well when offered within customer referral programs.

### 2.2.3 Prosocial Referral Incentives address Action Costs where they are Highest

An important feature of the two-step referral process is that there tends to be an asymmetry in action costs between the referrer and the recipient. We define action costs as the monetary or non-monetary (i.e., effort or time) cost necessary to comply with the task that the marketer is requesting of you at the given stage of the referral. For the referrer, this is the cost of making the referral; and for the recipient it is the cost of following through on the referral. The act of referring tends to be low effort and low cost: the referrer simply sends their friend a code or submits an email address. Recipients, however, tend to incur higher burdens; to complete a referral, recipients must spend money on a product, download an app, or join a service (and receive the accompanying e-mails, notifications, etc.; see Figure 2.1).

**FIGURE 2.1: REFERRAL PROCESS**

| Referral Choice (low action costs) | + | Recipient Uptake (high action costs) | = | Successful Conversions |

This difference in action costs has implications for how referral programs perform at the two decision stages in the referral process. Logically, the incentive structure of a referral program is
likely to affect the extent to which referrers and recipients a) anticipate reputational benefits, as well as b) are directly incented to act. Specifically, in recipient-benefiting referral programs, referrers may anticipate the recipients to be pleased with them for providing the opportunity to obtain a reward. Likewise, in sender-benefiting referral programs, recipients may anticipate the referrer to be pleased with them for following through on the referral (thereby enabling the referrer to realize the reward). However, in sender-benefiting referral programs, these anticipated reputational benefits may be insufficient to overcome the substantial action costs faced by the recipient. As a result, sender-benefiting referral programs may be ineffective at spurring uptake. By the same logic, recipient-benefiting referrals may be effective at spurring uptake, because by directly incenting uptake, they offer recipients sufficient incentive to act.

2.2.4 The Current Research

While selfish incentives have proven highly effective at motivating behavior across many contexts, we predict that offering referrers a prosocial incentive (i.e., recipient-benefiting referrals) will result in more new customers than offer referrers a selfish benefit (i.e., sender-benefiting referrals). We predict this pattern because: 1) at the referral stage, the cost of action is low and customers who refer friends receive reputational benefits when making recipient-benefiting referrals, and 2) at the uptake stage, the cost of action is relatively high; therefore, referral recipients will be more likely to require a direct incentive to follow through. We posit that both reputational benefits and action costs affect incentivized behavior, such that referrals designed to incentivize the recipient will result in the greatest number of new customers.

Indeed, recently published work provides suggestive evidence that recipient-benefiting referrals can result in more new customer conversions relative to sender-benefiting referrals
(Hong, Pavlou, Shi, & Wang, 2017; Bapna, Gupta, & Sen, 2014) – suggestive, as opposed to definitive, because in these studies, it is unclear whether the effect is a result of the incentive structure or selection effects. In the present paper, we show that the effect holds when randomizing participants to role (i.e., either referrer or recipient), documenting that indeed the division of referral incentives – to sender versus recipient – impacts their effectiveness.

However, our primary contribution is in providing a comprehensive account of when and why these recipient-benefiting referral programs outperform those that benefit the sender. Up until now, researchers have not uncovered an explanation for why, in this particular context, prosocial incentives are superior to selfish incentives. The only published demonstrations of the superiority of recipient-benefiting referral programs have been outcome-focused – either assessing the effectiveness of recipient-benefiting programs at the referral stage (Ryu & Feick, 2007), or only testing the conversion rate of these programs (i.e., the number of new customers; Hong et al., 2017; Bapna et al., 2014) – stopping short of testing why these effects occur. In addressing both steps in the referral process – i.e., the referral stage and the uptake stage – we are equipped to address this knowledge gap. Specifically, we provide an account of when and why recipient benefiting referral programs outperform sender-benefiting programs by examining both stages of the referral process, which invoke two countervailing forces: reputational benefits versus action costs. As such, we add to scholarly research, offering a comprehensive account of seemingly disparate findings in the emergent literature of customer referral programs, as well as the literature on prosocial behavior and incentive design more generally. Importantly, we also contribute to marketing practice, by offering evidence-based guidance on how marketers should structure their referral reward programs for maximal impact.
We test our account in eight studies (plus five additional studies in the appendix). The first three studies document the basic effect. Study 1 is a field experiment with a phone app company that varies incentive structure and measures new customer conversions. Recipient-benefiting referrals recruited more new customers relative to sender-benefiting referrals. Study 2 is another field experiment, this time with a video game rental company. Study 2 replicates the findings from Study 1 and also tracks behavior at each decision stage (both referral and uptake stages), showing that recipient-benefiting incentives perform as well as sender-benefiting incentives at the referral stage, and prosocial referrals (recipient-benefiting) substantially outperform selfish referrals (sender-benefiting) at the uptake stage. Study 3 examines the full referral process with participants randomly assigned to either the referrer or recipient role and begins to establish the role of asymmetric action costs in our process account. Five subsequent experiments focus on explaining when and why recipient-benefiting referrals outperform sender-benefiting referrals. Studies 4A – 4C focus on the first stage in the process – where action costs are typically low – indicating that recipient-benefiting programs lead referrers to anticipate reputational benefits, in turn spurring them to act (i.e., to refer people). Studies 5A and 5B incorporate action costs, demonstrating that when action costs are low (as is typical in the referral stage), other-benefiting incentives are just as effective as self-benefiting incentives. However, when action costs are high (as is typical at the uptake stage), participants are more likely to act when they receive a direct incentive.

Following recommendations from Simmons, Nelson, and Simonsohn (2012), we report all manipulations, all measures, and all data exclusion criteria for all studies.
2.3 Study 1: Recipient-Benefiting Referrals Increase Conversions

Study 1 is a field experiment with a startup company called GiftAMeal that offers a food photo-sharing phone app. In this experiment, we test how various incentive structures influence new customer conversions.

2.3.1 Methods

The company e-mailed 6,364 current customers, asking if each customer would refer their friends to download the app. Customers were randomly assigned to one of four experimental conditions: 1) control: no monetary incentive\(^2\), 2) sender-benefiting: customers received a $5 Amazon gift card for each friend who downloaded the app, 3) recipient-benefiting: referred friends received a $5 gift card if they downloaded the app, 4) shared: referrer and their friend each received a $2.50 gift card if the friend downloaded the app or 5) donation: GiftAMeal donated $5 to Feeding America for each download.

Current customers received a unique promotional code, which they could send to their friends. All emails additionally offered a suggestion for what customers could email or text their friends when sending the referral (for full emails in all conditions, see Appendix A), however the company does not track individual choices (whether a given consumer chooses to refer or follow-through on a referral). The promotion lasted two weeks, during which time referred individuals could download the app using their friend’s code. In this study, the company tracked new customer downloads by condition (i.e., conversions). The “conversion rate” in this, and

---

\(^2\) While there was no monetary incentive, in the control condition, the company donated a meal to a family in need. This is their standard reward for referrals.
future studies, describes the number of new customers as a percentage of the emails sent in that condition – or in other words, how many new customers did the company get by sending N original emails (if they send 100 emails and get 5 new customers, this would be a 5% conversion rate).

2.3.2 Results

Table 2.1 summarizes the results. Overall, the new customer conversion rate (i.e., percentage of new customers based on total referral emails sent) was low (less than 1% overall), not uncommon in field settings. Nevertheless, we detected significant differences between experimental conditions. Referrals were more successful (resulted in a higher new customer conversion rate) when the company offered a recipient-benefiting incentive (.94% conversion rate) than when they were offered no incentive (.08% conversion rate; \( \chi^2 (1) = 9.41, p = .002 \)), or when they were offered a donation incentive; (.08%; \( \chi^2 (1) = 9.29, p = .002 \)). The recipient-benefiting referral also had a marginally significant advantage over the sender-benefiting referral (.39%; \( \chi^2 (1) = 2.92, p = .09 \)). There was no difference in the conversion rate between the recipient-benefiting and shared referral conditions (.94%; \( \chi^2 (1) = .002, p = .99 \)). Finally, the sender-benefiting referral performed marginally significantly better than the control condition (\( \chi^2 (1) = 2.69, p = .10 \)).

**TABLE 2.1: SUMMARY RESULTS OF ALL STUDIES**

<table>
<thead>
<tr>
<th>Study #</th>
<th>Study Type</th>
<th>Experimental Conditions</th>
<th>% Referral Choice</th>
<th>% Uptake Choice</th>
<th>% New Customer Conversions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Field Experiment N = 6,364</td>
<td>Control</td>
<td></td>
<td></td>
<td>.08%(^a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sender-Benefiting</td>
<td></td>
<td></td>
<td>.39%(^{ab\dagger})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recipient-Benefiting</td>
<td></td>
<td></td>
<td>.94%(^{bc})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shared</td>
<td></td>
<td></td>
<td>.94%(^{bc})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Donation</td>
<td></td>
<td></td>
<td>.08%(^a)</td>
</tr>
<tr>
<td>Study</td>
<td>Type</td>
<td>N</td>
<td>Control</td>
<td>Sender-Benefiting</td>
<td>Recipient-Benefiting</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>---</td>
<td>---------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Study 2</td>
<td>Field Experiment</td>
<td>1,438</td>
<td>16.36%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>23.77%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>21.37%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3.45%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6.61%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>16.91%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.61%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.71%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.77%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Study 3</td>
<td>MTurk Scenario Experiment</td>
<td>816</td>
<td>Sender-Benefiting/ Referral Role</td>
<td>82.21%&lt;sup&gt;a†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Referral Role</td>
<td>88.83%&lt;sup&gt;a†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sender-Benefiting/ Recipient Role</td>
<td>51.74%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Recipient Role</td>
<td>62.19%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Study 4A</td>
<td>Incentivized Lab Experiment</td>
<td>369</td>
<td>Control</td>
<td>26.37%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sender-Benefiting</td>
<td>64.84%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting</td>
<td>58.06%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shared</td>
<td>56.99%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Study 4B</td>
<td>MTurk Scenario Experiment</td>
<td>805</td>
<td>Sender-Benefiting/ Named</td>
<td>85.29%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Named</td>
<td>87.32%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sender-Benefiting/ Anonymous</td>
<td>86.50%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Anonymous</td>
<td>74.49%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Study 4C</td>
<td>MTurk Scenario Experiment</td>
<td>583</td>
<td>Average likelihood (not %)</td>
<td>5.22 (1.97)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting</td>
<td>5.42 (1.79)</td>
<td></td>
</tr>
<tr>
<td>Study 5A</td>
<td>MTurk Scenario Experiment</td>
<td>824</td>
<td>Sender-Benefiting/ Low Cost</td>
<td>73.63&lt;sup&gt;a†bc†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Low Cost</td>
<td>63.82&lt;sup&gt;†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sender-Benefiting/ High Cost</td>
<td>72.38&lt;sup&gt;a†bc†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ High Cost</td>
<td>81.52&lt;sup&gt;†&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Study 5B</td>
<td>MTurk Scenario Experiment</td>
<td>740</td>
<td>Sender-Benefiting/ Low Cost</td>
<td>15.59%&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ Low Cost</td>
<td>32.20%&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sender-Benefiting/ High Cost</td>
<td>54.40%&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recipient-Benefiting/ High Cost</td>
<td>55.90%&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Significant differences are denoted by superscript letters – condition proportions for each study in the same column that share a same letter are insignificant from each other at p < .05. A dagger symbol ([†]) indicates a statistically significant difference at a p < .10 level.
2.3.3 Discussion

Results from Study 1 support the prediction that recipient-benefiting referrals result in a higher conversion rate compared to offering either 1) no incentive or 2) a sender-benefiting referral. It is also noteworthy that the recipient-benefiting condition outperformed another version of an other-benefiting referral – a donation incentive, whereby an incentive is given to charity, yet offered no incentive for a member of one’s social network. This result is consistent with past research (Imas 2014; Schwartz et al. 2018) as well as our proposed process account: recipient-benefiting referrals are not necessarily successful because they offer referrers a chance to be altruistic, but rather, because they offer some kind of benefit to the referrer himself (we posit this benefit to be reputational, and explicitly test this idea in Studies 4A-4C). Finally, it is interesting to note that the shared incentive, which is the most commonly used referral reward offered, did not outperform the recipient-benefiting incentive.

Study 2 aims to replicate and extend these findings by tracking behavior at both the referral and uptake decision stages in addition to measuring total new customer conversions in another field experiment.

2.4 Study 2: Sender-Benefiting and Recipient-Benefiting Incentives at the Referral and Recipient Stage

Study 2 is another randomized field experiment, this time with an online video game subscription company called Game Access. This company tracks both the referral stage (i.e., the number of referrals made) and uptake stage (i.e., the number of referral recipients that sign up).
2.4.1 Methods

The company randomly assigned 1,500 customers to receive one of three referral offers: 1) control: no incentive, 2) sender-benefiting: one month free, or 3) recipient-benefiting: one month free for the new customer. 1,438 emails were successfully delivered (4.1% bounced back, possibly due to invalid email addresses). Current members received an email asking if they would refer a friend to buy a membership to Game Access (See Appendix A for all emails used in this experiment).

If a current customer chose to refer one or more friends, they clicked a link in the email labeled “Tell your friends about Game Access,” and then entered the name and email address of as many friends as they would like. Game Access then sent an email to each referred friend with the subject line “I just joined a cool new service.” By sending emails directly to referral recipients, the company could track both how many customers sent referrals as well as how many recipients chose to follow through on those referrals by signing up.

2.4.2 Results

Table 2.1 summarizes the results.

*Referral stage.* At the referral stage, more customers chose to make a referral in the sender-benefiting (23.77%) and recipient-benefiting (21.37%) conditions than in the control condition (16.36%, $\chi^2(1) = 8.20, p = .004$ and $\chi^2(1) = 3.98, p = .046$, respectively). The difference between the incentivized conditions was not significant $\chi^2(1) = .78, p = .38$). See Figure 2.2 for all results.

Some customers chose to make multiple referrals, so next we look at the referral rate in each condition (the number of referrals made divided by the number of customers who received
the original email). There was a significantly higher referral rate in the sender-benefiting (25.91%) and recipient-benefiting (28.22%) conditions than in the control condition (17.79%, \( \chi^2(1) = 9.24, p < .01 \) and \( \chi^2(1) = 14.91, p < .001 \), respectively). Again, there was no significant difference between the incentive conditions (\( \chi^2(1) = .64, p = .42 \)).

_Uptake stage._ At the uptake stage, referral recipients were significantly more likely to sign up in the recipient-benefiting condition (16.91%, 23 out of 136 referral recipients) compared to the sender-benefiting condition (6.61%, 8 out of 121 referral recipients, \( \chi^2(1) = 6.38, p = .01 \)) or control conditions (3.45%, 3 out of 87 referral recipients, \( \chi^2(1) = 9.29, p < .01 \)). There was a non-significant difference in new customer uptake between the sender-benefiting and control conditions (\( \chi^2(1) = 1.00, p = .32 \)).

_New customer conversions._ As with the previous field experiment, the final new customer conversion rate (i.e., percentage of new customers based on total referral emails sent) was higher when the company offered a recipient-benefiting referral (4.77%) compared to a sender-benefiting referral (1.71%, \( \chi^2(1) = 7.03, p = .008 \)) or no incentive (.61%, \( \chi^2(1) = 16.12, p < .001 \); see Figure 2). There was a non-significant, though directional, difference in conversion rate between the sender-benefiting and control conditions (\( \chi^2(1) = 2.55, p = .11 \)).

_One-month follow-up._ Follow-up subscription renewal data showed that the new customer conversion rate patterns remained one month after the intervention. More new customers renewed their membership in the recipient-benefiting condition (3.52%) compared to the sender-benefiting condition (1.07%, \( \chi^2(1) = 6.29, p = .01 \)) and the control condition (.35%, \( \chi^2(1) = 9.41, p < .001 \)). There continued to be a non-significant difference between the sender-benefiting and control conditions (\( \chi^2(1) = 1.78, p = .18 \)).
At the referral stage, recipient-benefiting and sender-benefiting incentives lead to more referrals than no incentive. There is no difference in referral choice between incentive conditions. At the uptake stage, Recipient-benefiting referral incentives lead to higher uptake than sender-benefiting incentives or no referral incentive. Overall, recipient-benefiting referrals lead to the most new customer conversions.

2.4.3 Discussion

Study 2 provided additional support for the hypothesis that recipient-benefiting referrals outperform sender-benefiting ones. This field experiment showed that, despite the tendency for selfish incentives to outperform prosocial incentives in most settings, the prosocial (recipient-benefiting) incentives perform equally as well as selfish (sender-benefiting) incentives in this context at the referral stage. However, at the uptake stage, recipients are more likely to act when there is a selfish (recipient-benefiting) incentive offered. We propose that this pattern occurs
because, at the referral stage, the burden of referring is low and referrers anticipate reputational benefits from sending their friends an incentive opportunity. Therefore, we see that a recipient-benefiting or sender-benefiting referral perform equally as well at the referral stage. At the uptake stage, however, there is a much higher burden (purchasing a $30/month membership) for the recipient to follow through on their friend’s request. Thus, at the uptake stage, recipients are significantly more likely to sign up when they themselves receive the incentive than when the incentive goes to the customer who sent the referral. Studies 3-5B explore the process behind these patterns.

2.5 Study 3: Comparing Referral versus Recipient Stages

We designed Study 3 to remove the potential for selection bias at the recipient stage by randomly assigning participants to be either a referrer or a recipient in the same context, and crossed that manipulation with a recipient-benefiting versus sender-benefiting referral incentive structure. We also measure action costs at each stage. We define action costs as the effort, time, and/or payment required to follow-through on an action. An interesting feature of the referral context is that decision makers at each stage (the referral and uptake stage) face similar decisions – whether to take action based on an incentive that is offered to you or to your friend; however, we see different decision patterns at the two different stages. At the referral stage, other-benefiting incentives perform equally as well as self-benefiting incentives. At the recipient stage, by contrast, self-benefiting incentives outperform other-benefiting incentives (i.e., the recipient-benefiting referral is more effective at this stage). We propose that the higher cost of taking action at the recipient stage drive the preference for self-benefiting incentives for recipients, and we test this proposition here.
Note that in this study only, we use labels that describe the incentive from the actor’s perspective. Specifically, participants in both conditions received incentives that are either self-benefiting (the participant can receive a reward) or other-benefiting (the participant’s friend can receive a reward).

2.5.1 Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2DORuhk), we recruited 800 MTurk participants (816 participants completed the study; M_{Age} = 35.40, 61.81% female). The study used a 2(referral: self-benefiting vs. other-benefiting) x 2(role: referrer vs. recipient) between-subjects design. For this study, we described a (fictitious) food delivery service called Food2Me, that delivers from local restaurants. Participants provided their first name and the first name of a close friend. We manipulated whether participants were in the role of referrer or recipient within this paradigm. Participants were informed that they were part of a referral incentive opportunity that was structured either to financially benefit the referrer or financially benefit the recipient. In this study, the incentive was a free year of Food2Me.

After reading about the service, participants were required to correctly identify who would receive an incentive (themselves or their friend) before they could move to the action decision to confirm that they understood the incentive structure. Participants were then told, “The Food2Me restaurant delivery service costs $50 per year.” They were asked if they wanted to take action; specifically, those in the referrer condition were asked, “Would you refer [Friend’s Name] to sign up for the Food2Me delivery service?” and those in the recipient condition were asked, “Would you sign up for the Food2Me delivery service?” Please see Table 2 for a description of each experimental condition.
We additionally measured how costly participants believed it would be to take the given action. We measured “action costs” for all conditions using a three-item scale: “Referring my friend to Food2Me [Subscribing to Food2Me] would be…” Effortful, Burdensome, Costly (1 = Not at all, 7 = Very much so, α = .78).

2.5.2 Results

Action Costs. As expected, there was a significant main effect of participant role (referrer/recipient) on action costs; recipients perceived the cost of taking action as higher than referrers ((F(1, 812) = 108.72, p < .001). There was a non-significant effect of referral incentive type on action costs (F(1, 812) = .004, p = .95). There was a significant interaction of participant role and incentive type (F(1, 812) = 19.40, p < .001). Surprisingly, in the referrer condition, perceived action costs were significantly higher for the self-benefiting condition (M_{Self} = 2.67, SD = 1.46) than the other-benefiting referral (M_{Other} = 2.24, SD = 1.31; t(411) = 3.17, p = .002). However, in the recipient condition, perceived action costs were significantly higher in the other-benefiting condition (M_{Self} = 3.28, SD = 1.49 vs. M_{Other} = 3.72, SD = 1.43; t(398) = 3.06, p = .002).

Action Choice. Table 2.1 summarizes the results. We performed a binary logistic regression on choice to act as a function of participant role (referrer/recipient) and incentive type (self-benefiting/other-benefiting). This analysis yielded a significant interaction between participant role and incentive type (χ^2(1) = 7.67, p = .006). Marginally significantly more referrers chose to refer when their friend received the reward (other-benefiting referral; 88.83%) than when they themselves received the reward (self-benefiting referral; 82.21%; χ^2(1) = 3.61, p = .058). However, significantly fewer recipients chose to sign up when their friend received the
reward (other-benefiting referral; 51.74%) compared to when they themselves received the reward (self-benefiting referral; 62.19%; \( t(1) = 4.46, p = .035 \); See Figure 2.3).

**FIGURE 2.3**
STUDY 3: CHOICE TO ACT BY ROLE AND REFERRAL TYPE

![Bar chart showing the choice to take action by role and referral type.](chart)

*Figure 2.3.* Recipient-Benefiting incentives lead to marginally significantly higher referral choice and significantly higher uptake choice.

### 2.5.3 Discussion

Study 3 replicates the pattern found in the prior field experiment and additionally begins to demonstrate the moderating role of action costs on the effectiveness of other-benefiting and self-benefiting incentives. Within the same referral context and design, consumers are similarly likely (in this study, marginally significantly more likely) to take action at the referral stage, where action costs are low, when they are offered an other-benefiting (prosocial) incentive.
compared to a self-benefiting (selfish) incentive. At the recipient stage, however, where action costs are high, recipients are more likely to require an incentive themselves to act.

In an additional study (Appendix C, Study 1), we conceptually replicated this pattern of referral and uptake. In this replication, we also measured the reputational benefits participants expected to receive for taking action (referral/uptake). Consistent with our account, both referrers and recipients believed they would receive higher reputational benefits for taking action when offered an other-benefiting incentive compared to a self-benefiting incentive. Specifically, there was a significant main effect of incentive type on expected reputational benefits, but participant role did not have an effect on expected reputational benefits (the interaction was also not significant). Therefore, even though consumers expected high reputational benefits for taking action when offered an other-benefiting incentive regardless of referrer versus recipient role, recipients who faced high action costs still showed a preference for the self-benefiting incentive.

Next, we more thoroughly examine the roles of reputational benefits (Studies 4A-4C) and action costs (Studies 5A and 5B) in the performance of sender-benefiting and recipient-benefiting referral incentives.

2.6 Studies 4A-4C: The Role of Reputational Benefits

In Studies 4A - 4C, we test the role of anticipated reputational benefits in the performance of prosocial (i.e., recipient-benefiting) incentives at the referral stage. Study 4A is an incentive compatible lab experiment in which we track behavior at both the referral and uptake stages, and test whether the reputational benefits that referrers anticipate mediate their propensity to refer. In addition, Study 4A tests two additional, complementary explanations for why recipient-benefiting referrals perform as well as sender-benefiting referrals at the referral stage. Specifically, Study 4A tests the role of psychological costs of sending sender-benefiting
referrals. That is, referrers might feel guilt or discomfort when gaining a reward for referring a friend in the sender-benefiting condition, which may in turn decrease likelihood of referring in this condition. We also test the role of perceived social obligations. That is, referrers might anticipate that recipients will find the referral burdensome or annoying. Such anticipated obligations might be especially high in the case of sender-benefiting referrals where the recipient receives no reward, once again driving down the likelihood of sending sender-benefiting referrals (making them equivalent in success to recipient-benefiting referrals). We measure each of these constructs at the referral stage in Study 4A, and test their relative importance in a simultaneous mediation model.

Next, we demonstrate the role of anticipated reputational benefits at the referral stage via moderation. In Study 4B, we vary reputational benefits by manipulating whether the referral is made anonymously: half of the referrers are asked if they would like to send a referral in which they are identified, enabling them to anticipate reputational benefits, while the other half of the referrers are asked if they would like to send a referral in which they are anonymous, hindering their expectation of reputational benefits. In Study 4C, we measure individual differences in reputational concerns and show that they moderate the capacity for recipient-benefiting programs to spur referrals.

2.7 Study 4A

2.7.1 Methods

At the referral stage, 369 undergraduate students participated (M_{Age} = 19.64, 47.97% female). Participants were randomly assigned to one of four referral incentive conditions: control, sender-benefitting, recipient-benefiting, or shared. We first asked participants to provide their first name.
Participants next completed a quick personality quiz, the Ten-Item Personality Inventory (TIPI; Gosling, Rentfrow, and Swann 2003). We next provided participants with a brief report of their real results regarding their extraversion/introversion scores (for full details see Appendix A). Participants were then told that they could refer one other student to take the personality quiz by providing the student’s university email address. Participants were given the following information based on incentive condition: 1) control: no incentive 2) sender-benefiting: “If your friend takes the survey you will receive a $3 electronic gift card to Starbucks,” 3) recipient-benefiting: “If your friend takes the survey he or she will receive a $3 electronic gift card to Starbucks,” or 4) shared: “If your friend takes the survey you will each receive a $1.50 electronic gift card to Starbucks.”

Participants then viewed the email that their friend would receive if they chose to refer. In the control and sender-benefiting conditions, the e-mail subject line was “[Participant First Name] thought you would enjoy this survey!” In the recipient-benefiting and shared conditions, the subject line stated, “[Participant First Name] thought you would enjoy this survey (plus get a Starbucks gift card)!” The email was identical in all conditions and explained that their friend had taken a quick personality quiz as part of a study and wanted to share the link with them. However, in the recipient-benefiting and shared conditions, it also stated, “If you take the quick survey, you will receive a $3 ($1.50) electronic gift card to Starbucks.”

We then asked participants, “Would you like to refer a friend to take this personality quiz?” and told them that they would need to provide their own student ID (requested for accounting reasons), their own student email address, and one friend’s student email address, which they could look up in the online directory. Participants chose either “Yes, I would like to refer a friend” or “No, I would not like to refer a friend.” Participants who chose not to refer moved
directly to the follow-up questions, whereas participants who chose to refer filled out the information described above about their friend before continuing to the follow-up questions.

We included several follow-up questions about reputational benefits, psychological costs, and social obligations to explore the process underlying these referral decisions. The reputational benefit questions included, “How would your friend view you if you made this referral?” (Generous, Helpful, Friendly, Well-Intentioned, Trustworthy, Warm, Good-natured, Likeable, Sincere; 1 = Not at all, 7 = Very much; α = .96) We also asked questions about psychological costs: “How would you feel if you made this referral?” (Selfish, Deceitful, Guilty, Uncomfortable, Sneaky, Conflicted; 1 = Not at all, 7 = Very much; α = .89). Finally, we measured perceptions of imposing a social obligation using the following items: “How much would you feel like you are imposing on [friend] by sending this referral?”, “How annoyed would [friend] be about receiving this referral?”, and “[Friend] would feel that I am taking advantage of him/her” (1 = Not at all, 7 = Very much so; α = .72). While we primarily discuss process results comparing the sender-benefiting (selfish) and recipient-benefiting (prosocial) referral conditions in the main text, process results for all conditions are reported in Appendix B.

For the uptake stage, we sent the emails shown to the original participants to each of the referred friends (N = 186). Referred friends received the email and could choose whether to take the personality quiz. One week after sending out the emails, participants were compensated according to their condition and whether or not their referred friend took the survey.

2.7.2 Results

Table 2.1 summarizes the results.

Referral stage. Consistent with Study 2, there was no significant difference in the choice to refer between the sender-benefiting (64.84%), recipient-benefiting (58.06%), and shared
conditions (56.99%; χ²(2) = 1.38, p = .50). Participants were more likely to refer a friend in all incentive conditions compared to the control (no incentive) condition (26.37%; all ps < .001).

Referral process items. The reputational benefits of referring were perceived to be higher in the recipient-benefiting condition (MRecipient-Benefiting = 4.41, SD = 1.33) relative to the sender-benefiting condition (MSender-Benefiting = 3.69, SD = 1.34; t(182) = -3.64, p < .001). Similarly, psychological costs were perceived to be higher in the sender-benefiting condition (MSender-Benefiting = 2.48, SD = 1.32) relative to the recipient-benefiting condition (MRecipient-Benefiting = 1.75, SD = 1.17; t(182) = 3.98, p < .001); and social obligation was perceived to be marginally significantly higher in the sender-benefiting condition (MSender-Benefiting = 2.98, SD = 1.34) relative to the recipient-benefiting condition (MRecipient-Benefiting = 2.65, SD = 1.36; t(182) = 1.68, p = .096).

Though the total effect of referral incentives on referral choice is not detectably different from zero (the sender- and recipient-benefiting incentives lead to equal referrals), mediation can still be present. As Hayes (2009) explains, a total effect is the sum of different paths of influence, and these paths may cancel each other out, producing a total effect that is not detectably different from zero (for more discussion on this topic, see: Zhao, Lynch, and Chen 2010). Therefore, while the direct financial incentive is likely increasing referrals for those in the sender-benefiting condition compared to the recipient-benefiting condition, we propose that there is an opposing influence of reputational benefits increasing referral choice for the recipient-benefiting condition. Using methods prescribed by Hayes (2009) we simultaneously tested the significance of all three measured mediators by calculating standardized indirect effects for 10,000 bootstrapped samples and found that reputational benefits mediate the effect of referral type on referral choice. We found a statistically significant indirect effect of reputational benefits (.34; 95% CI [.11, .71]).
The indirect effect of psychological costs was not significant (0.09; 95% CI [-.45, .14]) nor was the indirect effect of imposing a social obligation (0.25; 95% CI [-.03, .64]). These results are consistent with the notion that, while the lack of personal incentive likely decreases motivation to refer in the recipient-benefiting condition, recipient-benefiting (vs. sender-benefiting) referrals lead to an increased expectation of reputational benefits, which in turn increases referrals in the recipient-benefiting condition compared to what would be expected based on previous research about prosocial or other-benefiting incentives.

**Uptake stage.** Recipients were significantly more likely to follow through on the referral in the recipient-benefiting condition (69.81%), compared to the sender-benefiting (28.07%, $\chi^2(1) = 41.74, p < .001$) or control conditions (24.00%, $\chi^2(1) = 14.23, p < .001$). There was a non-significant difference in the propensity to comply between the recipient-benefiting and shared conditions (64.71%, $\chi^2(1) = .30, p = .58$). There was also a non-significant difference between new customer uptake in the sender-benefiting and control conditions ($\chi^2(1) = .15, p = .70$; recipients in the control and sender-benefiting conditions received identical e-mails in this study, so this lack of difference is unsurprising.

**New customer conversions.** Consistent with Studies 1 and 2, the overall conversion rate was higher in the recipient-benefiting condition (39.79%) than the sender-benefiting condition (17.58%, $\chi^2(1) = 12.91, p < .001$). There was a non-significant difference between the recipient-benefiting and shared conditions (35.48%, $\chi^2(1) = .38, p = .54$). The control condition was significantly less effective at bringing in new customers than any incentive condition (6.52%, $\chi^2(3) = 35.78, p < .001$).
2.7.3 Discussion

Consistent with Studies 1 and 2, the recipient-benefiting referral was more effective than the sender-benefiting referral at converting new customers. Also consistent with Studies 2 and 3, sender-benefiting and recipient-benefiting incentives were equally effective at the referral stage. In support of our process account, the reputational benefits that referrers anticipated mediated their propensity to refer. Although other potential process constructs such as psychological costs and social obligations vary between sender-benefiting and recipient-benefiting referral conditions, they do not appear to account for the influence of referral type on referral choice. While this self-reported mediation study shows initial support, we seek stronger evidence for the role of anticipated reputational benefits at the referral stage via moderation in Studies 4B and 4C.

2.8 Study 4B

2.8.1 Methods

As outlined in our pre-registered research plan (https://bit.ly/2XadyvB), we recruited 800 MTurk participants (805 participants completed the study; M_{Age} = 36.75, 53.18% female). The study used a 2(referral type: sender-benefiting vs. recipient-benefiting) x 2(referrer anonymity: identified vs. anonymous) between-subjects design. Participants were asked to give their first name and the first name of a close friend. We then asked participants to imagine the following
scenario, “Amazon has released a new, free loyalty program called Amazon BOLD that showcases new products to program members. You joined the program and think it has been great.” Participants were next told that Amazon has a referral program that gives either 1) a sender-benefiting incentive: Participants were told they will receive a $10 Visa gift card for each individual they refer to Amazon BOLD who then joins the program or 2) a recipient-benefiting incentive: participants were told that each individual they refer will receive a $10 Visa gift card if they join the program. However, in the anonymous condition, participants were also told that the referral would be anonymous and their friend would not be told who sent it (study materials in Appendix A). Participants were then required to correctly identify who would receive a reward for a successful referral (themselves or their friend) before they could move to the referral decision to confirm that they understood the incentive structure. Note: no participants were excluded at this step, but they had to answer correctly before continuing. Finally, we asked participants, “Would you refer your friend to Amazon BOLD”? (Yes/No).

2.8.2 Results

Table 2.1 summarizes the results. We performed a binary logistic regression on choice to refer as a function of referral type, referrer anonymity, and their interaction. This analysis yielded a significant interaction of referral type and anonymity ($\chi^2(1) = 6.00, p = .014$, Figure 5). When the referral was identified – i.e., recipients would know who referred them – the propensity to refer was equivalent across the recipient-benefiting (87.32%) and the sender-benefiting conditions (85.29%; $\chi^2(1) = .35, p = .55$). However, when the referral was anonymous, the propensity to refer was higher in the sender-benefiting condition (86.50%) relative to the recipient-benefiting condition (74.49%; $\chi^2(1) = 8.87, p = .003$, Figure 2.4).
Figure 2.4. Sender-benefiting and recipient-benefiting incentives lead to equal referral choice when the referral is not anonymous. When the referral is anonymous, sender-benefiting incentives lead to more referrals.

2.8.3 Discussion

Study 4B finds that prosocial referrals become less effective when the ability to inform friends of one’s prosocial act are reduced, providing evidence that reputational benefits are a key motivator at the referral stage. By contrast, if psychological costs (e.g., guilt from profiting from a friend with a selfish referral incentive) or concerns about social obligations (e.g., imposing upon one’s friend with a selfish request) drove the performance of prosocial incentives at the referral stage, we should see minimal change in recipient-benefiting referral decisions when the referral is anonymous. In other words, these mechanisms would still be active in an anonymous referral, and we therefore would not expect to see this interaction if they were driving the effect.
Further, if purely altruistic motivations (i.e., the desire to help others without any concern for personal benefit, reputational or otherwise) were responsible for the strong performance of other-benefiting incentives at this referral stage, anonymity should also exert minimal influence on choices.

Further attesting to the reputational benefit explanation for referrer behavior, in Appendix C (Study 3) we report a conceptual replication of Study 4B, in which we manipulate reputational benefits in different way. Specifically, we manipulated whether the referral recipient is a friend (allowing for high reputational benefits) or a stranger (allowing for minimal reputational benefits). Consistent with Study 4B, when referrers could anticipate reputational benefits – i.e., when asked to refer their friends – recipient-benefiting incentives were as effective as sender-benefiting incentives. However, sender-benefiting incentives were more effective when referrers could not anticipate reputational benefits (i.e., when asked to refer a stranger).

2.9 Study 4C

2.9.1 Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2GwJ1mE), we recruited 600 MTurk participants; 583 met our pre-registered conditions of both completing the dependent variable and using a unique location (M Age = 39.85, 62.89% female).

Participants were randomly assigned to a referral type condition (sender-benefiting or recipient-benefiting) in a between-subjects design. They then viewed the same referral scenario used in Study 4B (Amazon BOLD loyalty program) and were told that if they made a referral either they would receive a $10 Visa gift card (sender-benefiting) or their friend would receive a $10 Visa gift card (recipient-benefiting). After correctly identifying who would receive a reward
for a successful referral (themselves or their friend) they moved to a referral likelihood question, which asked “Would you refer your friend, [Friend’s name] to Amazon BOLD?” (1 = I definitely would not refer my friend, 7 = I definitely would refer my friend).

Participants then completed a short distractor task in which they were asked to mentally rotate figures. Following this task, participants completed a trait measure of concern for reputation (the 7-item Concern for Reputation Scale; De Cremer and Tyler 2005; \( \alpha = .85 \)) which consists of the following items: 1) I am rarely concerned about my reputation (R-scored), 2) I do not consider what others say about me (R-scored), 3) I wish to have a good reputation, 4) If my reputation is not good, I feel very bad, 5) I find it important that others consider my reputation as a serious matter, 6) I try to work hard on my reputation (in my relationships with others), 7) I find it difficult if others paint an incorrect image of me (1 = Not at all characteristic for me, 7 = Extremely characteristic for me).

### 2.9.2 Results

**Referral Likelihood.** Table 2.1 summarizes the results. As with previous studies, there was no significant difference in referral likelihood as a function of referral type (\( M_{\text{Sender-Benefiting}} = 5.22, \ SD = 1.97; M_{\text{Recipient-Benefiting}} = 5.42, \ SD = 1.79; t(581) = 1.24, p = .22 \)).

**Moderation by Reputation Concern.** We measured trait reputational concern, which did not differ between conditions (\( M_{\text{Sender-Benefiting}} = 4.78, \ SD = 1.05; M_{\text{Recipient-Benefiting}} = 4.87, \ SD = 1.02; t(581) = 1.01, p = .31 \)). We then examined referral likelihood as a function of referral type, trait concern for reputation, and their interaction. The interaction was marginally significant (\( \beta = .12, t(579) = 1.72, p = .086 \)). To identify the range of Reputation Concern for which the simple effect of referral type was significant, we used the Johnson-Neman technique (floodlight analysis; Spiller et al. 2013). This analysis revealed a significant positive effect of referral type
on referral likelihood for any participants with reputational concern scores greater than 6.14 ($\beta = .24$, SE = .12, $p = .05$).

2.9.3 Discussion

Across three studies, we found evidence for the role of reputational benefits in the choice to send a recipient-benefiting (vs. sender-benefiting) referral. In an incentive compatible lab experiment, Study 4A indicated that anticipated reputational benefits mediate the effect of referral type on the propensity to make a referral. Studies 4B goes further, by experimentally manipulation anticipated reputational benefits, and showing that when referrals are anonymous, recipient-benefiting incentive programs no longer induce referrals. Finally, Study 4C also shows that the effectiveness of recipient-benefiting programs is moderated by reputational concerns: recipient-benefiting incentives induce those individuals who are generally concerned about their reputation to refer while sender-benefiting incentives are less effective with this population.

2.10 Studies 5A and 5B: The Role of Action Costs

Studies 5A and 5B test the role of action costs – defined as the effort, time, and/or payment required to comply – in the performance of self-benefiting versus other-benefiting incentives. We have posited that at the referral stage, recipient-benefiting incentives perform as well as self-benefiting incentives because 1) senders expect to receive reputational benefits when making a referral with other-benefiting rewards and 2) referring is a low-cost action. If this is the case, then increasing referrers’ action costs should render recipient-benefiting incentives less effective relative to self-benefiting incentives. We test this proposition in Study 5A.

We have also posited that at the uptake stage, recipient-benefiting incentives outperform self-benefiting incentives because they provide sufficient incentive for recipients – who typically face high action costs – to act. If this is the case, then decreasing referrers’ action costs should
reduce the relative effectiveness of recipient-benefiting incentives vis-à-vis sender-benefiting incentives. We test this proposition in Study 5B.

2.11 Study 5A

2.11.1 Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2NbUAQF), we recruited 800 MTurk participants; 824 completed the survey (M_{Age} = 36.47, 47.69% female).

Using the same referral scenario used in Study 4B, we had participants imagine that they were part of the Amazon BOLD loyalty program and could refer a friend to try it as well. Again, participants provided their own first name and the first name of a close friend. We manipulated whether they received a sender-benefiting or recipient-benefiting referral, with an incentive of $10 (Amazon gift card) in both conditions. In this study, we manipulated action costs by varying the effort required to refer their friend to the service. Specifically, participants in the low-cost condition read, “To verify that only one person uses this offer, you will need to click on the provided link and simply type in your friend's email address.” Those in the high-cost condition read, “to verify that only one person uses this offer, you will need to print out this email and mail it along with your friend's e-mail address. This should be sent to Amazon BOLD's address: 201039 5th Ave, Seattle, WA 98121. To make the effort required in the high-cost condition even more salient, we additionally had these participants click through a step-by-step process of what would be required to refer someone to the loyalty program. For emails used in all conditions, see Appendix A (full survey can be found at our open science link). Participants were required to correctly identify who would receive an incentive (themselves or their friend) and what was required in order to sign up (click a link or print out
documents and mail them in) before they could move to the referral decision to confirm that they understood the incentive structure and action costs. Participants then answered the question, “Would you refer your friend, [Friend’s Name] to Amazon BOLD?” Participants could respond either “Yes, I would refer my friend” or “No, I would not refer my friend.”

We additionally measured reputational benefits (How would [Friend’s name] view you referred them to join Amazon BOLD through this referral?” - Generous, Helpful, Friendly, Well-Intentioned, Trustworthy, Warm, Good-natured, Likeable, Sincere; 1 = Not at all, 7 = Very much; \(\alpha = .97\)). Finally, as a manipulation check, we measured action costs using the same action costs scale used in Study 3: “Referring my friend to Amazon BOLD would be…” (\(\alpha = .88\)).

### 2.11.2 Results

**Manipulation Check.** As expected, there was a significant main effect of the action cost manipulation; the high cost condition was perceived as having higher action costs than the low cost condition ((F(1, 823) = 53.28, \(p < .001\)). There was a non-significant effect of referral incentive type on action costs (F(1, 823) = .52, \(p = .47\)). There was a significant interaction of action cost and incentive type (F(1, 823) = 9.23, \(p = .002\)). In the high cost condition, perceived action costs were directionally, though not significantly, higher for the recipient-benefiting referral (\(M_{\text{Recipient-Benefiting}} = 3.76, \text{SD} = 1.75\)) than the sender-benefiting referral (\(M_{\text{Sender-Benefiting}} = 3.48, \text{SD} = 1.75\); t(406) = -1.62, \(p = .11\)). Surprisingly, in the low-cost condition, perceived action costs were significantly higher in the sender-benefiting condition (\(M_{\text{Sender-Benefiting}} = 2.96, \text{SD} = 1.85\) vs. \(M_{\text{Recipient-Benefiting}} = 2.50, \text{SD} = 1.61\); t(414) = 2.68, \(p = .008\)).
Referral choice. Table 2.1 summarizes the results. We performed a binary logistic regression on referral choice as a function of action cost (high/low) and referral type (sender-benefiting/recipient-benefiting). This analysis yielded a significant interaction of action cost and incentive type ($\chi^2(1) = 6.24, p = .013$, Figure 2.5). For participants in the low-cost condition, there was a marginally significantly higher rate of referrals in the recipient-benefiting condition (81.52%) compared to the sender-benefiting condition (72.38%, $\chi^2(1) = 2.88, p = .09$). However, when action cost was high, there was a marginally significantly higher rate of referrals in the sender-benefiting condition (73.63%) than the recipient-benefiting condition (63.82%, $\chi^2(1) = 3.45, p = .06$).

**FIGURE 2.5**
STUDY 5A: REFERRAL CHOICE BY REFERRAL TYPE AND ACTION COST

*Figure 2.5.* When cost of taking action is low, there is no difference in the choice to refer for a sender-benefitting or recipient-benefiting incentive. When the cost of taking action is high, sender-benefiting incentives are marginally more effective for encouraging referrals.
Reputational Benefits. As in previous studies, there was a significant main effect of incentive type on ratings of reputational benefits; participants expected higher reputational benefits for sending their friend a recipient-benefiting referral (vs. a sender-benefiting) referral, (F(1, 824) = 58.11, p < .001). Action costs had no significant effect on reputational benefits, (F(1, 824) = .003, p = .96). There was a marginally significant interaction for cost and incentive type (F(1, 824) = 9.23, p = .08). In the high cost condition, reputational benefits were significantly higher for the recipient-benefiting referral (M_{Recipient-Benefiting} = 5.40, SD = 1.27) than the sender-benefiting referral (M_{Sender-Benefiting} = 4.46, SD = 1.64; t(406) = 1.97, p = .05). Similarly, in the low-cost condition, reputational benefits were higher for the sender-benefiting (vs. recipient-benefiting) referral (M_{Recipient-Benefiting} = 5.22, SD = 1.33 vs. M_{Sender-Benefiting} = 4.63, SD = 1.53; t(414) = 4.23, p < .001).

2.11.3 Discussion

Study 5A finds that when the cost of taking action is high, self-benefiting incentives outperform other-benefiting incentives at motivating consumers to make a referral. However, when the cost of taking action is low, as is often the case at the referral stage, there is no difference between the two incentive types (or in this case a marginally significant preference for other-benefiting incentives).

2.12 Study 5B
2.12.1 Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2BHK8fj), we recruited 800 MTurk participants; 740 met our pre-registered conditions of both completing the dependent variable and using a unique location (M_{Age} = 35.95, 56.22% female).

To understand the role of action costs at the uptake stage of the referral process, we had participants imagine that a friend sent them an email asking if they would like to try Food2Me (the same fictitious food delivery service used in Study 3). Participants provided their own first name and the first name of a close friend. We manipulated whether they received a recipient-benefiting referral or a sender-benefiting referral. In both conditions, the incentive was a $20 Amazon gift card. We also manipulated action costs by varying the effort required to sign up for the service. Specifically, participants in the low-cost condition read, “This is an exclusive offer - to verify that only one person uses this offer, simply click this unique link to sign up: Food2Me.com/xyq6msp204.” Those in the high-cost condition read, “This is an exclusive offer - to verify that only one person uses this offer, print out the attached documents, fill them out, and mail them to the Food2Me headquarters with your unique code: xyq6msp204.” To make the effort required in the high-cost condition even more salient, we additionally had these participants click through a step-by-step process of what would be required to sign up for the service. For emails used in all conditions, see Appendix A (full survey can be found at our open science link). All participants were required to correctly identify who would receive an incentive (themselves or their friend) and what was required in order to sign up (click a link or print out documents and mail them in) before they could move to the uptake decision to confirm that they understood the incentive structure and action costs.
Participants then answered the question, “Would you sign up for the Food2Me delivery service?” Participants could respond either “Yes, I would sign up for the Food2Me delivery service” or “No, I would not sign up for the Food2Me delivery service.”

Note that, as in Study 2, we told participants (recipients) in the sender-benefiting referral conditions that the friend who referred them would receive a reward if they followed through on the referral. We informed participants of this benefit to their friend to examine whether, even when recipients know that their friend will receive an incentive (which is not always the case in these incentive designs), prosocial sender-benefiting referrals have a minimal positive effect at the uptake stage due to the higher burden of follow-through. We additionally measured reputational benefits (How would your friend view you if you chose to join Food2Me through this referral?” - Generous, Helpful, Friendly, Well-Intentioned, Trustworthy, Warm, Good-natured, Likeable, Sincere; 1 = Not at all, 7 = Very much; α = .96). Finally, as a manipulation check, we measured action costs using the same action costs scale used in Studies 3 and 5A: “Subscribing to Food2Me would be…” Effortful, Burdensome, Costly” (α = .81).

2.12.2 Results

Manipulation Check. As expected, there was a significant main effect of the action cost manipulation; the high cost condition was perceived as having higher action costs than the low cost condition (F(1, 739) = 311.40, p < .001). There was also a significant main effect of referral incentive type (F(1, 739) = 5.26, p = .022). There was a non-significant interaction of action cost and incentive type (F(1, 739) = .19, p = .67). In the high cost condition, perceived action costs were significantly lower for the recipient-benefiting referral (M<sub>Recipient-Benefiting</sub> = 4.53, SD = 1.35) than the sender-benefiting referral (M<sub>Sender-Benefiting</sub> = 4.83, SD = 1.43; t(361) = 1.97, p = .05). In
the low-cost condition, there was a non-significant difference in perceived action costs (M_{Sender-Benefiting} = 2.92, SD = 1.56 vs. M_{Recipient-Benefiting} = 2.72, SD = 1.37; t(375) = 1.29, p = .20).

**Uptake decision.** Table 2.1 summarizes the results. We performed a binary logistic regression on uptake decision as a function of uptake cost (high/low) and referral type (sender-benefiting/recipient-benefiting). This analysis yielded a significant interaction of action cost and incentive type, consistent with Study 5A ($\chi^2 (1) = 9.21, p = .002$, Figure 2.6). For participants in the high-cost condition, we observed more sign-ups for the recipient-benefiting referral (32.20%) than the sender-benefiting referral (15.59%, $\chi^2 (1) = 21.42, p < .001$), consistent with Studies 2-4A as well as typical incentivized behavior. However, when uptake cost was low, there was no difference in uptake choice by those in the recipient-benefiting condition (55.90%) versus the sender-benefiting condition (54.40%, $\chi^2 (1) = .86, p = .77$), consistent with referral choice in previous studies.

**FIGURE 2.6**

STUDY 5B: UPTAKE CHOICE BY REFERRAL TYPE AND ACTION COST

![Chart showing uptake choice by referral type and action cost](chart.png)
Figure 2.6. Recipient-Benefiting incentives are more effective when the cost of taking action (uptake) is high. When cost of taking action is low, there is no difference in the choice to following through for a sender-benefiting or recipient-benefiting incentive.

Reputational Benefits. There was a significant main effect of incentive type on ratings of reputational benefits; participants expected higher reputational benefits for following through on a sender-benefiting (vs. recipient-benefiting) referral, \( (F(1, 739) = 19.90, p < .001) \). Action cost also had a marginally significant main effect on reputational benefits, \( (F(1, 739) = 3.64, p = .057) \). There was a non-significant interaction for cost and incentive type \( (F(1, 739) = 2.35, p = .13) \). In the high cost condition, reputational benefits were significantly higher for the sender-benefiting referral \( (M_{\text{Sender-Benefiting}} = 5.01, \text{SD} = 1.38) \) than the recipient-benefiting referral \( (M_{\text{Recipient-Benefiting}} = 4.72, \text{SD} = 1.35; t(361) = 1.97, p = .05) \). Similarly, in the low-cost condition, reputational benefits were higher for the sender-benefiting (vs. recipient-benefiting) referral \( (M_{\text{Sender-Benefiting}} = 5.34, \text{SD} = 1.25 \text{ vs. } M_{\text{Recipient-Benefiting}} = 4.76, \text{SD} = 1.26; t(375) = 4.46, p < .001) \).

2.12.3 Discussion

Study 5B finds that when the cost of taking action is high, as is often the case at the uptake stage, self-benefiting incentives are a more effective motivator despite recipients expecting higher reputational benefits for other-benefiting incentives. However, when action costs are low, there is no significant difference in the choice to act (follow-through on a referral) when offered a self-benefiting or other-benefiting incentive. An additional study replicated this pattern using the monetary cost of uptake (a $2 service vs. a $100 service) as an alternative manipulation of action costs; please see Appendix C –Study 4.
Studies 5A and 5B provide evidence for the predicted role of action costs on the effectiveness of prosocial and self-benefiting incentives. The results suggest that, in the context of one’s social network, when the cost of acting is low (e.g., simply referring a friend or clicking to sign up), consumers are equally motivated by prosocial and self-benefiting incentives. However, in the same context, when the cost of acting is high (e.g., following through on a typical referral), consumers are more motivated by self-benefiting incentives. Therefore, when uptake costs are high, which is often true at the recipient stage, companies may benefit from using recipient-benefiting referrals. Recipient-benefiting referrals provide a low-cost way for referrers to gain reputational benefits and for recipients to overcome the typically high cost of uptake with a personal incentive.

2.13 General Discussion

People commonly believe that behavior is strongly influenced by self-serving stakes (e.g., monetary incentives; Miller and Ratner 1996; 1998) and research has shown that such incentives can effectively motivate behavior (Schwartz et al. 2018). Much of this research demonstrating the effectiveness of selfish incentives relative to prosocial incentives compares self-benefiting incentives with a contribution to a charity or unknown individual (e.g., Eckel and Grossman 1996; Imas 2014). We find that in the context of customer referrals, which directly involves one’s social ties, prosocial incentives are a powerful motivator and can be equally as powerful as self-benefiting incentives. The present research builds on related work on customer referral rewards, which primarily examines the first stage of the referral process (the customer’s choice to refer a friend) and the role of social distance at this stage (Hong et al. 2017; Ryu and Feick 2007). This paper goes on to provide a comprehensive account for why these rarely used
recipient-benefiting referrals might outperform sender-benefiting referrals by independently assessing both stages of the process (and randomly assigning participants to both stages in multiple studies). Specifically, previous work finds that shared or recipient-benefiting incentives become more effective when the recipient is a strong social tie (Hong et al. 2017; Ryu and Feick 2007). We extend this theoretical framework by examining the specific role of reputational benefits in motivating action at the referral stage – customers are motivated to refer because they want their social network to view them favorably. We additionally find evidence that the cost of action plays an important role in the effectiveness of prosocial incentives; when action costs are high (i.e., at the uptake stage), incentives that benefit social network members become relatively less effective than equivalent selfish incentives. By directly testing mechanisms at both stages of the referral process, we add to the understanding of the complex referral process.

This work additionally builds on research designed to understand how people care about their own versus others’ outcomes (Andreoni, Rao and Trachtman 2017; Berman and Small 2012; Dana, Weber and Kuang 2007; DellaVigna, List and Malmendier 2012). We find that when it comes to decisions to refer a friend to a new product or service, people are just as likely to act when offered other-benefiting or self-benefiting incentives; however, this high value on the prosocial option is tenuous. If the recipient is not a friend, if the recipient friend does not know the source of the prosocial act, or if the costs of being generous to a friend are high, relative preference for the prosocial incentive declines. In some respects, the fragility of prosocial preferences in this domain reflects a dispiriting pattern, illustrating stark limits and self-serving boundaries of human generosity. However, we also note that in this context, the actors in the exchange have demonstrated no clear need for assistance. Recipient neediness is often cited as individuals’ highest prosocial priority (Cryder, Botti, and Simonyan 2017), and is likely to be
particularly motivating when occurring within one’s social circle (Small and Simonsohn 2007). Therefore, although we find prosocial preferences to exist only narrowly in this context, and potentially with minimal “pure” altruism (Andreoni 1988; Batson, Early and Salvarani 1997) toward the other person, we expect prosocial preferences to be substantially more robust in other contexts when a clear need for help exists.

In Studies 2 and 3, we also examine the effectiveness of an incentive that is shared between the referrer and the recipient. We find that shared incentives perform equally as well as purely other-benefiting incentives at both the referral and uptake stages. Because multiple features change at once when offering a shared incentive, it remains unclear what drives the performance of the shared incentive. One possibility is that, at the referral stage, including any incentive component that rewards the recipient is sufficient to achieve the performance of the recipient-only incentive, even if the size of the recipient’s incentive is small. Another possibility is that the smaller incentive size for the recipient pushes down performance of the shared incentive, but offering individuals an opportunity to have a shared experience (a shared incentive in this case) with a member of their social network exerts a positive force back upwards. Additional processes could be contributing to the performance of the shared incentive as well, and future research could attempt to understand exactly what drives the performance of the shared incentive.

This work can be extended to several other interesting areas for future research. For example, all studies in this paper examine the effect of conditional referral incentives (participants are only rewarded for successful referrals). Future research might investigate unconditional referral incentives, which reward referrals regardless of recipient follow-through. Further, while we find consistent results across a range of reasonable consumer incentive sizes (e.g., a $3 Starbucks gift card and a $50 food delivery service), it is possible that incentives of an even greater magnitude
would provide different results. Interestingly, some past research finds that reward magnitude moderates the effect of incentive type on effort, showing that other-benefiting incentives are more effective than self-benefiting incentives when the stakes are low (i.e., $0.50), but are relatively less effective when the stakes are high (i.e., $2.00; Imas 2014). According to this work, our range of incentives should all be high stakes, and therefore we might expect self-benefiting incentives to be more effective at both stages. However, this previous work looks at incentives that are given anonymously and therefore do not activate the anticipated reputational benefits that motivate action in the current context. It is still possible that there is a limit to the effect of these reputational benefits, and at a certain magnitude, a sender-benefiting incentive would consistently be more effective than recipient-benefiting incentives at the referral stage. For example, employers and property owners may offer employee or tenant referral rewards valued at hundreds or even thousands of dollars. Future work might further test the role of incentive magnitude on the effectiveness of these incentives in a referral context.

We additionally test our theory across a range of consumer products and services (e.g., photo-sharing app, videogame rentals, and food delivery service) and consistently show that recipient-benefiting referral incentives overall lead to a greater number of new customers than sender-benefiting referral incentives. However, we acknowledge that this paper does not cover all consumer contexts and that there may be other important moderators for companies to consider. Sender-benefiting referral incentives may be even more effective at the referral stage, for example, in social consumer contexts where the referrer has an additional incentive to get their friends to join (e.g., team sport leagues or collaborative online gaming). The present studies also primarily focus on positive consumer experiences, but it would be interesting to explore referral choice for other consumption experiences. For example, do recipient-benefiting
incentives continue to outperform sender-benefiting incentives when the referrer had a bad experience with the product or when a company has received negative press? We tested the latter in an initial study and do not find an interaction of incentive type and negative press on the choice to refer (see Appendix C –Study 5). However, future work might further explore the boundaries of both incentive size and consumer context on the effectiveness of recipient-benefiting (vs. sender-benefiting or shared) referral incentives. Finally, these studies suggest that customers choose to refer their friends when offered a recipient-benefiting referral incentive, because they *anticipate* that they will receive reputational benefits for making this type of referral. Future studies might examine *actual* responses to receiving these referrals – that is, do recipients truly view their friends more favorably when they send recipient-benefiting referrals?

From a practical perspective, this research suggests that companies looking to get the largest possible return on their referral investment may want to adopt a partly or purely recipient-benefiting referral incentive designs to recruit new customers. Despite consistent findings in this research that recipient-benefiting referrals outperform their sender-benefiting counterparts, sender-benefiting referral offers are more common in marketing practice (please see page 6). These patterns suggest that incentive architects do not have clear insights into the interplay of reputational benefits and action costs in this context. Future research could work to uncover the reasons why marketers do not accurately predict incentive dynamics in this, and other related contexts (e.g., competitor referrals; Blanchard, Hada, Carlson 2018), providing conceptual as well as practical insight about areas where incentive design can be improved.
Appendices

3.1.1 Chapter 1: Appendix A

Below we report additional findings that were not reported in the article

Additional Results from correlational study in the Theoretical Background

- **Participants:** Recruited 105 Mechanical Turk participants, 96 of whom met our inclusion criteria ($M_{\text{age}} = 33.6$, 57.3% female); five participants were removed for failing to complete the study (i.e., incomplete data) and four for failing the attention check.

<table>
<thead>
<tr>
<th>Company</th>
<th>Average Trait Warmth</th>
<th>Average Communal Intent</th>
<th>Correlation</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>5.30</td>
<td>4.10</td>
<td>0.402</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Apple</td>
<td>4.16</td>
<td>3.94</td>
<td>0.222</td>
<td>$p = .027$</td>
</tr>
<tr>
<td>Coca-Cola</td>
<td>4.70</td>
<td>3.75</td>
<td>0.415</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>General Electric</td>
<td>4.39</td>
<td>3.59</td>
<td>0.378</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Google</td>
<td>4.74</td>
<td>3.55</td>
<td>0.151</td>
<td>$p = .136$</td>
</tr>
<tr>
<td>IBM</td>
<td>4.39</td>
<td>3.75</td>
<td>0.262</td>
<td>$p = .009$</td>
</tr>
<tr>
<td>Mercedes</td>
<td>4.15</td>
<td>3.46</td>
<td>0.358</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Microsoft</td>
<td>4.31</td>
<td>3.79</td>
<td>0.489</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Samsung</td>
<td>4.43</td>
<td>3.73</td>
<td>0.397</td>
<td>$p &lt; .001$</td>
</tr>
<tr>
<td>Toyota</td>
<td>4.58</td>
<td>3.74</td>
<td>0.333</td>
<td>$p = .001$</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4.51</strong></td>
<td><strong>3.74</strong></td>
<td><strong>0.335</strong></td>
<td><strong>$p &lt; .001$</strong></td>
</tr>
</tbody>
</table>

Additional Results from Study 1

**Confirmatory Factor Analysis.** Factor analysis with varimax rotation confirmed that the items for charitable credit, warmth, communal intent, and competence loaded onto separate factors, each with eigenvalues greater than 1. The first factor loaded the six warmth traits ($\alpha = .96$), the second factor loaded all six competence items ($\alpha = .94$), the third factor loaded the five charitable credit...
items ($\alpha = .91$). In this analysis, two of the five communal intent items did not clearly load onto any of the factors, however the five items still formed a reliable scale ($\alpha = .80$).

Mediation. We also conducted a mediation analysis with purchase likelihood as the outcome variable and found that perceptions of communal intent partially mediated the effect of manipulated donor warmth on purchase likelihood. Using methods prescribed by Hayes (2013 – Model 4) we tested the significance of communal (vs. exchange) intent as the mediator by calculating standardized indirect effects for 5,000 bootstrapped samples and found that communal intent partially mediates the effect of donor warmth on purchase likelihood (Indirect effect = 0.26; 95% CI [0.13, 0.42]; direct effect = 0.36; 95% CI [0.10, 0.62]). This pattern remains significant when we control for competence and perceived wealth (indirect effect = 0.13; 95% CI [0.03, 0.25]; direct effect = 0.31; 95% CI [0.03, 0.25]).

Additional Results from Study 2A
We were interested in what participants in the unspecified (control) condition assumed that the company donated. Therefore, in the control condition, we asked participants “What do you think Spades Hardware donated to the food bank” (1. Money, 2) Goods, or 3) I’m not sure; choices randomized). 55.97% guessed money, 29.85% guessed goods, and 14.18% selected that they were not sure.

Additional Results from Study 2B
Confirmatory Factor Analysis. Factor analysis with varimax rotation confirmed that the items for charitable credit, communal intent, and effort/sacrifice loaded onto 3 separate factors, each with eigenvalues greater than 1. The first factor loaded all five charitable credit measures ($\alpha = .90$), the second factor loaded the five effort/sacrifice items ($\alpha = .92$), and the third factor loaded all five communal intent items ($\alpha = .82$).

Additional Results from Study 3A
Confirmatory Factor Analysis. Factor analysis with varimax rotation confirmed that the items for charitable credit, communal intent, effort/sacrifice, warmth, and competence loaded onto five separate factors, each with eigenvalues greater than 1. The first factor loaded all six competence measures ($\alpha = .94$), the second factor loaded all six warmth items ($\alpha = .92$), the third factor loaded all five charitable credit items ($\alpha = .89$), the fourth factor loaded the five effort/sacrifice items ($\alpha = .88$), and the fifth factor loaded the five communal intent items ($\alpha = .82$)

Moderated Mediation. We also conducted a moderated mediation analysis (Hayes 2013-model 8) controlling for both competence and perceived wealth and found a similar pattern. We tested the significance of both mediators by calculating standardized indirect effects for 5,000 bootstrapped samples and found that the model mediates the effect of donation type on charitable credit (direct effect = 0.12; 95% CI [-0.02, 0.25]). More specifically, we found that donation type produced an indirect effect of communal intent on charitable credit that was conditional on individual warmth, but found no indirect effect of effort/sacrifice. As hypothesized, inferences about communal intent mediated the effect of donation type on charitable credit for the low-warmth individual (indirect effect = 0.12 (95% CI [0.02, 0.25])), but not for the high-warmth individual
Additional Results from Study 3B

*Confirmatory Factor Analysis.* Factor analysis with varimax rotation confirmed that the items for charitable credit, communal intent, warmth, and effort/sacrifice loaded onto four separate factors, each with eigenvalues greater than 1. The first factor loaded the six warmth traits ($\alpha = .96$), the second factor loaded all five charitable credit items ($\alpha = .93$), the third factor loaded the five effort/sacrifice items ($\alpha = .92$), and the fourth factor loaded all five communal intent items ($\alpha = .88$).

*Moderated Mediation.* We also conducted a moderated mediation analysis (Hayes 2013-model 8) controlling for both competence and perceived wealth and found a similar pattern. We test the predicted relationship of donation type by low or high-warmth donors on charitable credit received, including both communality and effort/sacrifice as mediators. We tested the significance of both mediators by calculating standardized indirect effects for 5,000 bootstrapped samples and found that the model mediates the effect of donation type on charitable credit (direct effect = 0.11; 95% CI [-0.01, 0.24]). We found an indirect effect of communal intent conditional on warmth, but no indirect effect of effort/sacrifice. As hypothesized, inferences about communal intent mediated the effect of donation type on charitable credit for the low-warmth company (indirect effect = 0.16 (95% CI [0.07, 0.28])), but not for the high-warmth company (indirect effect = 0.02 (95% CI [-0.07, 0.11])). Effort/sacrifice did not mediate the effect for the low-warmth company (indirect effect = 0.05 (95% CI [-0.01, 0.11])), nor for the high-warmth company (indirect effect = -0.01 (95% CI [-0.07, 0.04])). The index of moderated mediation was significant for communality (Index = -.15 (95% CI [-0.30, -0.03]), but not significant for effort (Index = -.06 (95% CI [-0.15, 0.01]).

Additional Results from Study 4

*Confirmatory Factor Analysis.* Factor analysis with varimax rotation confirmed that the items for charitable credit, warmth, and effort/sacrifice loaded onto separate factors, each with eigenvalues greater than 1. The first factor loaded the six warmth traits ($\alpha = .94$), the second factor loaded all five charitable credit measures ($\alpha = .89$), the third factor loaded the five effort/sacrifice items ($\alpha = .85$). In this analysis, two of the communal intent items did not clearly load onto any of the factors, however the five items were still reliable ($\alpha = .80$).

3.1.2 Chapter 1: Appendix B

*Below we report all measures collected in each study:*
Study 0 (in introduction)

- **Trait Warmth:** “To what extent do the following traits describe (company)** in general?**” (1 = Does not describe [company], 7 = Describes [company] very well)
  - Friendly
  - Well-intentioned
  - Trustworthy
  - Warm
  - Good-natured
  - Sincere

- **Communality** “Please rate how strongly you agree with the following statements about [company]” (1 = Strongly disagree, 7 = Strongly agree)
  - The company did not expect to receive any benefits from helping
  - The company helped to respond to others' needs
  - The company has a genuine desire to help others
  - The company helped with hopes of benefiting themselves
  - The company helped in order to get ahead

- **Attention Check**
  - Research in decision making shows that people, when making decisions and answering questions, prefer not to pay attention and minimize their effort as much as possible. Some studies show that over 50% of people don't carefully read questions. If you are reading this question and have read all the other questions, please select the box marked 'other' and type 'decision making' in the box below. Do not select "company descriptions." Thank you for participating and taking the time to read through the questions carefully! What was this study about?
  - Company descriptions
  - Political preferences
  - Predictions of a friend’s behavior
  - Other ____________

Study 1

- **Charitable Credit:** “How favorably do you view Spades Hardware on the characteristics below as a result of their donation?” (1 = Not at all, 7 = Very much so)
  - Generous
  - Helpful
  - Charitable
  - Beneficial
  - The extent to which they made the world a better place

- **Communality** “Please rate how strongly you agree with the following statements about Spades’ motives:”

- **Trait Warmth**

- **Competence traits:** “To what extent do the following traits describe Spades Hardware in general?” (1 = Does not describe [company], 7 = Describes [company] very well)
  - Capable
- Efficient
- Skillful
- Competent
- Intelligent
- Confident

- Wealth Perception: “How wealthy do you think Spades Hardware is?” (1=Not at all wealthy, 7=Extremely Wealthy)
- Purchase Likelihood “Imagine that you live near a Spades Hardware store. Please rate how likely would you be to go to Spades Hardware next time you need home improvement goods” (1 = Not at all likely, 7 = Very likely)
- How much would you estimate Spades Hardware's donation was worth? (Free Response)
- Attention Check (with “company donations” as option A)

**Study 2A**
- Charitable Credit: “How favorably do you view Spades Hardware on the characteristics below?”
- Purchase Likelihood
- Control condition only: What do you think Spades Hardware donate to the food bank?
  - Money
  - Goods
  - I’m not sure
- Control condition only: How much would you estimate Spades Hardware's donation was worth? (Free Response)
- Who would be able to get more canned food for $2,000?
  - Spades Hardware
  - The food bank
  - They can get the same amount
- Attention Check (with “company donations” as option A)

**Study 2B**
- Charitable Credit: “How favorably do you view Spades Hardware on the characteristics below as a result of their donation?” (1 = Not at all, 7 = Very much so)
- Communality
- Effort
  - Spades Hardware put a lot of effort into this donation
  - Spades Hardware worked hard on this donation
  - Spades Hardware put thought into this donation
- Sacrifice
  - How big was Spade Hardware’s sacrifice when making this donation?
  - Spades Hardware sacrificed when making this donation.
- Purchase Likelihood
- Attention check (with “company donations” as option A)

**Study 3A Pre-test**
- Trait Warmth
• Attention Check (with “people judgments” as option A”)

Study 3A
• Charitable Credit: “How favorably do you view Spades Hardware on the characteristics below as a result of their donation?” (1 = Not at all, 7 = Very much so)
• Communality
• Effort and Sacrifice
• Trait Warmth
• Competence traits
• Wealth Perception
• Attention Check (with “donations” as option A)

Study 3B Pre-test
• Trait Warmth
• Attention Check (with “company descriptions” as option A)

Study 3B
• Charitable Credit: “How favorably do you view Spades Hardware on the characteristics below?”
• Communality
• Effort and Sacrifice
• Purchase Likelihood
• Trait Warmth
• Attention check (with “company donations” as option A)

Study 4
• Charitable Credit “How favorably do you view Spades Hardware on the characteristics below as a result of their donation?” (1 = Not at all, 7 = Very much so).
• Communality
• Effort and Sacrifice
• Purchase Likelihood
• Trait Warmth
• Attention check (with “company donations” as option A)

3.1.3 Chapter 1: Appendix C

Below are additional studies

Appendix Study 1 – No donation, goods donation and monetary donation
This study tests whether consumers judge a low-warmth donor (a company) more favorably for a donation of goods than for a donation of money. We also compare donations of both money and goods to making no donation at all in a third “Control” condition.

Methods

We recruited 330 Mechanical Turk participants, 274 of whom met our inclusion criteria ($M_{\text{Age}} = 34.39, 48\%$ female); 45 participants were removed for failing to complete the study (i.e., incomplete data) and 11 for failing the attention check. Participants were told to imagine the following scenario: “Spades Hardware is a small hardware chain. While Spades Hardware doesn't have the selection of larger chains, the prices are reasonable and they provide good service.” Participants were assigned to one of three conditions: 1) Control condition – no further information given, 2) Money donation condition – “This past weekend Spades Hardware donated $1,000 to a local foodbank”, or 3) Goods donation condition – “This past weekend Spades Hardware donated boxes of canned food (worth $1,000) to a local foodbank.”

In all conditions, participants indicated the charitable credit that they would award to the donating company using the five item scale of charitable credit. We also measured purchase likelihood by asking participants “Please rate how likely you would be to go to Spades Hardware next time you need home improvement goods” (1 = Not at all likely, 7 = Very likely).

Results

Charitable Credit. Planned comparisons revealed that participants gave the company more charitable credit for donating goods ($M_{\text{Goods}} = 5.79, SD = .88$) than for donating money ($M_{\text{Money}} = 5.47, SD = .78; t(180) = 2.53, p = .01, d = .38$). In addition, both treatments performed
better than the control (no donation) condition ($M_{\text{Control}} = 4.98, \ SD = .91$), which provided the company with less charitable credit than either the goods ($t(178) = 3.95, \ p = .001, \ d = .59$) or the money donation conditions ($t(182) = 6.14, \ p < .001, \ d = .91$).

**APPENDIX STUDY 1: CHARITABLE CREDIT AS A FUNCTION OF DONATION TYPE**

![Graph showing charitable credit as a function of donation type]

*NOTE: Error bars represent standard errors of the mean*

*Purchase Likelihood.* Using planned comparisons, we found that participants indicated a significantly higher likelihood of purchasing from Spades Hardware when they donated goods ($M_{\text{Goods}} = 5.78, \ SD = .98$) compared to when they donated money ($M_{\text{Money}} = 5.44, \ SD = 1.00$; $t(180) = 2.37, \ p = .02, \ d = .35$) or made no donation (control condition; $M_{\text{Control}} = 5.34, \ SD = 1.27$; $t(182) = 2.67, \ p = .008, \ d = .40$). Interestingly, participants reported an equal likelihood of purchasing from Spades Hardware whether Spades donated money or made no donation at all ($t(178) = .57, \ p = .57$).
Discussion

Consistent with our hypothesis, we observe a significant increase in the charitable credit that a company receives when donating goods versus money. Although consumers may sometimes assume that charities can buy goods cheaply through special deals or quantity discounts, we actually see that companies receive more credit for giving goods rather than their equivalent cash value. We also found that both types of donation resulted in more favorable evaluations than making no donation at all.

Appendix Study 2: Donation Value

While we explicitly state the value of the donations in the goods and monetary donation conditions in study 2A, it is possible that participants still feel a goods donation is worth more than a monetary donation. This study was designed to assess whether our results are explained by participants perceiving the goods donation to be of greater value than the monetary donation. Specifically, will we still find that goods donations receive more charitable credit than monetary donations when the goods donation has a lower value?

Methods

We recruited 300 Mechanical Turk participants, 262 of whom met our inclusion criteria (\(M_{\text{Age}} = 34.55, 54.54\% \text{ female} \)); 27 participants were removed for failing to complete the study (i.e., incomplete data) and 11 for failing the attention check. Participants were told to imagine the following scenario: “Spades Hardware is a large corporation that sells home improvement goods.” Participants were then assigned to one of three conditions: 1) Monetary donation – “This
past weekend Spades Hardware donated $1,000 to a foodbank”, 2) equivalent goods donation – “This past weekend Spades Hardware donated $1,000 worth of canned food to a food bank,” or 3) smaller goods donation – “This past weekend Spades Hardware donated $900 worth of canned food to a food bank.”

In all conditions, participants indicated the charitable credit that they would award to the donating company using the five item scale of charitable credit. We also measured purchase likelihood by asking participants “Please rate how likely you would be to go to Spades Hardware next time you need home improvement goods” (1 = Not at all likely, 7 = Very likely).

Results

Charitable Credit. Planned comparisons revealed that participants gave the company equal charitable credit for donating $1,000 worth of goods ($M = 5.69, SD = .77) compared to $900 worth of goods ($M = 5.53, SD = 1.02; t(187)= 1.23, p = .22). However, both goods donations performed better than the monetary ($1,000) donation condition ($M = 4.79, SD = 1.00), which provided the company with less charitable credit than either the equivalent value ($1,000) of goods ($t(166)= 6.62, p < .001, d = 1.03) or the lower value ($900) of goods ($t(165)= 4.70, p < .001, d = .73).

Purchase Likelihood. Planned comparisons revealed that participants reported equal likelihood of purchasing from the company that donated $1,000 worth of goods ($M = 5.48, SD = 1.12) compared to the company that donated $900 worth of goods ($M = 5.46, SD = 1.17 t(186)= 0.13, p = .896). Again, both goods donations performed better than the monetary donation condition ($M = 5.04, SD = 1.19); participants were less likely to purchase in the monetary
donation condition than the equivalent value ($1,000) of goods condition ($ \bar{t}(165) = 2.46, p < .02, d = .38$) or the lower value ($900) of goods condition ($\bar{t}(163) = 2.28, p < .03, d = .36$).

Discussion

This study finds that companies that make goods donations receive greater charitable credit (and purchase intentions) than monetary donations, even when the goods donation has a lower cash value than the monetary donation. This supports our theory that low-warmth donors receive greater charitable credit for donations of goods (vs. money) because goods signal communal intent, and not because the goods donations are perceived as having a higher value.

Appendix Study 3: Mere Mention of Money

Methods

For this study we recruited 555 Mechanical Turk participants, 497 of whom met our inclusion criteria ($M_{Age} = 33.1$, 41% female); 41 participants were removed for failing to complete the study (i.e., incomplete data) and 17 for failing the attention check. Participants were randomly assigned to one of three experimental conditions and told to imagine the following scenario about a fictional store: “Spades Hardware, a home improvement store, donated either 1) ‘$50’, 2) ‘$50 worth of canned food’, 3) or ‘a box of canned food’ to their local food bank”. The second and third conditions were both included to test whether simply mentioning the monetary value of the donation was sufficient to alter a preference for corporate donations of goods.

In all conditions, participants indicated the charitable credit that they would award to the donating company along with purchase likelihoods. We also asked participants in the “box of canned food” condition to estimate what the box of canned food donation is worth. Participants
could enter any value that they wished, and also had an option to select “I have no idea” if they did not have an estimate.

Results

Charitable Credit. Spades Hardware received more charitable credit for donating goods than for donating money, regardless of whether the monetary value of the goods donation was specified or not. Planned comparisons revealed that participants gave the company more charitable credit for donating the box of goods ($M_{\text{BoxofGoods}} = 6.05$, $SD = 1.59$) than for donating $50$ ($M_{\text{Money}} = 5.25$, $SD = 1.81$; $t(326) = 4.28$, $p < .001$, $d = .47$). They also gave the company more charitable credit for donating $50$ of goods ($M_{\$50ofGoods} = 5.74$, $SD = 1.79$) than for donating $50$ ($t(330) = 2.51$, $p < .02$, $d = .28$). The donation of a “box of canned food” was viewed as directionally, but not significantly, more charitable than “$50 worth of canned food” ($t(332) = 1.67$, $p = .10$).

APPENDIX STUDY 3: CHARITABLE CREDIT AS A FUNCTION OF DONATION TYPE
NOTE: Error bars represent standard errors of the mean

Goods-donation Value. When participants in the “Box of canned food” condition estimated how much the box was worth, 35/165 reported that they had no idea and 129/165 estimated the value. Those who estimated the value reported a mean value of $50.45 and a median value of $30. These values tend to match or fall below the $50 value donated in the money condition, suggesting that higher perceived donation value could not account for the increase in charitable credit for corporate donations of goods between the $50 and “box of canned food” conditions.

Purchase Likelihood: Participants reported equal likelihood of purchasing from Spades Hardware based on donation type ($F(2, 494) = .55, p = .46)$.

Discussion
Consistent with our hypothesis, we observe a significant increase in the charitable credit that a company receives when donating goods versus money. While there is evidence in the literature that simply mentioning monetary value highlights exchange norms (e.g., Heyman and Ariely 2004), we observe that this difference in charitable credit due to donation type persists even when the monetary value of a goods donation is specified. In addition, most participants in the “box of food” condition estimate the box’s value to be less than $50, allowing us to conclude that even when the donation amount was not specified, the preference for goods donations did not occur due to a high estimation of the goods-donation value.

**Appendix Study 4. Robustness Check: Communal (vs. Exchange) Orientation and Company-Donation Fit**

This appendix study was designed to replicate our findings from study 2B using a smaller donation amount ($1,000) and two additional goods donations (lumber and food). We also explored the robustness of the effect by changing cause urgency, shifting the donation recipient to natural disaster victims. In addition, we varied whether this effect strengthened, weakened, or remained constant when the donated goods were relevant to the company’s product offerings. Some previous research suggests that companies are evaluated more favorably for donating to a cause that fits their brand image (Chang and Chen 2009; Nan and Heo 2007). Here, we test if the same beneficial inferences occur when the type of goods donated fits closely with the brand or company.

**Pre-test Methods**
We first conducted a pre-test in which we recruited 251 undergraduate students from a private Midwestern university 239 of whom met our inclusion criteria ($M_{Age} = 20.11$, 47% female). Twelve participants were removed for failing to complete the study and there was no attention check in this pre-test. Participants were randomly assigned to one of three between-subjects conditions and asked to imagine a scenario about the fictional company, Spades Hardware. The scenario stated that, “This past weekend, a tornado hit your neighboring town, causing destruction to homes and local businesses and leaving many injured and displaced.” It then stated that Spades Hardware store helped in the relief efforts by donating either 1) money donation – “$1,000”, 2) relevant goods donation – “$1,000 worth of lumber”, or 3) irrelevant goods donation – “$1,000 worth of canned food” to the cause. Participants rated company-donation fit by indicating how strongly they agree with the following statements “The donation made sense coming from Spades Hardware” and “the donation was appropriate coming from Spades Hardware” (1 = Strongly disagree to 9 = Strongly agree). These two items were highly correlated ($r = .88, p < .001$), and were combined to create a company-donation fit measure.

Pre-test Results

The pre-test verified that participants believed the donation of lumber was more highly related to the donor (Spades Hardware) than the donation of canned food. Spades Hardware’s donation of lumber ($M_{Lumber} = 6.59$, SD = 2.15) scored higher on the company-donation fit measure compared to the donation of food $M_{Food} = 3.19$, SD = 2.02; $t(159) = 10.38, p < .001, d = 1.65$).

Main Study Methods
For the main study, we recruited 307 Mechanical Turk participants, 268 of whom met our inclusion criteria ($M_{Age} = 37.64$, 62% female). Seventeen participants were removed for failing to complete the study and 22 for failing the attention check. Participants were randomly assigned to one of the three conditions from the pre-test and were then asked to rate Spades Hardware on the same dimensions as in study 2B: charitable credit, communality, and perceived effort and sacrifice. Purchase likelihood was not measured in this study. The order of all of these measures was counterbalanced.

Main Study Results

*Confirmatory Factor Analysis.* Factor analysis with varimax rotation confirmed that the items for charitable credit, communality, and the effort/sacrifice constructs loaded onto three separate factors, each with eigenvalues greater than 1. The first factor loaded all five charitable credit measures ($\alpha = .92$), the second factor loaded the five effort and sacrifice questions ($\alpha = .90$), and the third factor loaded all five items related to communality ($\alpha = .78$).

*Charitable Credit.* In this study we again found that the company received more charitable credit when donating goods than when donating an equivalent value of money, echoing the initial effect from our other studies. Planned comparisons revealed that participants attributed more charitable credit to Spades Hardware for donations of food ($M_{\text{Food}} = 5.76$, SD = .95) than for donations of money ($M_{\text{Money}} = 5.19$, SD = 1.28; $t(177) = 3.34$, $p = .001$, $d = .50$). They also reported higher charitable credit for donations of lumber ($M_{\text{Lumber}} = 5.54$, SD = 1.05) than donations of money ($t(175) = 1.96$, $p = .05$, $d = .30$). The company-donation fit, however, seemed to have little influence on charitable credit, Spades Hardware received statistically equivalent levels of charitable credit when donating food and lumber ($t(178) = 1.46$, $p = .15$).
APPENDIX STUDY 4: CHARITABLE CREDIT AS A FUNCTION OF DONATION TYPE

NOTE: Error bars represent standard errors of the mean

**Communal Intent.** The donation of food ($M_{Food} = 5.27, SD = 1.04$) was perceived to be directionally more motivated by communal norms than the equivalent monetary donation ($M_{Money} = 4.93, SD = 1.16; t(177) = 1.40, p = .16$). The other goods donation, lumber ($M_{Lumber} = 5.17, SD = 1.09$) was judged as significantly more motivated by communal intentions than the monetary donation ($t(175) = 2.05, p = .04, d = .31$). There was a non-significant difference in the perceptions of communality between the two goods donations ($t(178) = .62, p = .53$).

**Effort and Sacrifice.** The donation of food ($M_{Food} = 4.54, SD = 1.42$) was seen as significantly more effortful than the monetary donation ($M_{Money} = 3.86, SD = 1.28; t(177) = 3.30, p = .001, d = .50$). The other goods donation, lumber ($M_{Lumber} = 4.32, SD = 1.47$) was also rated more effortful than the monetary donation ($t(175) = 2.18, p = .03, d = .33$). However, there was a
non-significant difference in the perceptions of effort and sacrifice between the two goods
donations ($t(178) = -1.09, p = .28$).

Mediation. The mediation analysis revealed a significant mediating role of communal
intent as well as effort on charitable credit. Due to insignificant differences on all three
dependent variables between the two groups who evaluated goods donations, results from the
lumber and food conditions were combined into one goods-donation category. We tested for
significant mediation by calculating indirect effects for 5,000 bootstrapped samples (Hayes
2013- model 4). When both mediators were tested in the same model, the model mediated the
effect of donation type on charitable credit (Total indirect effect = 0.16; 95% CI [0.07, 0.26];
direct effect = 0.06; 95% CI [-0.05, 0.17]). We find a statistically significant indirect effect of
communal intent (0.04; 95% CI [0.01, 0.10] and a statistically significant indirect effect of the
effort and sacrifice measure (0.11; 95% CI [0.05, 0.20]).

Discussion

This study demonstrated further support for the mediating role of communality on the
effect of donation type on charitable credit. In this study, effort/sacrifice also plays a significant
mediating role. In short, we find that perceptions of effort and sacrifice can (but do not always)
play a mediating role linking donations of goods to greater charitable credit. Perceptions of a
company’s communality played a significant mediating role across studies.

Appendix Study 5. Corporate (low-warmth) versus Individual (high-warmth) Donors

This study begins to explore the notion that donor image, specifically the extent to which
a donor is high versus low in warmth, influences the preference for goods donations. Study 2B
highlighted how perceptions that a donation is communal versus exchanged-based in nature underlies the preference for goods donations by low-warmth donors. In this study we propose that differences in donor warmth alternatively allows or inhibits this effect from emerging.

For-profit companies are viewed as low in warmth, (Aaker, Vohs, and Mogilner 2010), a trait judgment that is linked with competitive and market-focused intentions (Fiske et al. 2007). Corporate donations of money may fit with existing assumptions that companies are donating to receive something in return, allowing minimal charitable credit to be received. By contrast, individuals are viewed as fundamentally social and warm (Haslam 2006), and thus more likely to be perceived as having genuine interest to help others when giving any type of donation. We therefore predict that while the preference for goods donations may emerge for corporate donors, individual donors will be less susceptible to image concerns when donating money, and thus will receive high levels of charitable credit regardless of donation type.

Post-test Methods

A post-test gauged whether judged warmth was indeed different for the company (Spades Hardware) and the individuals (the Jones Family) that were compared in the main study. Participants read the vignette for the company or individual without the description of the donation. We recruited 106 Mechanical Turk participants, 98 of whom met our inclusion criteria ($M_{Age} = 33.6$, 45% female). Six participants were removed for failing to complete the study and two for failing the attention check. Participants were asked “to what extent do you think the following traits describe the Jones family (Spades Hardware) in general?” (1 = Does not describe the Jones family [Spades Hardware], 7 = Describes the Jones family [Spades Hardware] very well). To assess this construct, we used the warmth scale from Fiske et al. (2002), which
included the following items: friendly, well-intentioned, trustworthy, warm, good-natured, and sincere ($\alpha = .96$). In a between-subjects design, participants rated either the Jones Family or Spades Hardware on these six items presented in a randomized order.

Post-Test Results

Participants considered the Jones Family to be significantly warmer ($M_{\text{Individual}} = 5.03$, SD = 1.00) than Spades Hardware ($M_{\text{Corporation}} = 4.56$, SD = 1.13; $t(97) = 2.20$, $p = .03$, $d = .45$).

Main Study Methods

For study 3, we recruited 470 Mechanical Turk participants, 436 of whom met our inclusion criteria ($M_{\text{Age}} = 37.8$, 48% female); 25 participants were removed for failing to complete the study and nine for failing the attention check. The study included a 2 (Donation type: Money vs. Goods) x 2 (Donor Type: Low-Warmth--Company vs. High-Warmth--Individuals) between-subjects experimental design. All participants read a brief vignette describing either a fictional company (Spades Hardware) or a fictional set of individuals (the Jones family) that recently donated either 1) a monetary donation -- “$50” or 2) a goods donation -- “a box of canned food” to their local food bank.

All participants then rated the donor (the company or individual) on charitable credit. Participants in the company conditions also reported purchase likelihood.

Main Study Results

*Charitable Credit.* The donor type manipulation had a significant main effect; overall the Jones family (high-warmth) received more charitable credit for their donation than did Spades
Hardware store (low-warmth; $F(1, 432) = 65.51, p < .001$). Donation type did not show a significant main effect ($F(1, 432) = .28, p = .60$). Most importantly, a 2 x 2 analysis of variance revealed a significant interaction between donor type (low-warmth—corporation vs. high-warmth—individuals) and donation type (money vs. goods; $F(1, 432) = 29.94, p < .001$).

Consistent with previous studies, Spades Hardware received significantly more charitable credit for donating goods ($M_{\text{CorporationGoods}} = 5.89, \text{SD} = 1.80$) than for donating money ($M_{\text{CorporationMoney}} = 5.00, \text{SD} = 2.09; t(208) = 3.31, p < .001, d = .46$). This pattern was not observed for the Jones family, however, who actually received significantly more charitable credit for donations of money ($M_{\text{IndividualsMoney}} = 7.18, \text{SD} = 1.40$) compared to donations of goods ($M_{\text{IndividualsGoods}} = 6.52, \text{SD} = 1.69; t(224) = 3.17, p < .001, d = .42$).

APPENDIX STUDY 5: CHARITABLE CREDIT AS A FUNCTION OF DONOR AND DONATION TYPE

![Charitable Credit Graph]

**NOTE:** Error bars represent standard errors of the mean
Purchase Likelihood. Participants reported marginally higher purchase likelihood for Spades Hardware when the company donated goods ($M_{\text{CorporationGoods}} = 5.73$, $SD = 1.97$) compared to when the company donated money ($M_{\text{CorporationMoney}} = 5.23$, $SD = 2.03$; $t(206) = 1.82, p = .07$).

Discussion

Results from this study support the notion that the effect of donation type on charitable credit is more likely to occur for companies, who are typically viewed as low-warmth, than for individuals, who are generally viewed as high in warmth. Once again for a company, we find that donating goods (rather than money) results in higher regard for the company, as indicated both by measurements of charitable credit and purchase likelihood. This effect did not hold for individual donors, however. A post-test confirmed that the corporation in our study was judged as relatively low in warmth whereas the individuals were judged as relatively high in warmth.

Appendix Study 6. Real-world Corporate Donors

This study was designed to replicate the findings from study 3B using real world low- and high-warmth corporate donors.

Pre-test Methods

Prior to the study, we pre-tested two companies, Bolthouse Farms and Pepsi—both of which are successful beverage corporations, on the extent to which they were viewed as warm. In a between-subjects study, 121 participants (recruited using Mechanical Turk) rated one of the
companies on the extent to which the 12 traits of warmth and corporate-ness describe the company.

Pre-test Results

Participants considered Bolthouse Farms \( (M_{\text{Bolthouse Farms}} = 5.23, \ SD = 1.20) \) to be significantly warmer than Pepsi \( (M_{\text{Pepsi}} = 4.02, \ SD = 1.72; \ t(117) = 4.73, p < .001, d = .88). \)

Main Study Methods

The main study involved 475 participants \( (M_{\text{Age}} = 31.3, \ 51\% \ female; \ recruited \ 525, \ 24 \ removed \ for \ incomplete \ data, \ 26 \ removed \ for \ failing \ attention \ check). \) The study was a 2(Company: Pepsi Co. vs. Bolthouse Farms) x 2(Donation: Money vs. Goods) between-subjects experimental design. Participants were asked to imagine one of the following scenarios: “This past weekend, PepsiCo, a large multinational beverage corporation, donated $1,000 (‘boxes of canned food worth $1000’) to the food bank by their headquarters” or “This past weekend, Bolthouse Farms, a farm-based fresh juice company, donated $1000 (‘boxes of canned food worth $1,000’) to the food bank by their headquarters”.

Participants were then asked to rate the two companies on the seven items of charitable credit used in all previous studies, purchase likelihood for the donating company, how large they believed the company is, and how familiar they are with the donating company (all on a 1-5 scale).

Main Study Results
Charitable Credit. The donor manipulation had a significant main effect; overall Bolthouse Farms, the high-warmth company received more charitable credit for their donation than Pepsi, the low-warmth company ($F(1, 471) = 91.00, p < .001$). A 2 x 2 ANOVA revealed a significant interaction between donation type (money/goods) and donor image (low-warmth/high-warmth; $F(1, 471) = 6.50, p = .01$). This interaction remains significant even when we control for both familiarity and perceived size of the two companies ($F(1, 460) = 4.29, p = .04$). Consistent with previous findings, the goods donation performed better than a monetary donation for the company with a low-warmth image, Pepsi ($M_{\text{Goods}} = 3.41, \text{SD} = .87, M_{\text{Money}} = 3.05, \text{SD} = .95; t(226) = 2.98, p = .002, d = .40$), but not for Bolthouse Farms, which has a high-warmth image ($M_{\text{Goods}} = 3.97, \text{SD} = .74$ vs. $M_{\text{Money}} = 3.98, \text{SD} = .67; t(246) = .20, p = .84$).

APPENDIX STUDY 6: CHARITABLE CREDIT AS A FUNCTION OF DONOR AND DONATION TYPE

NOTE: Error bars represent standard errors of the mean
Purchase Likelihood. There was also a significant interaction between donor and
donation type on purchase likelihood ($F(1, 469) = 34.47, p < .001$). Participants were more likely
to purchase Pepsi products after a donation of goods ($M_{\text{Goods}} = 3.23, SD = 1.17$) versus money
($M_{\text{Money}} = 2.92, SD = 1.13; t(223) = 2.03, p = .02, d = .27$). We found no difference in purchase
intentions for Bolthouse Farms based on donation type ($M_{\text{Goods}} = 3.74, SD = .81$ vs. $M_{\text{Money}} =
3.67, SD = .82; t(244) = .06, p = .56$).

Appendix Study 7. Replication of 3A

This appendix study was designed to replicate the findings of study 3A about individual
donors using a manipulation similar to that from study 3B for companies.

Pre-test Methods

We first conducted a pre-test in which we recruited 100 Mechanical Turk participants, 87
of whom met our inclusion criteria ($M_{\text{Age}} = 34.56, 66.7\%$ female). Eight participants were
removed for failing to complete the study (i.e. incomplete data) and five for failing the attention
check. The pre-test measured the perceived warmth of an individual named Joe Jones. In the
high-warmth condition, participants read, “Joe Jones is a friendly person. He is always warm
and welcoming toward his neighbors and focuses on serving his community.” In the low-warmth
condition, participants read, “Joe Jones is an unfriendly person. He is always cold and
indifferent toward his neighbors and focuses on getting ahead.” Participants then rated Joe Jones
on warmth.

Pre-test Results
The descriptions used in the pre-test successfully manipulated donor image. Participants rated Joe Jones as warmer in the high-warmth condition ($M_{\text{High-Warmth}} = 6.30$, SD = .70) compared to the low-warmth condition ($M_{\text{Low-Warmth}} = 2.07$, SD = 1.00; $t(85) = 20.03$, $p < .001$).

Main Study Methods

We recruited 800 Mechanical Turk participants, 722 of whom met our inclusion criteria ($M_{\text{Age}} = 33.01$, 49.5% female); 53 participants were removed for failing to complete the study and 25 for failing the attention check. We tested trait warmth as a moderator by describing the donor (now an individual, rather than a company) in each vignette as having either a low-warmth or high-warmth image, using the same wording as in the pre-test. Participants were then informed that this past weekend, Joe Jones donated either 1) a monetary donation – “$100” or 2) a goods donation – “a box of canned food worth $100” to his local food bank.

We measured charitable credit and the perceived wealth of the donor. Participants also rated the donor on trait warmth. The order of all these measures was counterbalanced.

Main Study Results

Warmth Manipulation Check. The high-warmth individual ($M_{\text{High-Warmth}} = 6.07$, SD = .83) was perceived as warmer than the low-warmth individual ($M_{\text{Low-Warmth}} = 3.36$, SD = 1.24; $t(720) = 34.56$, $p < .001$). We find a main effect of the warmth descriptions on perceived warmth ($F(1, 718) = 1194.20$, $p < .001$). We again observe that donation type did not exert a main effect on warmth ($F(1, 718) = 1.45$, $p = .23$) nor did we observe an interaction between donation type and manipulated donor warmth on measured warmth ($F(1, 718) = .58$, $p = .45$). This provides further evidence that warmth is a relatively stable trait which is not influenced by donation type,
exhibiting distinct patterns compared to the other constructs under study such as charitable credit.

Charitable Credit. The donor manipulation had a significant main effect on charitable credit; the high-warmth individual received more charitable credit for his donation than the low-warmth individual \((F(1, 718) = 211.67, p < .001)\). Donation type also had a significant main effect; donations of goods were rated more favorably than donations of money \((F(1, 718) = 10.52, p = .001)\). Most importantly, a 2 x 2 ANOVA revealed a significant interaction between donation type (money/goods) and donor warmth (low-warmth/high-warmth), \(F(1, 718) = 4.95, p < .03\). When the individual donor was described as having a low-warmth image, he received more charitable credit for a donation of goods than a donation of money \((M_{\text{Goods}} = 5.28, \ SD = .97 \ vs. \ M_{\text{Money}} = 4.91, \ SD = 1.09; \ t(351) = 3.32, p < .001, d = .35)\). The high-warmth individual donor, however, received equal credit for donations money and goods \((M_{\text{Goods}} = 6.10, \ SD = .72 \ vs. \ M_{\text{Money}} = 6.02, \ SD = .72; \ t(367) = .94, p = .35)\).

APPENDIX STUDY 7: CHARITABLE CREDIT FOR INDIVIDUAL DONORS AS A FUNCTION OF DONATION TYPE AND DONOR WARMTH
Appendix Study 8: Signaling Communal Intentions with Monetary Donations

Methods

We recruited 800 Mechanical Turk participants, 730 of whom met our inclusion criteria ($M_{\text{Age}} = 38.31, 55.3\%$ female); 48 participants were removed for failing to complete the study and 22 for failing the attention check. The study included a 2 (Donation: Money vs. Goods) x 2 (Control vs. Monetary Donations Preference) between-subjects experimental design. In the control conditions, participants read that PepsiCo, a large multinational beverage corporation, recently made a monetary donation of $10,000 (or medical supplies worth $10,000) to an international humanitarian aid charity.” In the experimental conditions, participants first read that “An international humanitarian aid charity recently made the following request: ‘Although donations of items such as food, blankets, or medical supplies are appreciated, monetary donations are the best way to help us help people the most. Monetary donations allow us
to purchase exactly what is needed when it is needed.’’ They then read that PepsiCo donated either $10,000 or medical supplies worth $10,000 to the charity.

We measured charitable credit and purchase likelihood in this study as well as warmth items. We also measured communality and effort and sacrifice. The order of all these measures was counterbalanced. Finally, participants responded to a manipulation check. First we asked “Do you think the charity in this study prefers to receive donations of money or donations of goods?” (1 = Strongly prefers donations of Money, 7 = Strongly prefers donations of Goods). We then asked “Do you think charities in general prefer to receive donations of money or donations of goods?” (1 = Charities strongly prefer donations of Money, 7 = Charities strongly prefer donations of Goods). This second question was used to measure participants’ assumptions about donation type in a more general sense, and also see if this varied by condition.

Results

Manipulation Check. Confirming the manipulation, in response to the question “Do you think the charity in this study prefers to receive donations of money or donations of goods?” (1 = Strongly prefers donations of Money, 7 = Strongly prefers donations of Goods) participants who read the nonprofit statement requesting money reported a stronger preference for money than those in the control group ($M_{\text{Control}} = 2.99, \text{SD} = 1.49$ vs. $M_{\text{Statement}} = 1.84, \text{SD} = 1.27; t(700) = 9.93, p < .001, d = .75$). The manipulation had a directional, though non-significant, effect on the perception that charities in general prefer monetary donations to goods donations ($M_{\text{Control}} = 2.54, \text{SD} = 1.30$ vs. $M_{\text{Statement}} = 2.36, \text{SD} = 1.35; t(697) = 1.63, p = .10$). It is also interesting to note that for both the charity mentioned in the study and charities in general, participants in the control condition rated that charities prefer donations of money compared to goods (In
comparison to scale midpoint of 4, specific charity: M = 2.99, SD = 1.57; t(336) = 12.28, p < .001, d = 1.34; charities in general: M = 2.54, SD = 1.46; t(343) = 19.05, p < .001, d = 2.06).

Charitable Credit. The nonprofit statement manipulation had a significant main effect on charitable credit; adding the nonprofit statement that they prefer monetary donations interestingly led to higher levels of charitable credit overall (F(1, 729) = 29.55, p < .001). This main effect may have occurred because both goods and money were mentioned as being helpful in the charity statement. Donation type did not have a significant main effect (F(1, 729) = .001, p = .98). Most importantly, a 2 x 2 ANOVA revealed a significant interaction between donation type (money/goods) and presence of the money-preferred statement (absent/present; F(1, 729) = 10.31, p < .001). Consistent with our previous studies, in the control condition, PepsiCo received more charitable credit for a donation of goods than a donation of money ($M_{\text{Goods}} = 4.81$, SD = 1.39 vs. $M_{\text{Money}} = 4.50$, SD = 1.32; t(360) = 2.18, $p = .03$, $d = .23$). However, when participants first read the nonprofit’s request for monetary (rather than goods) donations, PepsiCo received more credit for donations of money ($M_{\text{Money-Statement}} = 5.32$, SD = 1.14) than donations of goods ($M_{\text{Goods-Statement}} = 5.02$, SD = 1.28; t(369) = 2.38, $p = .018$, $d = .25$).

APPENDIX STUDY 8: CHARITABLE CREDIT FOR PEPSI AS A FUNCTION OF DONATION TYPE AND NONPROFIT STATEMENT
NOTE: Error bars represent standard errors of the mean

*Purchase Likelihood.* We found no main effect of nonprofit statement on purchase likelihood \((F(1, 720) = .67, p = .41)\), nor was there a main effect of donation type on purchase likelihood \((F(1, 720) = 2.02, p = .16)\). There was also no significant interaction between the presence of a nonprofit statement and donation type on purchase likelihood \((F(1, 720) = .76, p = .39)\). In the control condition, the monetary donation \((M_{\text{Money}} = 3.79, SD = 1.88)\) showed marginally lower purchase likelihood than the donation of goods \((M_{\text{Goods}} = 4.22, SD = 1.83; t(356) = 1.62, p = .10)\). There was a non-significant difference between the two donation types following the nonprofit statement \((M_{\text{Money-Statement}} = 4.04, SD = 1.78 \text{ vs. } M_{\text{Goods-Statement}} = 4.11, SD = 1.93; t(364) = .40, p = .69)\).

Discussion

We found that the company (PepsiCo) received more credit for a donation of goods than a donation of money, in line with our previous findings. However, this was no longer the case when participants first read that the charity in question requested a monetary donation. Following
an explicit request for monetary donations, PepsiCo received more credit for responding to the charity’s needs directly and sending money instead. By increasing the perception that the company was responding to a charity’s needs, we saw an increase in the positive evaluation that the company received for donating. We also found a main effect of the nonprofit statement, suggesting that any interaction with the nonprofit (responding to their request for donations) improved the overall evaluations of the company.

It is also interesting to note that, based on our follow-up measures, participants generally believe that charities prefer donations of money to donations of goods. This acts as additional evidence that the results across our studies are not due to a widespread belief that donations of goods are preferred and therefore companies should receive more charitable credit for goods donations. Instead, despite the understanding that charities typically prefer monetary donations, our studies have shown that low-warmth companies and individuals typically receive more credit for donations of goods. Consistent with recent research (Berman et al. 2015; Lin-Healy and Small 2013; Newman and Cain 2014), the motivations behind a donation can be more important than the impact of the donation itself when granting charitable credit.

### 3.2.1 Chapter 2: Appendix A

*Below we report study materials*

**STUDY 1**

Control condition: Sender-Benefiting referral condition:
Invite a friend to join GiftAMeal to help fight hunger.

Our growth and movement is built on referrals to friends from people like YOU. We would really appreciate it if you would invite your friends to download the app and join the GiftAMeal community. For each friend who signs up with your individual code: <<Promo Code>>, we will help provide a meal to someone in need through a local food bank. Think about it: if four people download the app with your code, 4 meals will be provided on your behalf.

It's that simple!

Wondering what to send to your friend? How about this:
Hey! If you download the GiftAMeal app with my code: <<Promo Code>>, you'll be able to provide meals to those in need by taking pictures at restaurants on the app. They'll provide a meal right away just for downloading!
http://www.giftameal.com/download

Spread the love!

The GiftAMeal Team
Andrew, Aidan, Jacob, and Michael

Note: This promotion applies for all downloads completed in the next two weeks. Accounts must be created on separate phones. As always, you can reach out to us at info@giftameal.com with any questions you may have!
Recipient-Benefiting referral condition:

Invite a friend - they get a $5 gift card to Amazon.

Help out a friend while helping those in need! Each friend that downloads the GiftAMeal app with your invitation code will receive a $5 electronic gift card to Amazon. All you need to do is get them to sign up with your individual code: [Promo Code].

It's that simple!

Amazon gift card

Wondering what to send to your friend? How about this:

Hey! If you download the GiftAMeal app with my code: [Promo Code], you'll be able to provide meals to those in need by taking pictures at restaurants on the app, and you'll get a $5 gift card to Amazon! [http://www.giftameal.com/download]

Spread the love!

The GiftAMeal Team
Andrew, Aidan, Jacob, and Michael

Note: This promotion applies for all downloads completed in the next two weeks. Rewards will be distributed at the end of the two-week period. Accounts must be created on separate phones. As always, you can reach out to us at info@giftameal.com with any questions you may have!

Shared referral condition:

Invite a friend - you and your friend each get a $2.50 gift card to Amazon.

For each friend that downloads the GiftAMeal app with your invitation code, you will each receive a $2.50 electronic gift card to Amazon. All you need to do is have them sign up with your individual code: [Promo Code]. Think about it: if four people download the app with your code, you will receive a $10 gift card, and each friend will receive a $2.50 gift card.

It's that simple!

Amazon gift card

Wondering what to send to your friend? How about this:

Hey! If you download the GiftAMeal app with my code: [Promo Code], you'll be able to provide meals to those in need by taking pictures at restaurants on the app, and we'll each get a $2.50 gift card to Amazon! [http://www.giftameal.com/download]

Spread the love!

The GiftAMeal Team
Andrew, Aidan, Jacob, and Michael

Note: This promotion applies for all downloads completed in the next two weeks. Rewards will be distributed at the end of the two-week period. Accounts must be created on separate phones. As always, you can reach out to us at info@giftameal.com with any questions you may have!
Donation referral condition:

*Gift A Meal*

**Invite a friend - we donate $5 to Feeding America.**

For each friend that downloads the GiftAMeal app with your invitation code, we will donate $5 to Feeding America. All you need to do is have them sign up with your individual code. **<<Promo Code>>.** Think about it: if four people download the app with your code, we will donate $20 to Feeding America.

It’s that simple!

*Feeding America*

Wondering what to send to your friend? How about this:

Hey! If you download the GiftAMeal app with my code: **<<Promo Code>>**, you’ll be able to provide meals to those in need by taking pictures at restaurants on the app, and they’ll donate $5 to Feeding America. [http://www.giftameal.com/download](http://www.giftameal.com/download)

Spread the love!

The GiftAMeal Team
Andrew, Alain, Jacob, and Michael

*Note: This promotion applies for all downloads completed in the next two weeks. Donation will be distributed at the end of the two week period. Accounts must be created on separate phones. As always, you can reach out to us at info@giftameal.com with any questions you may have!*
STUDY 2

Control condition:

Referrer email

Sample size 500 (members randomized using an online random math generator)

Subject Line: Refer your friends to Game Access!

Hi [member-name],

If you enjoy your Game Access membership and think we’re providing a valuable service to Canadians across this great vast land, then why not tell your friends?

Game Access is the only video game site of its kind in Canada and the longest running Canadian video game rental service ever! We thank you for being a valuable member of the site and would appreciate any recommendation you’d give! We all kind of hate banner ads, so we feel that the best way for Game Access to grow is by word of mouth from dedicated and happy members such as yourself!

Thanks for spreading the word and happy gaming!

Game Access

Recipient email

Subject Line: Hi [friend_name], I just joined a cool new service!

Hey, [friend_name],

I’m a member of this awesome video rental service called Gameaccess.ca. The site offers over 4,000 video games on all major consoles and you can rent them for as long as you like, since there’s no late fees ever!

[referrer name]
Sender-Benefiting condition:

Referrer email

Sample size 500 (members randomized using an online random math generator)

Subject Line: Refer your friends to Game Access and get a free month!

Hi [member-name].

*If you enjoy your Game Access membership and think we’re providing a valuable service to Canadians across this great vast land, then why not tell your friends? If they join, you get a free month!* 

Game Access is the only video game site of its kind in Canada and the longest running Canadian video game rental service ever! We thank you for being a valuable member of the site and would appreciate any recommendation you’d give! We all kind of hate banner ads, so we feel that the best way for Game Access to grow is by word of mouth from dedicated and happy members such as yourself!

Thanks for spreading the word and happy gaming!

Game Access

Recipient email

Subject Line: Hi [friend_name], I just joined a cool new service!

Hey, [friend_name].

I’m a member of this awesome video rental service called Gameaccess.ca. The site offers over 4,000 video games on all major consoles and you can rent them for as long as you like, since there’s no late fees ever! Check them out, and if you join I’ll get a free month!

[referrer name]
Recipient-Benefiting condition:

Referrer email

Sample size 500 (members randomized using an online random math generator)

Subject Line: Refer your friends to Game Access and they each get their first month free!

Hi [member-name].

If you enjoy your Game Access membership and think we're providing a valuable service to Canadians across this great vast land, then why not tell your friends? If they join, they'll get their first month of service for FREE!

Game Access is the only video game site of its kind in Canada and the longest running Canadian video game rental service ever! We thank you for being a valuable member of the site and would appreciate any recommendation you'd give! We all kind of hate banner ads, so we feel that the best way for Game Access to grow is by word of mouth from dedicated and happy members such as yourself!

Thanks for spreading the word and happy gaming!

Game Access

Recipient email

Subject Line: Hi [friend_name], I just joined a cool new service!

Hey, [friend_name].

I'm a member of this awesome video rental service called Gameaccess.ca. The site offers over 4,000 video games on all major consoles and you can rent them for as long as you like, since there's no late fees ever! Check them out and get a free month of rentals when you join using the link I pasted below!

[referrer name]
**STUDY 4A:**

Personality quiz test results:

You are somewhat more **Extroverted:**

This means you like getting energy from active involvement in events and having a lot of different activities. You are excited when you're around people and you like to energize other people. You like moving into action and making things happen. You generally feel at home in the world. You often understand a problem better when you can talk out loud about it.

You are both Extroverted **AND** Introverted:

You are a balance of both Extroversion and Introversion, sometimes referred to as an "Ambivert". Ambiverts have introverted and extroverted traits, but neither trait is dominant. As a result, they have more balanced or nuanced personalities. Ambiverts move between being social or being solitary, speaking up or listening carefully with greater ease than either extroverts or introverts.

You are somewhat more **Introverted:**

Don't confuse introversion with shyness or reclusiveness. They are not related. Being an introvert means that you like getting your energy from dealing with the ideas, pictures, memories, and reactions that are inside your head, in your inner world. You often prefer doing things alone or with a few people you feel comfortable with. You take time to reflect so that you have a clear idea of what you'll be doing when you decide to act. Ideas are almost solid things for you. Sometimes you like the idea of something better than the real thing.

**Note:** These results were adapted from the Myers & Briggs Foundation (http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/extraversion-or-introversion.htm)
Control and Sender-Benefitting condition recipient e-mails:

From: CBlabWUSTL@gmail.com

Subject: ______________ thought you would enjoy this survey!

Your friend, ______________, just took a quick personality quiz as part of a study at WashU and they wanted to share the link with you! You can take the survey by using this link www.linkwillgohere.com and entering this code _____________.

Recipient-Benefiting condition recipient e-mail:

From: CBlabWUSTL@gmail.com

Subject: ______________ thought you would enjoy this survey (plus get a Starbucks gift card)!

Your friend, ______________, just took a quick personality quiz as part of a study at WashU and they wanted to share the link with you! You can take the survey by using this link www.linkwillgohere.com and entering this code _____________.

If you take the quick survey, you will receive a $3.00 electronic gift card to Starbucks.
Shared condition recipient e-mail:

From: CBlabWUSTL@gmail.com

Subject: ____________ thought you would enjoy this survey (plus get a Starbucks gift card)!

Your friend, ______________, just took a quick personality quiz as part of a study at WashU and they wanted to share the link with you! You can take the survey by using this link [www.linkwillgohere.com](http://www.linkwillgohere.com) and entering this code ____________.

If you take the quick survey, you will receive a $1.50 electronic gift card to Starbucks.
STUDY 5A

High cost/Sender-Benefiting referral

From: Food2Me <Food2Me@delivery.com>
To: [Participant]
Subject: Download Food2Me!

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $5. Sign up today and [Friend] will receive a $20 gift card to Amazon for referring you!

This is an exclusive offer - to verify that only one person uses this offer, print out the attached documents, fill them out, and mail them to the Food2Me headquarters with your unique code: xyq6msp204.

Food2Me address: 201039 5th Ave, Seattle, WA 98121

High cost/Recipient-Benefiting referral
From: Food2Me <Food2Me@delivery.com>

To: [Participant]

Subject: Download Food2Me!

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $5. Sign up today and you will receive a $20 gift card to Amazon for joining!

This is an exclusive offer - to verify that only one person uses this offer, print out the attached documents, fill them out, and mail them to the Food2Me headquarters with your unique code: xyq6msp204.

Food2Me address: 201039 5th Ave, Seattle, WA 98121

Low cost/Sender-Benefiting referral

From: Food2Me <Food2Me@delivery.com>

To: [Participant]

Subject: Download Food2Me!

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $5. Sign up today and [Friend] will receive a $20 gift card to Amazon for referring you!
This is an exclusive offer - to verify that only one person uses this offer, **simply click this unique link** to sign up: Food2Me.com/xyq6msp204.

---

**Low cost/Recipient-Benefiting referral**

---

**From:** Food2Me <Food2Me@delivery.com>  
**To:** [Participant]  
**Subject:** Download Food2Me!

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $5. Sign up today and **you will receive a $20 gift card to Amazon for joining!**

This is an exclusive offer - to verify that only one person uses this offer, **simply click this unique link** to sign up: Food2Me.com/xyq6msp204.

---

**STUDY 5B**

**Referrer role/Sender-Benefiting referral**

You joined a food delivery service called Food2Me which delivers food from your favorite local restaurants **for $50/year.**
Food2Me sends you an email, asking if you would like to refer a friend to join the service. If your friend signs up, Food2Me will **give you a free year of delivery.**

If you chose to refer your friend, [Friend], Food2Me would send [Friend] the following email:

---

**From:** Food2Me <Food2Me@delivery.com>  
**To:** [Friend]  
**Subject:** Download Food2Me!

Dear [Friend],

[Participant] might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $50. **Download the app using this link and [Participant] will receive a free year of Food2Me deliveries!**

---

**Referrer role/Recipient-Benefiting referral**

You joined a food delivery service called Food2Me which delivers food from your favorite local restaurants **for $50/year.**

Food2Me sends you an email, asking if you would like to refer a friend to join the service. If your friend signs up, Food2Me will **give you a free year of delivery.**

If you chose to refer your friend, [Friend], Food2Me would send [Friend] the following email:
Dear [Friend],

[Participant] might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $50. Download the app using this link and you will receive a free year of Food2Me deliveries!

Recipient role/Sender-Benefiting referral

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $50. Download the app using this link and [Friend] will receive a free year of Food2Me deliveries!
Recipient role/Recipient-Benefiting referral

From: Food2Me <Food2Me@delivery.com>

To: [Participant]

Subject: Download Food2Me and get a free year of delivery!

Dear [Participant],

[Friend] has been using our new food delivery app, and thought you might like it too! Food2Me delivers food from your favorite local restaurants for an annual fee of $50. Download the app using this link and you will receive a free year of Food2Me deliveries!

3.2.2 Chapter 2: Appendix B

Below we report additional analyses

STUDY 4A:

Referral Results:

<table>
<thead>
<tr>
<th>Condition</th>
<th>N</th>
<th>Referral Choice</th>
<th>Reputational Benefits</th>
<th>Psychological Costs</th>
<th>Social Obligations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>93</td>
<td>26.37%</td>
<td>3.56 (1.26)</td>
<td>2.43 (1.27)</td>
<td>3.49 (1.43)</td>
</tr>
</tbody>
</table>
Shared referral vs. Sender-Benefiting referral results

As with the recipient-benefiting incentive, participants felt that the reputational benefits of referring were higher in the shared condition ($M_{\text{Shared}} = 4.14, \text{SD} = 1.33$) than the sender-benefiting condition ($M_{\text{Sender}} = 3.69, \text{SD} = 1.34$; $t(182) = 2.29, p = .023$). Participants also reported higher psychological costs in the sender-benefiting condition ($M_{\text{Sender}} = 2.48, \text{SD} = 1.32$) compared to the shared condition ($M_{\text{Shared}} = 2.07, \text{SD} = 1.20$; $t(182) = 2.21, p = .029$). There was a non-significant difference in reported social obligation for the two conditions ($M_{\text{Sender}} = 2.98, \text{SD} = 1.34$) compared to the prosocial condition ($M_{\text{Shared}} = 2.71, \text{SD} = 1.36$; $t(182) = 1.36, p = .18$). We simultaneously tested the significance of all three measured mediators by calculating standardized indirect effects for 10,000 bootstrapped samples (Hayes 2009) and found that reputational benefits mediate the effect of referral type on referral choice. We found a statistically significant indirect effect of reputational benefits (.19; 95% CI [.02, .47]). The indirect effect of psychological costs was not significant (-.09; 95% CI [-.37, .03]) nor was the indirect effect of imposing a social obligation (.21; 95% CI [-.07, .57]).

Recipient Uptake:

<table>
<thead>
<tr>
<th>Condition</th>
<th>N</th>
<th>Recipient Uptake</th>
<th>Imposing</th>
<th>Annoyed</th>
<th>Enjoy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6</td>
<td>24%</td>
<td>2.83 (2.32)</td>
<td>2 (1.27)</td>
<td>3.8 (1.30)</td>
</tr>
<tr>
<td></td>
<td>Count</td>
<td>Percentage</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>------------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>Selfish</td>
<td>16</td>
<td>28.07%</td>
<td>1.56</td>
<td>1.50</td>
<td>1.5</td>
</tr>
<tr>
<td>Prosocial</td>
<td>37</td>
<td>69.81%</td>
<td>1.48</td>
<td>.91</td>
<td>1.45</td>
</tr>
<tr>
<td>Shared</td>
<td>33</td>
<td>64.71%</td>
<td>1.35</td>
<td>.63</td>
<td>1.23</td>
</tr>
</tbody>
</table>

Follow up Questions:

- How much did you feel like your friend was imposing on you by sending this quiz? (1 = Not at all, 7 = Very much so)
- How annoyed were you about receiving this quiz from your friend? (1 = Not at all, 7 = Very much so)
- How much did you enjoy this personality quiz (1 = Did not enjoy at all, 7 = Very much enjoyed it)

### 3.2.3 Chapter 2: Appendix C

*Below we report additional studies*

**APPENDIX STUDY 1**

This appendix study was designed to replicate Study 3. Note – as with Study 3, in this study we label the incentive from the participants’ perspective as either self-benefiting or other-benefiting.

**Methods**

We recruited 800 MTurk participants (803 participants took the survey; \( \text{M}_{\text{Age}} = 36.90, 66.29\% \text{ female} \)). This study involved a 2(incentive: self-benefiting vs. other-benefiting) x 2(role: referrer vs. recipient) between-subjects design. This study used the same materials as Study 3. In
addition to measuring action choice, we measured action costs ($\alpha = .81$), expected reputational benefits ($\alpha = .96$), relationship benefits ($\alpha = .87$) and psychological costs ($\alpha = .94$).

Results

Action Choice. We observed a significant interaction between participant role (referrer/recipient) and incentive type (self-benefiting/other-benefiting; $\chi^2 (1) = 11.51, p = .001$). For participants in the referrer condition, we observed more participants choosing to refer for an other-benefiting incentive (90.59%) than a self-benefiting incentive (83.74%; ($\chi^2 (1) = 4.24, p = .038$). For participants in the recipient condition, we observed more participants choosing to follow-through for a self-benefiting incentive (59.60%) than an other-benefiting incentive (46.23%; ($\chi^2 (1) = 7.12, p = .008$).

APPENDIX STUDY 1: CHOICE TO ACT BY INCENTIVE (SELF-BENEFITING/OTHER-BENEFITING) AND ROLE (REFERRER/RECIPIENT)
**Action Costs.** We observed a significant main effect of incentive type on ratings of action cost; other-benefiting incentives were viewed as a lower cost than self-benefiting incentives (F(1, 791) = 13.41, p < .001). Participant role also has a significant main effect; taking action in the recipient role was perceived as a greater burden than taking action in the referrer role (F(1, 791) = 253.78, p < .001). There was also a significant interaction between incentive and role; F(1, 796) = 14.21, p < .001). Specifically, in referrer condition, there was no difference in perceived cost of taking action (referring) between the two incentives (M_{Self} = 2.08, SD = 1.28 vs. M_{Other} = 2.07, SD = 1.28; t(397) = .08, p = .93). In the recipient condition, action cost was significantly higher when offered an other-benefiting incentive (M_{Other} = 4.03, SD = 1.53) compared to a self-benefiting incentive (M_{Self} = 3.29, SD = 1.50; t(391) = -4.84, p < .001).

**Reputational Benefits.** There was a significant main effect of incentive type on ratings of reputational benefits; participants expected higher reputational benefits when offered an other-benefiting (vs. self-benefiting) incentive (F(1, 792) = 34.56, p < .001). Participant role, however, did not have a significant main effect on reputational benefits (F(1, 792) = .42, p = .52). There was a non-significant interaction for role and incentive type (F(1, 792) = 1.14, p = .29). In the referrer condition, reputational benefits were significantly higher for the other-benefiting incentive (M_{Other} = 5.44, SD = 1.49) than the self-benefiting incentive (M_{Self} = 4.79, SD = 1.29; t(398) = -3.87, p < .001). Similarly, in the recipient condition, reputational benefits were higher for the other-benefiting incentive (M_{Other} = 5.40, SD = 1.16 vs. M_{Self} = 4.95, SD = 1.29; t(391) = -3.64, p < .001).

**Relationship Benefits.** We observed a significant main effect of incentive type on ratings of relationship benefits; following through with an other-benefiting referral resulted in higher relationship benefits than self-benefiting referrals (F(1, 795) = 30.15, p < .001). There was also a
significant effect of participant role on relationship benefits (F(1, 795) = 5.97, p = .015).

However, there was a non-significant interaction between the incentive type and role (F(1, 795) = .09, p = .76). For participants in the referrer condition, relationship benefits were significantly higher for the other-benefiting incentive than the self-benefiting incentive (M_{Other} = 4.62, SD = 1.09 vs. M_{Self} = 4.22, SD = .95; t(399) = -4.64, p < .001). Similarly, participants in the recipient condition, believed that relationship benefits would be higher when offered an other-benefiting incentive (M_{Other} = 4.76, SD = 1.00 vs. M_{Self} = 4.41, SD = .78; t(393) = -3.92, p <.001).

*Psychological Costs.* There was a marginally significant main effect of incentive type on psychological costs (F(1, 791) = 2.84, p = .092) and a significant main effect of participant role on psychological costs (F(1, 791) = 10.52, p = .001). We also found a significant interaction between incentive and role; (F(1, 791) = 20.89, p < .001). For participants in the referrer condition, psychological costs were significantly higher for the self-benefiting incentive than the other-benefiting incentive (M_{Selfish} = 2.45, SD = 1.61 vs. M_{Prosocial} = 1.85, SD = 1.41; t(392) = 3.91, p <.001). For participants in the recipient condition, psychological costs for not following through were higher for the other-benefiting incentive (t(391) = -2.42, p = .016).

**APPENDIX STUDY 2**

This appendix study was designed to replicate Study 4B.

*Methods*

The study used a 2(rewards: sender-benefiting vs. recipient-benefiting) x 2(control vs. anonymous) between-subjects design. 580 Mechanical Turk participants (M_{Age} = 35.01, 58.72%
Female) completed the study. This study used the same materials as Study 4B. We additionally measured relationship benefits, psychological costs, and social obligations (see Appendix Table 2 for follow-up results). We did not measure reputational benefits, because half of the participants made anonymous referrals.

**Results**

We found an interaction between referral condition (control/anonymous) and reward type (sender-benefiting /recipient-benefiting; $X^2(1) = 6.58, p = .01$). For participants in the control condition, we observed an equal number of referrals for the recipient-benefiting (88.74%) and the sender-benefiting referral reward (89.26%; $\chi^2(1) = .01, p = .89$). However, when the referral was anonymous, the sender-benefiting reward (92.62%) was significantly more successful than the recipient-benefiting reward (75.57%; $\chi^2(1) = 15.54, p < .001$).

**APPENDIX STUDY 2: REFERRAL CHOICE BY REWARD AND ANONYMITY**
## APPENDIX TABLE 2

<table>
<thead>
<tr>
<th>Anonymity Condition</th>
<th>Referral Reward Condition</th>
<th>Relationship Benefits (1-7)</th>
<th>Psychological Costs (1-7)</th>
<th>Social Obligations (1-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Named</td>
<td>Sender-Benefiting</td>
<td>4.15 (.69)</td>
<td>2.42 (1.56)</td>
<td>3.08 (1.67)</td>
</tr>
<tr>
<td></td>
<td>Recipient-Benefiting</td>
<td>4.41** (.89)</td>
<td>1.67*** (.95)</td>
<td>2.59** (1.59)</td>
</tr>
<tr>
<td>Anonymous</td>
<td>Sender-Benefiting</td>
<td>4.11 (.72)</td>
<td>2.23 (1.47)</td>
<td>2.83 (1.73)</td>
</tr>
<tr>
<td></td>
<td>Recipient-Benefiting</td>
<td>4.33* (.77)</td>
<td>1.89* (1.28)</td>
<td>2.81 (1.67)</td>
</tr>
</tbody>
</table>

† p < .10, *p < .05, **p < .01, ***p < .001; these significance notations refer to differences in mean evaluations for sender-benefiting referral rewards compared to recipient-benefiting referral rewards with standard deviations in parentheses. A° symbol next to the variable name indicates that there is a
significant interaction between anonymity condition and referral reward condition on this variable at a p < .05 level.

APPENDIX STUDY 3

As additional evidence for the role of reputational benefits in the choice to make a recipient-benefiting (vs. sender-benefiting) referral, we manipulated the relationship between referrer and recipient. We expect that, because the potential for reputational benefits is substantially reduced when the recipient is a stranger (instead of a friend), the performance of recipient-benefiting referrals will decline relative to sender-benefiting referrals in this case.

Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2V0j1De), we recruited 800 MTurk participants (810 participants completed the study; MAge = 35.91, 61.54% female). The study used a 2(referral: sender-benefiting vs. recipient-benefiting) x 2(referral recipient: friend vs. stranger) between-subjects experimental design. We used the same context as in Study 4A (Amazon BOLD referral), and the same incentive (a $10 Visa gift card). All participants were asked to give their first name and the first name of a close friend. We showed participants a sample referral email that Amazon was interested in sending to either 1) their close friend or 2) “a potential customer” (whom the participant does not know). In both conditions, we used the participant’s name in the sample email (e.g., One of our customers, Rosie, has been using our new loyalty program, Amazon BOLD, and wanted to share the savings with you!). Participants were then required to correctly identify who would receive a reward for a successful referral (themselves or the recipient) before they could move to the referral decision to confirm that they understood the incentive structure. We then asked, “Would you refer your friend [name of close friend inserted]/this potential customer, to Amazon BOLD”? (Yes/No).
Results

A binary logistic regression was performed on the choice to refer as a function of referral recipient type (friend/stranger) and incentive type (sender-benefiting/recipient-benefiting). This analysis yielded a significant interaction of recipient and incentive type ($\chi^2 (1) = 14.85, p < .001$). For participants in the friend condition, we observed an equal number of referrals for the recipient-benefiting (87.75%) and the sender-benefiting referral (87.00%, $\chi^2 (1) = 0.05, p = .82$). This pattern is consistent with results from studies 2 and 3. However, when referring a stranger, the sender-benefiting incentive (82.76%) was significantly more successful than the recipient-benefiting incentive (54.73%, $\chi^2 (1) = 35.78, p < .001$), consistent with standard incentivized behavior.

APPENDIX STUDY 3: REFERRAL CHOICE BY REWARD AND RECIPIENT

[Diagram showing referral choice by reward and recipient type]
APPENDIX STUDY 4

This appendix study was designed to replicate Study 5B with an additional manipulation of action cost.

Methods

As outlined in our pre-registered research plan (available at https://bit.ly/2GQ33ru), we recruited 800 MTurk participants; 818 completed the study (M_{Age} = 35.52, 50.86% female).

To further understand the uptake stage of the referral process, we had participants imagine that a friend sent them an email asking if they would like to try Food2Me (the same food delivery service described in Studies 3 and 5A). Participants provided their own first name and the first name of a close friend. We manipulated whether the referral was recipient-benefiting or sender-benefiting. We also manipulated action costs by directly varying the cost of uptake ($2 or $100 per year to join).

Participants then read, “The Food2Me restaurant delivery service costs [$100/$2] per year and you may cancel at any time. Would you sign up for the Food2Me delivery service? Remember if you join, [you/Friend] get(s) a free year of deliveries!” Participants could respond either “Yes, I would sign up for the Food2Me delivery service” or “No, I would not sign up for the Food2Me delivery service.”

Note that, as in Study 2, 3, 5A, and 5B, we told participants (recipients) in the sender-benefiting referral conditions that the friend who referred them would be rewarded if they followed through on the referral. We informed participants of this benefit to their friend to examine whether, even when recipients know that their friend will receive an incentive (which is not always the case in these incentive designs), sender-benefiting referrals have a minimal positive effect at the uptake stage due to the higher burden of follow-through. Participants were
required to correctly identify who would receive an incentive (themselves or their friend) before they could move to the uptake decision to confirm that they understood the incentive structure before making their uptake choice. Finally, as a manipulation check, we measured action costs ($\alpha = .78$).

Results

Manipulation Check. As expected, the high cost condition was perceived as having higher action costs than the low cost condition ($M_{\text{High-Cost}} = 3.83$, $SD = 1.39$ vs. $M_{\text{Low-Cost}} = 2.41$, $SD = 1.46$; $t(816) = 1.431$, $p < .001$).

Uptake decision. We performed a binary logistic regression on uptake decision as a function of uptake cost (high/low) and referral type (sender-benefiting/recipient-benefiting). This analysis yielded a significant interaction of uptake cost and incentive type ($\chi^2(1) = 5.49$, $p = .019$, Figure 8). For participants in the high-cost condition, we observed more sign-ups for the recipient-benefiting referral (51.94%) than the sender-benefiting referral (34.76%, $\chi^2(1) = 12.37$, $p < .001$), consistent with Studies 2-3 as well as typical incentivized behavior. However, when uptake cost was low, there was no difference in uptake choice by those in the recipient-benefiting condition (69.84%) versus the sender-benefiting condition (69.50%, $\chi^2(1) = .004$, $p = .95$).

APPENDIX STUDY 4: UPTAKE CHOICE BY ACTION COST (HIGH/LOW) AND INCENTIVE (SENDER-BENEFITING/RECIPIENT-BENEFITING)
APPENDIX STUDY 5

This exploratory study was designed to test whether the attractiveness of a service moderates the effect of sender-benefiting and recipient-benefiting incentives on referral choice. Specifically, if a company has received negative press, do sender-benefiting incentives become more effective at motivating referrals, because the referring customer needs an additional nudge to refer? Alternatively, are recipient-benefiting incentives more effective for companies that have received negative press because the sender anticipates that the positive response from sending a reward will balance out the unfavorable response of referring a brand that is viewed negatively? To test this question, we varied the referred service using two rideshare companies: Lyft (the desirable company, reinforced by telling participants, truthfully, that the company had received widespread positive press) versus Uber (the undesirable company, reinforced by telling participants, truthfully, that the company had received widespread negative press).

Methods

We recruited 915 MTurk participants ($M_{age} = 38.45, 55.25\%$ female). The study used a $2$(referral: sender-benefiting vs. recipient-benefiting) x $2$(service: negative press [Uber] vs. positive press [Lyft]) design.
positive press [Lyft]) between-subjects experimental design. All participants were asked to give their first name and the first name of a close friend. We had participants imagine the following: “You have been using Uber [Lyft], an alternative to taxicabs, which sends a driver directly to your location”. Participants in the Uber condition then read the following: “While Uber is a convenient service, lately they have received widespread negative press for having a toxic work culture and not offering their employees the same benefits that their competitors provide”. Those in the Lyft condition read, “Lyft is a convenient service and lately they have received widespread positive press for having a good work culture and offering their employees better benefits than their competitors”. Participants were then told that the service has a promotion that is either sender-benefiting (“gives you a $10 Visa gift card for every person that you refer to Uber [Lyft] who then takes their first Uber [Lyft] ride”) or recipient-benefiting (“gives a $10 Visa gift card to each individual that you refer to Uber [Lyft] who then takes their first [Uber] Lyft ride”). Participants read a sample email that would be sent to their friend if they chose to refer. In both conditions, we used the participant’s name in the sample email (e.g., Rosie, has been riding with Lyft and thought you might enjoy it too. They then read, “Imagine that your friend, [Friend’s name], has never used Uber [Lyft] before. Would you refer [Friend’s name] to Lyft?” Participants could respond either “Yes, I would refer my friend” or “No, I would not refer my friend”.

We used two additional measures to verify that our negative press manipulation was successful by asking “How do you feel about the driving app, Uber [Lyft]”, 1) “I would be proud to support Uber [Lyft]” and 2) “Uber [Lyft] is a good company” (1 = Not at all, 7 = Very much so; $\alpha = .92$).
**Results**

*Manipulation Check.* As expected, there was a main effect of the negative press manipulation; Uber was viewed more negatively than Lyft ($F(1, 911) = 219.11, p < .001$). There was no main effect for the incentive type on the evaluation of the company ($F(1, 911) = .01, p = .92$). There was a non-significant interaction of negative press and incentive type ($F(1, 911) = .08, p = .78$). In the Uber (negative press) condition, there was a non-significant difference in perception of the company between incentive types ($M_{\text{Recipient-Benefiting}} = 3.77, SD = 1.52$ vs. $M_{\text{Sender-Benefiting}} = 3.81, SD = 1.48$; $t(457) = .26, p = .79$). In the Lyft (positive press) condition, there was also a non-significant difference between incentive types ($M_{\text{Recipient-Benefiting}} = 5.19, SD = 1.31$ vs. $M_{\text{Sender-Benefiting}} = 5.17, SD = 1.34$; $t(451) = -.14, p = .89$).

*Referral decision.* A binary logistic regression was performed on the choice to refer as a function of incentive type (sender-benefiting/recipient-benefiting) and the press manipulation (negative/positive). This analysis did not yield a significant interaction of incentive type and press manipulation ($\chi^2 (1) = 2.20, p = .14$). For participants in the Uber (negative press) condition, we did not observe a difference in referral choice for the recipient-benefiting (70.94%) and the sender-benefiting incentive (65.35%, $\chi^2 (1) = 1.66, p = .20$). When referring to a company with positive press (Lyft), the recipient-benefiting incentive (90.75%) was significantly more successful than the sender-benefiting incentive (81.86%, $\chi^2 (1) = 7.33, p = .007$).

**APPENDIX STUDY 5: REFERRAL CHOICE BY REWARD AND SERVICE**
Discussion

To summarize, this study found no interaction of incentive type and negative press on the choice to refer a friend to a company. Future work might continue to explore boundary conditions: Are there companies or products for which sender-benefiting incentives are more effective at motivating customers to refer than recipient-benefiting incentives?
References


USAID. “Why Cash is Best,” USAID Center for International Disaster Information CIDI. June 2017, https://www.cidi.org/how-disaster-relief-works/monetary-contributions-work-bestwhy-cash-is-best/#.Wh2rOGhSxPY.


Yang, Adelle, Christopher Hsee, and Oleg Urminsky (2014), “Eager to Help yet Reluctant to Give: How Pro-social Effort and Pro-social Choices Diverge.”